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PREFACE

VIET NAM is a tropical country with different climatic and geographical features in its various regions. It has an abundance of diverse natural resources. Eighty per cent of the population live and work in the countryside ; a large number of minority ethnical groups are scattered in the forest highlands. The inhabitants in these places have certain difficulties in gaining access to modern medicines. However, Viet Nam possesses an age-old traditional system of medicine - a precious heritage handed down from times immemorial. Medicinal plants and herbal drugs have made a tremendous contribution to national health and development from the very beginning. For a very long time, the Vietnamese people, especially in the countryside and the mountains, have used locally available medicinal plants for medical treatment and have eaten certain vegetables and spices for health protection as well as sustenance.

The aim of this publication is to help the reader identify medicinal plants easily and thereby to be able to pass on information about the common medicinal plants available locally to those interested in their collection and use. It also aims at informing the reader as to how medicinal plants can be used for treating common diseases and complaints, in an attempt to enhance primary health care and achieve the objective of health for all by the year 2000 in a simple, economical way.

It is our conviction that the 200 medicinal plants presented in this volume will be helpful to our colleagues in the public-health sector and to ordinary readers in Viet Nam in their studies and in the practical use of medicinal plants.

The original version of this book was published in Vietnamese. It is our fervent wish that this English version will contribute to the exchange of information on the use of medicinal plants between Viet Nam and other parts of the world, particularly those countries where the same flora can be found.

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THIS publication has been prepared under the guidance of Professor Nguyen Van Dan, Vice-Minister of Health of Viet Nam and Professor Doan Thi Nhu, both of whom are former directors of the Institute of Materia Medica.

The illustrations were prepared by Bui Xuan Chuong. The texts were developed by Do Huy Bich and Nguyen Tap for botany ; Pham Kim Man and Le Tung Chau for chemistry ; Do Trung Dam and Pham Duy Mai for therapeutic uses ; Nguyen Thuong Thuc and Pham Thi Kim for processing and preparation. The book was translated by Nguyen Tuong Dung and others.

Its publication has been made possible by the encouragement of the Ministry of Health of the Socialist Republic of Viet Nam and the commitment of the World Health Organization, to which we tender our grateful thanks for its generous financial support. Thanks must also go to the Scientific and Technical Publishing House for its assistance in producing it.

Institute of Materia Medica and the authors

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AUTHORS' NOTE

NATURE has blessed Viet Nam with a great variety of medicinal plants. Practical use and scientific research have shown medicinal plants in Viet Nam to be effective in curing common diseases and even some difficult ailments. Medicinal plants constitute a basic component in the traditional system of medicine and pharmacy. They are both a source of medicaments for the country's own requirements and a valuable export commodity.

Surveys have revealed that 1863 species of medicinal plant are to be found in Viet Nam, some rare and valuable, some common.

In the last few decades, a great number of monographs and publications on medicinal plants have been published. The present book "Medicinal Plants in Viet Nam" presents a collection of 200 medicinal plants with coloured illustrations and a list of therapeutic uses. The art-work in the book has been done with careful attention to every detail. Specimen plants were meticulously selected and arranged for the paintings and every effort has been made to reproduce their true natural colours.

The book is in three parts :

Part 1

This part gives a general introduction to the multidisciplinary research that has been undertaken on medicinal plants.

Part 2 - Medicinal Plants

Common and valuable species of wild and cultivated medicinal plants are presented in alphabetical order of their scientific names.

Part 3 - Indexes

This part contains indexes of scientific, local and English names for ease of reference.

The Editorial Board and the authors would be grateful for readers' comments on the contents of this publication and on any gaps they might find in it, so that improvements can be introduced into any future edition.

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INTRODUCTION

I. SCIENTIFIC RESEARCH ON MEDICINAL PLANTS

Viet Nam has adopted a policy of developing a national system of medicine and pharmacy by integrating the modern and traditional systems. Scientific research on medicinal plants is playing an active part in achieving this policy of integration.

A. ACHIEVEMENTS.

1. Medicobotanical investigations.

1863 plant species in 238 families have been identified and nearly 8000 specimens of 1296 species collected. Over 1000 species have been listed in an index giving the flowering period of each species. A list of about 1000 folk remedy prescriptions has also been compiled.

A number of useful monographs have already been published such as : Index of Medicinal Plants from North Vietnam ; Handbook of Medicinal Plants in Vietnam ; Guide for Conservation, Regeneration and Utilization of Medicinal Plants ; Index of Medicinal Plants in Viet Nam ; Flowering Period of Medicinal Plants ; Folk Remedy Prescriptions ; Atlas of Medicinal Plants.

Areas where medicinal plants are concentrated provide a basis for the establishment of conservation and regeneration zones in which resources can be safeguarded for long-term use.

2. Acclimatization and cultivation of medicinal plants.

(a) Domestication of wild medicinal plants.

Wild plants of high therapeutic value and in great demand as raw materials for the preparation of medicaments, but whose natural regeneration failed to meet the actual need were investigated to see whether they could be cultivated. Agrotechnology studies based on popular empirical knowledge were carried out to develop cultivation practices, which were then popularized so that the plants could be grown on collective farms and on small private farms as well.

Wild plants now cultivated include Huong nhu trang (*Ocimum gratissimum* L.), Ich mau (*Leonurus artemisia* (Lour.) S.Y. Hu), Hy thiem (*Siegesbeckia orientalis* L.), Cu mai (*Dioscorea persimilis* Prain et Burkill), Tuc doan (*Dipsacus*

japonicus Miq.), Sam đai hanh (*Eleutherine subaphylla* Gagnep.), Ha thu o đo (*Polygonum multiflorum* Thunb.), Dau giun (*Chenopodium ambrosioides* L.), Dua can (*Catharanthus roseus* G. Don) and Đang sam (*Codonopsis javanica* (Blume) Hook. f.).

(b) Acclimatization of exotic medicinal plants.

Hundreds of foreign plant species have been introduced and studied over many years with a view to acclimatizing them. About 70 species have become adapted and developed stable growth under climatic conditions in Viet Nam. Bach truat (*Atractylodes macrocephala* Koidz.), Sinh đia (*Rehmannia glutinosa* Libosch.), Duong qui (*Angelica uchyamana* Yale), Bach chi (*Angelica dahurica* Benth. et Hook.f.), Huyen sam (*Scrophularia ningpoensis* Hemsl.), Nguu tat (*Achyranthes bidentata* Blume), Xuyen khung (*Ligusticum wallichii* Franch.) and Bac ha (*Mentha arvensis* L.) have been widely cultivated. Agrotechnological processes for cultivating Do trong (*Eucommia ulmoides* Oliv.), Hoang ba (*Phellodendron amurense* Rupr.), Duong đia hoang (*Digitalis purpurea* L.), and *Dioscorea spp.* have been developed and propagation and pilot cultivation of these plants are in progress. The results thus obtained are promising ; several plants produce good yields so that they can meet the needs for drug production in the country.

3. Multidisciplinary research on drug development from medicinal plants.

Multidisciplinary plant studies, covering chemistry, pharmacology, biochemistry, microbiology, galenical formulation, standardization, clinical trials and production technology have resulted in technical processes being developed for producing semi-finished products and medicaments from indigenous medicinal plants.

- Bac ha (*Mentha arvensis* L.), Que (*Cinnamomum cassia* Blume), Tram (*Melaleuca leucadendra* L.) yield essential oils and their products : eugenol, aromatic balm and medicated oils.

- Cardiac tonics are derived from Sung de (*Strophanthus divaricatus* (Lour.) Hook. et Arn.) and Thong thien (*Thevetia peruviana* (Pers.) K. Schum.).

- Anti-arteriosclerosis drugs are derived from Nguu tat (*Achyranthes bidentata* Blume) and Nghe (*Curcuma domestica* Valet.).

- Anti-hypertensive drugs are extracted from Ba gac (*Rauvolfia spp.*).

- Haemostatic drugs are prepared from Hoe (*Sophora japonica* L.) and Nho noi (*Eclipta alba* Hassk.).

- Drugs to treat cold and fever are derived from Bach chi (*Angelica dahurica* Benth. et Hook.f.), Dia lien (*Kaempferia galanga* L.) and San day (*Pueraria thomsonii* Benth.).

- Anti-dysenteric and anti-diarrhoeal drugs are made from Vang dang (*Coscinium fenestratum* Colebr.), Hoang dang (*Fibraurea recisa* Pierre), Muc hoa trang (*Holarrhena antidysenterica* (Roxb. ex Flem.) A. DC.), Ba che (*Desmodium triangulare* (Retz.) Merr.) and Van moc huong (*Aucklandia lappa* Decne).

- Anti-gastric ulcer and choleretic drugs are derived from Nghe (*Curcuma domestica* Valet.), Bach truat (*Atractylodes macrocephala* Koidz.), Ca doc duoc (*Datura metel* L.), Bo bo (*Adenosma indianum* (Lour.) Merr.) and Actiso (*Cynara scolymus* L.).

- Anxiolytic drugs are made from Binh voi (*Stephania spp.*) and Vong nem (*Erythrina variegata* L.).

- Restorative tonics are derived from Tam that (*Panax pseudo-ginseng* Wall.), Sam vu diep (*Panax bipinnafidus* Seem.), Duong qui (*Angelica uchyamana* Yale), Ha thu o do (*Polygonum multiflorum* Thunb.), Ba kich (*Morinda officinalis* How), Gac (*Momordica cochinchinensis* (Lour.) Spreng) and Ngu gia bi chan chim (*Schefflera octophylla* (Lour.) Harms.).

Some of the above-mentioned drugs have been produced on different scales and at different technological levels.

B. ADVANCES IN RESEARCH ORGANISATION AND THE APPLICATION OF MODERN METHODS AND TECHNICAL PROCESSES TO MEDICINAL PLANT RESEARCH.

1. Phytochemical studies :

Thorough studies have been carried out to determine the chemical composition of medicinal plants so as to identify the active chemical ingredient. New constituents were found in Rau hum (*Tacca chantrieri* André), Sam đai hanh (*Eleutherine subaphylla* Gagnep.) plants and Vuong tung (*Murraya glabra* Guill.), Bo bo (*Adenosma indianum* (Lour.) Merr.) and Sa nhan (*Amomum villosum* Lour.) essential oils.

As for extraction technology, processes to stabilize and enrich active principles in the extracts have been developed by the use of modern techniques. Enzyme conversion or chemical catalysis methods were applied to the extraction of cardiotonic glycosides, steroids and other active principles. Infrared radiation, ultraviolet spectrophotometry, nuclear magnetic resonance, thin-layer-chromatography, gas chromatography and high-pressure liquid chromatography have been increasingly used in chemical analysis.

2. Pharmacological and toxicological studies :

Techniques of electrophysiology, biochemistry, histology and microbiology have been extensively used. E.C.G., E.E.G. and conditioned-reflex methods have been used in studies of neuro-active and cardiovascular drugs. Several highly sensitive and precise methods have been standardised.

Many experimental models of various pathogenic mechanisms used in assessing the therapeutic efficacy of the plants on diseased animals add more reliability and reproducibility to the results obtained in pharmacological studies and clinical trials. New discoveries have been made on the pharmacological activity of wild plants and imported species such as Sam dai hanh (*Eleutherine subaphylla* Gagnep.), Nguu tat (*Achyranthes bidentata* Blume) and Cham meo (*Strobilanthes cusia* (Nees) Imlay).

3. Agrotechnology studies :

Many species of medical value have been imported and subjected to intensive plant selection and protection studies. The biochemistry of the plants has been studied and certain technical processes have been introduced to increase the content of active principle in the plants. A newly-founded Tissue Culture Laboratory has provided facilities to carry out variety breeding and clonal propagation.

4. Standardisation of medicinal herbs and the finished products derived from them :

To ensure the quality and therapeutic efficacy of herbal drugs, a Viet Nam Pharmacopoeia with national standards for 215 plants commonly used in traditional medical practice and 27 indigenous medicines prepared from medicinal plants has been published by the Viet Nam Committee for the Pharmacopoeia.

The monographs on medicinal plants, in addition to protocols for quality control, testing methods and storage, also include regulations on processing and formulation methods, properties, therapeutic efficacy, usage, dosage rates and contraindications.

For less common plants, branch and institution-level standards have been established.

II. INVENTORY, EXPLOITATION AND UTILISATION OF MEDICINAL PLANTS

Viet Nam has a long sea coast, long rivers and a multitude of forested mountains with an abundance of diverse plant species. Amongst the myriad plants, many species can be used for medical treatment. Indigenous drugs are available everywhere - in the sea, in the forests or in the immediate vicinity of dwellings.

Three-quarters of the area of Viet Nam is covered with forests and mountains. It is possible to find there not only such common plants as Co tranh (*Imperata cylindriea* (L.) Beauv.) and Ma de (*Plantago major* L.), but also valuable species such as Sa nhan (*Amomum villosum* Lour.), Vang dang (*Coscinium fenestratum* Colebr.) and Ma tien (*Strychnos nux-vomica* L.)...

The 2500 km of seacoast yields seaweeds of nearly 300 species, many of which are used as drugs, such as Rong mo (*Sargassum spp.*), Rau cau (*Gracilaria*) and Tao xanh (*Spirolina*). In addition there are about 250 species of seashore medicinal plants such as Man kinh (*Vitex trifolia* L.f.) and Dua can (*Catharanthus roseus* (L.) G. Don).

Many plants of therapeutic value are also available in the neighbourhood of dwelling places. Nho noi (*Eclipta alba* Hassk.), Rau ma (*Centella asiatica* (L.) Urban) and Co gau (*Cyperus rotundus* L.) grow wild everywhere. Vegetables and spices, such as onion, garlic, cabbage, Rau ngot (*Sauropus androgynus* (L.) Merr.) ; fruit trees such as lime, citrus, peach and jujube ; such food plants as maize, potato and manioc, and even ornamental plants like Dinh lang (*Tieghemopanax fruticosus* Vig.), Trac ba (*Biota orientalis* (L.) Endl.), Phu dung (*Hibiscus mutabilis* L.) and orchids Thach Hoc (*Dendrobium nobile* Lindl.), Hoang thao (*Dendrobium sp.*) - are all found to possess curative effects.

260 species of foreign origin have been imported to enrich the medicinal plant resources of the country. Many of them become acclimatized and develop fairly well in Viet Nam, such as Bach chi (*Angelica dahurica* Benth. et Hook. f.), Bach truat (*Atractylodes macrocephala* Koidz.) and Duong qui (*Angelica uchyamana* Yale).

From the health economics point of view, it is of great importance to carry out inventory surveys of medicinal plants, to exploit them rationally and to use them properly.

Inventory work involving country-wide medicobotanical surveys has been undertaken since 1961. In spite of many difficulties and constraints, from being a small working unit doing minor, irregular jobs, the Division of Botany in charge of inventory surveys has rapidly developed and has a comprehensive research programme. The inventory results so far published bear witness to the remarkable progress made in the last 25 years.

1863 species of 238 plant families have been found and a collection has been amassed of nearly 8000 specimens consisting of rare species, commercially valuable species, plants being researched and plants commonly used in folk medicine. Most of the plants are wild species, many of them formerly assumed to be absent from Viet Nam. Numerous plants are specific to particular regions and areas. Some plant species believed to be common and abundant and to have valuable properties were discovered to be severely depleted.

The flowering periods of more than 1000 species have been studied and indexed month by month. By referring to the Index it is possible to fix times for botanical surveys and draw up plans for medicinal - plant collection and harvesting. As a

result of the surveys, a list of hundreds of folk remedies was compiled and thousands of paintings and photographs of medicinal plants were made.

Data on the exploitation of medicinal plants in nature are collected to show the number and volume of exploited species. The ever-growing need for medicinal plants for domestic use and export is partly satisfied. Nearly 400 medicinal plants are collected and procured in bulk every year. These are mainly wild plants, including such valuable species as Ba kich (*Morinda officinalis* How), Hoi (*Illicium verum* Hook.f.), Ma tien (*Strychnos nux-vomica* L.) and Sa nhan (*Amomum villosum* Lour.). Common plants, such as Lac tien (*Passiflora foetida* L.), Kim ngan (*Lonicera japonica* Thunb.), La lot (*Piper lolot* C.DC.) and Ke dau ngua (*Xanthium strumarium* L.), provide an adequate supply to meet the needs of traditional medical treatment.

However, certain problems of irrational exploitation of medicinal plants still subsist.

1. The exploitation rate is always faster than the regeneration rate and this rapidly reduces the availability of the plants in nature.

2. Medicinal plants are exploited for other than medical uses. Indiscriminate use of the plants to make furniture or woodcarvings or even as fuel is disastrous. Medicinal plants are also destroyed by fires, lumbering and slash-and-burn farming practices.

3. As a result of all these factors, stocks of medicinal plants are becoming impoverished and their distribution areas greatly reduced.

It is therefore vitally necessary to combine exploitation with conservation, so as to ensure the natural regeneration and development of medicinal plants.

The use of natural resources in medical treatment and health care has an age-old history. Our ancestors painstakingly sought out, identified and selected many plants of use in therapy. The resources of medicinal plants in Viet Nam, therefore, gradually became even more valuable as our knowledge of their properties increased through their empirical use.

Inheriting and carrying forward the national traditions, the Vietnamese people has built on this valuable experience. During the wars of resistance to foreign invasions many medicinal plants proved to be a "cure" on the battlefield, such as Thuong son (*Dichroa febrifuga* Lour.) for malarial fever ; Mo qua (*Maclura cochinchinensis* (Lour.) Corner), Day khai (*Coptosapelta flavescens* Korth), and Lan tơ uyn (*Rhaphidophora decursiva* (Roxb.) Schott), which possess antibacterial and wound-healing properties ; wild banana shoots used as a haemostatic ; Beo tay (*Eichhornia crassipes* Solander) against chemical sprays ; and the stem-bark of the Den plant (*Xylopia vielana* Pierre) prepared as an elixir. Medicinal plants are also recommended for use in grassroot-level medical establishments in the programme of commune-based medicinal-plant development. The percentage of herbal medicines prescribed in treatment is increasing. Several places have already succeeded in using hundred per cent plant-based drugs. This considerably reduces the burden of the State subsidy on medicines. So far, thousands of communes have achieved the percentage of herbal drugs to be used in treatment set by the Ministry of Health. This programme has expanded not only at commune level but also at district level.

The successful combination of modern and traditional medicine has given impetus to the gradual modernization of herbal medicine to facilitate handling and promote exports. Some medicines are produced from plant extracts and purified products. Several herbal drugs are exported as finished or semi-finished products. Essential oil and perfume production has thriven in recent years. Modern equipment has been introduced for the industrial production of indigenous medicines. More herbal medicaments have been produced from indigenous medicinal plants. These medicines can now be used as substitutes for the western drugs and Chinese herbs, formerly imported.

Viet Nam is a real treasure - house of medicinal plants. The more insight he gains into his country's natural potential, the prouder each Vietnamese feels about his homeland. Everyone should be fully conscious of his responsibility to safeguard and develop the priceless natural resources represented by medicinal plants.

III. THE DRYING, PROCESSING AND STORAGE OF MEDICINAL PLANTS

A. THE DRYING OF MEDICINAL PLANTS.

1. Sun / air - drying :

Medicinal plants are spread in thin layers on flat winnowing baskets or trays placed on stands in full sun. For plants sensitive to solar heat, air-drying is recommended ; herbs should be dried out of the sun in well-ventilated places on winnowing baskets or trays placed on shelves. Medicinal plants can be tied up in small bundles and hung up to dry on series of lines running the whole length of a room. A drying room should be damp-proof with numerous windows and openings to assure good aeration. Plants yielding no essential oil can be exposed to light sunshine for a few hours before further drying in the shade.

2. Heat - drying :

Medicinal plants may be dried with hot air in an oven or drying room. The air warmed by the heater rises by thermal convection, comes into contact with the plants, extracts moisture from them and gradually dries them out.

There are different types of drying rooms :

(a) Intermittent drying room : batchwise drying operation.

(b) Continuous drying room : the fresh plants to be dried are placed on a conveyor belt at one end of the room, and move slowly towards the other end in a stream of hot air blown from the opposite direction. The speed of the conveyor and of the stream of hot air must be so calculated that the herbs are completely dry by the time they reach the other end of the room. Drying temperatures, which vary from herb to herb, range from 40 to 70^0 C. For plants containing essential oil, volatile compounds or sublimates the drying temperature must not exceed 40^0 C.

B. THE PROCESSING OF MEDICINAL PLANTS.

Certain medicinal plants need to be processed before use so as to :

1. make the drug more potent or diminish its toxicity ;

2. eliminate unwanted properties or adverse side-effects ;

3. improve the smell and taste of the drugs for ease of administration ;

4. assure better storage and shelf-life.

Some common processing methods are described below :

(a) Processing by fire.

1. Baking : Medicinal plants are directly exposed to scorching heat or live coals or baked with dry heat in earthenware pots or cast-iron pans.

2. Ash-roasting : Medicinal plants are wrapped up in moistened rice-paper or coated with thin dough and buried under hot ash until the covering material is charred. The herb is allowed to cool down ; the burnt-out shell is then removed. It is this shell that absorbs any oils present in the plants.

3. Roasting (torrefaction) : Medicinal plants are roasted in cast-iron pans over a low fire until they are burnt yellow or slightly charred, depending on the plant concerned. Normally, roasted herbs acquire an aromatic flavour and are better absorbed by the internal organs of the body (viscera). Torrefaction gives the herbs wax-absorbing and haemostatic properties. A characteristic of torrefaction is that herbs retain their original shape and are not reduced to ash.

4. Impregnation : Medicinal plants are impregnated with honey, vinegar, salt, alcohol or ginger, before being roasted or cooked to a crisp.

5. Crisping : Medicinal plants are cooked over an open fire until they are dried to a crisp, the intensity of the heat depending on the plant being processed.

(b) Water treatment.

Water treatment is employed to soften medicinal plants for easy cutting or to eliminate toxicity and reduce the potency of the drug.

1. Washing : Medicinal plants are washed clean but washing must not be too prolonged.

2. Soaking : Medicinal plants may be soaked to eliminate any unpleasant smell or reduce their bitterness.

3. Rinsing : Cool or hot water is poured over the medicinal plants, which are then left to dry. They will then be easier to peel and cut into slices.

4. Precipitation : Pounded plants are dissolved in water ; the solution is then stirred well before being left to form a precipitate. The water is then drained off, leaving a powdery deposit.

(c) Fire and water processing.

1. Steaming : A double steamer is loaded with medicinal plants, which are cooked by the hot steam rising from the bottom portion.

2. Boiling : Medicinal plants are boiled with water or the juice of other plants over a low fire until they are cooked.

3. Tempering : Medicinal plants are exposed to a very high temperature and then immediately quenched in cold water or the juice from another plant.

4. Decoction : Plants are boiled in water to extract the active principle ; the water is then evaporated to leave a concentrate of the active substance.

5. Distillation : A liquid is turned to vapour by heating ; the vapour is then cooled and the condensate collected. This process is usually applied in essential oil production.

C. THE STORAGE OF MEDICINAL PLANTS.

Medicinal plants must be kept under good conditions of storage in order to preserve their properties. There are five major factors that affect the quality of medicinal herbs.

1. Moisture :

The average relative humidity in Viet Nam is above 85 per cent. In February, March, April, July and August, the weather is very wet. The excessive moisture

causes fungi, moulds and pests to develop in the herbs. They then give off heat and their active principles are lost.

To control the risk, moisture must be eliminated either from the herbs or from the atmosphere. Medicinal herbs must be dried thoroughly, until they contain only 10 - 12% moisture, which is considered to be the safe percentage. 15% moisture content is permissible in the case of roots (radices) or sugar-containing herbs. Storehouses must be clean and well-aired. Quicklime, silica gel or roasted rice are used as desiccants. Air-tight packaging is desirable, wooden boxes, drums and earthenware jars being used.

2. Temperature :

The optimum temperature for medicinal herb storage is 25^0C. High temperature evaporates the essential oils contained in herbs and also decomposes lipid-containing herbs, giving them a sharp bitter taste. Storage places must be well-ventilated. Transport must be fast and prompt. Loading and unloading must be done in shady, cool places. When stored, herbs must be periodically moved, sorted and graded.

3. Shelf - life :

Prolonged shelf storage is labour-consuming and may lead to a deterioration in quality. It is recommended that stored herbs be distributed every year as the new crops become available.

4. Packaging :

Appropriate packing materials, dust-free and water-proof, are used to contain particular herbs. Herbal drugs are usually kept in fibre sacks or reed-bags. Seeds prone to infestation by pests and insects, or essential oils containing herbs, are packed in wooden cases. Precious items are stored with desiccants in hermetically sealed tin boxes.

5. Fungi, mould and insect pests :

Together with moisture controls, checking to detect mould development must be regularly carried out. Prompt isolation and treatment of the infected herbs must be done forthwith. Storerooms with mould-infected drugs must be chemically sterilized. Pests can be controlled by sun-drying, heat-drying or the use of chemical methods such as fumigation or sterilization with aluminium phosphide. If chemicals are used, safety precautions must be taken to prevent poisoning.

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N O T I C E

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1 Abrus precatorius L. Leguminosae

Local names : Cam thảo dây, dây chi chi, cườm thảo, tương tư đằng, cảm sảo (Tày).

English names : Jequirity, Indian liquorice, wild liquorice, crab-eye vine, coral pea, prayer beads, rosary pea.

Description : Beautiful perennial climber. Young twigs covered with sparse villi. Leaves paripinnate, alternate ; leaflets opposite, increasing slightly in size from the base. Inflorescence in axillary pendunculate raceme ; flowers pink. Pod turgid, with a sharp deflected beak. Seeds 3 - 7, ovoid, bright scarlet with a black spot at the hilum.

Flowering period : June - August.

Distribution : Grows wild in mountainous regions ; also cultivated.

Parts used : The roots, leaves and stem are collected in autumn during the flowering period. They are used fresh or dried. The seeds are toxic and only used externally.

Chemical composition : The seeds contain a toxalbumin : (L+) abrin, a glucoside : abralin, a haemagglutinin ; N-methyltryptophan and urease. The roots and leafy stems contain glycyrrhizin.

Therapeutic uses : The roots, the stem and the leaves are effective in the treatment of coryza, cough, fever, jaundice resulting from viral hepatitis, and intoxications. They are used as an edulcorating agent in composite recipes. The daily dose is 8 to 16g in the form of a decoction. The seeds, very toxic, are applied externally in an antiseptic and anti-inflammatory poultice to accelerate the bursting of boils and to cure mastitis and galactophoritis.

2 Abutilon indicum (L.) Sweet **Malvaceae**

Local names : Cối xay, giàng xay, quỳnh ma, co tó ép (Thái), phao tôn (Tày).

English names : Country mallow, Indian mallow, Indian abutilon.

Description : Perennial shrub, hoary-stellate tomentose, 1-1,5m. high. Leaves alternate, cordate, toothed, long-petioled. Flowers yellow, solitary in the axil of the leaves ; pedicel long, jointed near the top. Carpels numerous, hairy, dark brown. Seeds reniform, glabrous, dull black.

Flowering period : February - April.

Distribution : Wild and cultivated species.

Parts used : The whole plant is collected in summer and autumn and used fresh or dried.

Chemical composition : The whole plant contains mucilaginous substances and asparagine. The seeds yield raffinose and a semi-drying oil consisting of linoleic, oleic, palmitic and stearic acids.

Therapeutic uses : The roots and leaves are employed in the treatment of coryza, hyperthermia, headache, dysuria and metrorrhoea, in a daily dose of 4 to 8g of dried plant material in the form of a decoction. The juice of pounded fresh leaves and seeds internally applied is active on furunculosis, dysentery and snake-bite ; the residue is used for poultices. The dose of seeds is 8 to 12g per day. A combination with some other plants is prescribed for jaundice and certain post-partum diseases.

3 Acanthopanax trifoliatus (L.) Merr. Araliaceae

Local names : Ngũ gia bì gai, ngũ gia bì hương, pop tưn, pop dinh (Tày), co nam slư (Thái).

Description : Rigid shrub, diffuse. Stems ascending, spiny. Leaves alternate, 3 - 5 - palmifoliate ; leaflets with margins toothed and spines on the nerves. Inflorescence in terminal panicle of some umbels ; flowers small, greenish-white. Fruit globose, black when ripe. All parts of the plant are particularly fragrant.

Flowering period : September - November.

Distribution : Grows wild in mountainous regions, occasionally found on the forest-edge.

Parts used : The root bark and stem bark are collected in summer and autumn. The bark is wrapped to bring out the aroma then subjected to thorough air-drying.

Chemical composition : The root bark and stem bark contain triterpenoid saponins and oleanolic acid.

Therapeutic uses : The root bark and stem bark are prescribed in the treatment of rheumatism, lumbago, ostealgia and impotence. The drug is also considered as a central nervous system stimulant and tonic. It improves the memory. The usual dose is 6 to 12g per day in the form of a decoction or tincture.

4 Achyranthes aspera L. **Amaranthaceae**

Local names : Cỏ xước, nguru tất nam, nhả khoanh ngù (Tày), co nhả lìn ngu (Thái), thín hồng mía (Dao).

English name : Prickly chaff-flower.

Description : Herbaceous plant about 1m. high. Stems erect, pubescent, swollen at the nodes. Leaves opposite, short-petioled, margins undulate. Flowers numerous, stiffly deflected against the pubescent rachis in elongate terminal spike, 20 - 30cm. long. Utricle oblong-cylindrical, enclosed in the hardened perianth, brown. Seeds oblong-ovoid.

Flowering period : July - December.

Distribution : Grows wild along roadsides.

Parts used : The whole plant, especially the roots. Collected throughout the year, they are carefully washed and sun-dried or heat-dried.

Chemical composition : The roots contain triterpenoid saponins that on hydrolysis give oleanolic acid and a sugar portion consisting of glucose, galactose and rhamnose.

Therapeutic uses : The whole plant and especially the roots, characterized by their anti-inflammatory and uterine stimulant activity, are prescribed in the therapy of rheumatism, contusions, lumbago, osteodynia, dysuria, post-partum haematometra and dysmenorrhoea. The daily dose is 8 to 16g in the form of a decoction. The drug is used on its own or in combination with some other plants.

5 Achyranthes bidentata Blume **Amaranthaceae**

Local names : Nguru tất, hoài nguru tất.

Description : Perennial herbaceous plant, 60-80cm. high. Tuberous roots long, cylindrical. Stems angular, swollen at the nodes. Leaves opposite, elliptic to linear-lanceolate, short-petioled, with margins undulate. Inflorescence in terminal spike ; flowers greenish-white, numerous, deflected against the rachis. Utricle oblong-cylindrical, one-seeded.

Flowering period : May - July.

Distribution : An introduced species, it is cultivated in the plains.

Parts used : The tuberous roots, collected in winter and spring, are exposed to the sun until half-dried, then wrapped up for 7 days until the skin is seamed with wrinkles. They are subjected to sulfur fumigation and further drying. The drug is normally used unprocessed but sometimes before being used it is soaked in alcohol and torrefied until it becomes yellow.

Chemical composition : The tuberous roots contain triterpenoid saponins, the genin of which is oleanolic acid ; ecdysterone, inokosterone, β-sitosterol, stigmasterol.

Therapeutic uses : The roots possess anti-inflammatory, hypo-cholesterolaemic, hypotensive and uterotonic properties. The drug is indicated for rheumatism, lumbago, dysmenorrhoea, hypertension, hypercholesterolaemia, atherosclerosis, dysuria, haematuria, contusions, congestion and sore throat. It is also used as an oxytocic in dystocia, placenta retention and post-partum haematometra. It is prescribed in a dose of 6 to 12g per day in the form of a decoction.

6 Aconitum fortunei Hemsl. **Ranunculaceae**

Local names : Ô đầu, củ gấu tàu, phụ tử, cố y (H'mông), co ú tàu (Thái).

Description : Perennial herbaceous plant, 0.6-1m. high. Roots paired, tuberous, conical with mother-tuber and daughter-tuber. Stem erect, cylindrical, glabrous. Leaves of two kinds : the lower cordate, crenated ; the upper 3- palmatipartite, sharply denticulate. Inflorescence in terminal raceme ; flowers blue. Follicles : 5, sessile, oblong, divergent. Seeds winged.

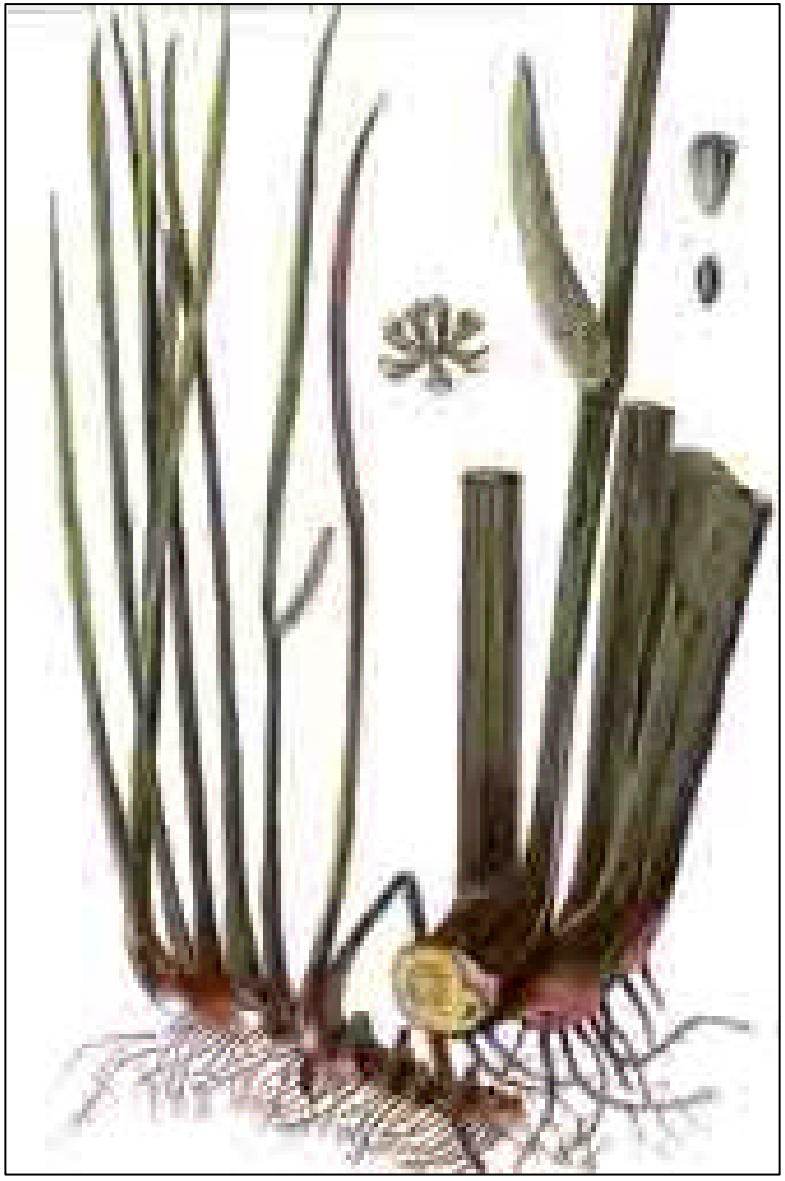
Flowering period : October - November.

Distribution : Grows wild in the high mountains.

Parts used : The tuberous roots are collected in autumn before the plant flowers, and sun-dried.

Chemical composition : The tuberous roots contain the alkaloid aconitine.

Therapeutic uses : The tuberous roots are used in treating rheumatism, paresis, arthralgia, luxation, sprains and contusions. Their tincture is used as liniment. It must not be taken by mouth, because of its high toxicity.



7 Acorus gramineus Solander — Araceae

Local names : Thạch xương bồ, bồ bồ, bồ hoàng, khinh chơ nặm (Thái), lầy nặm (Tày), xình pầu chú (Dao).

English name : Grass-leaved sweet rush.

Description : Perennial semi-aquatic herb. Rhizome aromatic, creeping and much-branched. Leaves long and amplexicaul, in fascicles ; principal nerves parallel. Inflorescence in spike on a compressed scape, surrounded by a long bract ; flowers small, bisexual. Berry bright-red when ripe.

Other species, such as *Acorus calamus* L. and *A. gramineus* Soland. var. *pusillus Engl.* are also used medicinally.

Flowering period : March - June.

Distribution : Grows wild on the banks of mountain streams.

Parts used : The rhizomes, collected in autumn and winter, are sun-dried or heat-dried. The leaves are also used.

Chemical composition : The rhizome contains an essential oil consisting of asaron and asaryl aldehyde ; and a bitter glucoside, acorin.

Therapeutic uses : The rhizome possesses pectoral, stomachic and sedative properties. It is utilized in the therapy of diarrhoea, gastralgia, cough, bronchial asthma, neurasthenia, fever, convulsions, rheumatism, osteodynia and arrhythmia. The daily dose is 3 to 8g in the form of a decoction, powder and pills, for a period of 1 to 2 months. External application is effective for dermatosis and haemorrhoids. It is also used as an insecticide for killing lice, bugs and fleas.

8 Acronychia laurifolia Blume **Rutaceae**

Local names : Bưởi bung, bái bài, cứt sát, mác thao sang (Tày), co dọng dạnh (Thái), cô nèng (K'ho).

English name : Clawflowered laurel.

Description : Small tree, 1 - 3m. tall or more, much-branched. Leaves opposite, oblong or obovate, entire, coriaceous, glabrous ; petiole long. Inflorescence in axillary or terminal corymb ; flowers white, fragrant. Drupe globose, obscurely angular, pale-yellow when ripe, edible.

Flowering period : July - September.

Distribution : Grows wild in the midlands and the mountainous regions.

Parts used : The roots, twigs, stem bark and leaves are collected throughout the year. The plants are pulled up, stripped of rootlets, carefully washed and sliced. Selected leaves, not worm-eaten or withered, are sun-dried or heat-dried. The stem bark is used only externally.

Therapeutic uses : The roots are utilized in the therapy of rheumatism, lumbago, pain in the limbs, post-partum blood stasis, furunculosis, impetigo and snake-bite. The dosage is 8 to 20g per day, in the form of a decoction or elixir. The torrefied roots or leaves are effective as a stomachic for dyspepsia in parturients in a daily dose of 6 to 12g as a decoction. A poultice made of heated leaves and a wash with a decoction of the trunk bark are useful for furunculosis and impetigo.

9 Adenosma indianum (Lour.) Merr. Scrophulariaceae

Local names : Bồ bồ, chè đồng, chè nội, chè cát.

Description : Annual herb, 20 - 60cm. high. Stems erect. Young twigs at first pubescent, finally glabrous. Leaves opposite, short-petioled, lanceolate, pubescent ; margins toothed. Inflorescence terminal in a sort of head ; flowers violet. Capsule with numerous seeds.

Flowering period : April - July.

Distribution : Commonly found wild in mountainous regions, especially on hillsides and field-edges.

Parts used : The whole plant is collected in summer during its flowering period. It is carefully washed then subjected to thorough air-drying.

Chemical composition : The plants contain triterpenoid saponins, phenolic acids, coumarins and flavonoids. The volatile oil from the plant consists of L.fenchone 35%, limonene 22.6%, cineol 5.9%, piperitenon oxide and sesquiterpene oxide.

Therapeutic uses : The whole plant, except the roots, constitutes an antibacterial, cholagogic, diuretic and stomachic remedy. It is useful for the treatment of jaundice in viral hepatitis, oliguria, biliuria, fever, ophthalmalgia, vertigo and dyspepsia in parturients. It is prescribed in a daily dose of 10 to 20g in the form of a decoction, extract or syrup.

10 Ageratum conyzoides L. **Compositae**

Local names : Cây cứt lợn, bù xích, cỏ hôi, thắng hồng kế, nhờ hất bồ (K'ho).

English names : White weed, appa grass, conyzoid floss-flower, bastard agrimony.

Description : Annual herb, 30-50cm. high. Stem erect, hairy, green or purple. Leaves opposite, broadly ovate, crenate, coarsely hairy on both sides, 3-nerved at the base. The inflorescence is a terminal corymb of many small heads ; flowers violet or white. Achene minute, black, 5-echinate.

Flowering period : Throughout the year.

Distribution : Common weed everywhere.

Parts used : The whole plant, except the roots, is collected throughout the year. It is used fresh or dried.

Chemical composition : The plant yields 0.7-2% essential oil consisting of ageratochromene, dimethoxy - ageratochromene, cadinene and caryophyllene ; it also contains alkaloids and saponins.

Therapeutic uses : The whole plant possesses anti-inflammatory and antiallergic properties. The juice from the fresh plant and the extract of the dried plant are used for the cure of allergic rhinitis and sinusitis, in aqueous solution for nasal instillation. The juice of the fresh plant is also useful in post-partum uterine haemorrhage. The usual dose is 30 to 50g of fresh plant per day. A hair-wash consisting of a decoction of the fresh plant makes the hair fragrant, soft and dandruff-free.

11 Alisma plantago-aquatica L **Alismataceae**

Local names : Trạch tả, mã đề nước.

English names : Common water plantain, mad-dog weed.

Description : Marsh herb, 40-50cm. high. Rhizome stout, globular. Leaves entire, long-petioled, forming a rosette ; nerves curved. Inflorescence in terminal umbelliform cyme ; scape long, flowers white, cylindrical. Fruit : an akene.

Flowering period : October - November.

Distribution : Wild and cultivated species in rice-swamps and ponds.

Parts used : The rhizomes, collected in autumn, are sun-dried or heat-dried. They are soaked in alcohol or in salt solution, then torrefied until they turn yellow before use.

Chemical composition : The rhizomes contain an essential oil consisting of alisol A, B, C and epialisol A ; D-glucose, D- fructose, sucrose ; β-sitosterol, lecithin, choline, resin, protein and starch.

Therapeutic uses : The rhizome is diuretic and used in treating oedema, nephritis, dysuria, haematuria, pollakiuria, urodynia, urinary lithiasis, flatulence, vomiting and diarrhoea. It is administered in a dose of 8 to 16g per day in the form of a decoction or pills. It is likewise prescribed as an antidiabetic and as a galactagogue in hypogalactia.

12 Allium fistulosum L. **Liliaceae**

Local names : Hành, thông bạch, hom búa (Thái), sông (Dao).

English names : Japanese leek, Welsh onion, cibol, stone leek.

Description : Glabrous bulbous herb, 20-40cm. high, possessing a strong pungent aromatic odour. Leaves cylindrical, hollow, linear, oblong-acuminate at the apex. Inflorescence on the top of a long stalk in umbel forming a large globular head ; flowers small, white. Capsule with numerous seeds, minute, trigonal, black.

Flowering period : August - October.

Distribution : Extensively cultivated as a culinary herb throughout the country.

Parts used : The bulbs, collected in winter and spring, are used fresh or dried.

Chemical composition : The bulbs contain essential oil. The constituents of the crude oil are allyl propyl disulfide, diallyl disulfide and sulfur compounds.

Therapeutic uses : The whole plants, especially the bulbs, possess neurostimulant, stomachic and antibacterial properties. They are effective in the treatment of coryza, influenza, headache, fever, dyspepsia, intestinal infections, rheumatism, toothache, furunculosis and dysuria. The daily dose is 30 to 60g of fresh herb, in the form of a decoction, extracted juice or hot gruel. A poultice of pounded fresh bulbs is effective in treating furunculosis, especially axillary and inguinal boils. Inhalation of the vapour from a boiling decoction is active on coryza, influenza and fever.

13 Allium odorum L. **Liliaceae**

Local names : Hẹ, phỉ tử, cửu thái, phiếc cát ngàn (Thái).

English names : Sweet leek, fragrant-flowered garlic, Chinese chives.

Description : Bulbous herb, 15-35cm. high, tufty. Leaves linear, flat, acuminate. Flowers white, in umbel on the top of a trigonal stalk, arising from the bulb. Capsule with black seeds. All parts of the herb are acrid-flavoured.

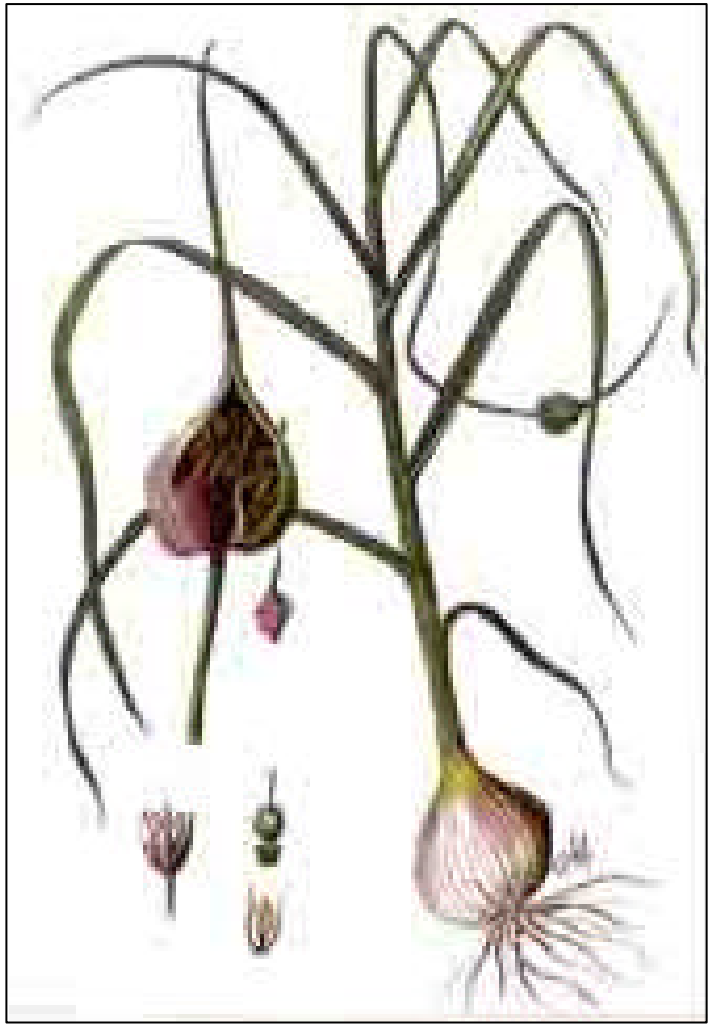
Flowering period : July - October.

Distribution : Cultivated as a culinary and medicinal plant.

Parts used : The bulbs and leaves are collected throughout the year but autumn and winter are the best harvesting time. The seeds, collected from the ripe fruit, are sun-dried or heat-dried before use.

Chemical composition : The leaves and bulbs contain sulfur compounds, saponins and bitter substances. The seeds yield saponins and alkaloids.

Therapeutic uses : The leaves and the bulbs possess antibacterial properties. They are useful for the treatment of haemoptysis, epistaxis, cough, sore throat, asthma, haematometra, dyspepsia, dysentery and oxyuriasis. The usual dose is 20 to 30g per day in the form of a decoction. They are also used in an anti-inflammatory poultice. The seeds are active on spermatorrhoea, haematuria, incontinence, lumbago, arthrodynia and metrorrhoea. The usual dose is 6 to 12g per day in the form of a decoction.



14 Allium sativum L. **Liliaceae**

Local names : Tỏi, đại toán, hom kía (Thái), sluôn (Tày).

English name : Garlic.

Description : Annual, glabrous, bulbous herb with pungent odour. Bulb short, consists of several smaller bulbs (called cloves) and is surrounded by a thin, white or pinkish sheath. Leaves flat and narrow, attenuate-acute at the apex ; nerves parallel. Flowers white or pink with bulbils in globose head covered with a large bract.

Flowering period : August - November.

Distribution : Cultivated all over the country for culinary use.

Parts used : The bulbs, collected at the end of winter or the beginning of spring, are used in fresh or dried form.

Chemical composition : The essential oil obtained from the bulbs contains allicin, diallyl disulfide, allyl propyl disulfide and other sulfur compounds.

Therapeutic uses : The bulb constitutes an antibacterial, anti-inflammatory and anthelmintic remedy. It is employed in the treatment of bacillary dysentery and amoebiasis. A rectal injection of 100 ml of 5 to 10% solution is effective for oxyuriasis and colitis. The 20% tincture cures cough, bronchitis and pertussis. The aqueous solution of bulb juice in a nasal instillation and a gruel made with the bulbs are active on coryza and influenza. It is also hypocholesterolaemic and thus useful in hypercholesterolaemia and atherosclerosis. A poultice of pounded bulb is used to treat boils, abscesses, phlegmons and centipede bites.

15 Alocasia macrorrhiza (L.) Schott — Araceae

Local names : Ráy, ráy dại, khoai sáp, vặt vẹo (Tày), co vạt (Thái).

English names : Big - rooted taro, giant alocasia, giant taro, kopeh root.

Description : Perennial herb, 0.5-1m. high. Rhizome cylindrical, long, stout, with many nodes. Leaves large, ovate - cordate with long stalks, surrounding the stem ; margins wavy. Inflorescence in spadix, bearing male flowers above and female below. Berry ovoid, red when ripe.

Flowering period : January - May.

Distribution : Grows wild in forests and mountains.

Parts used : The leaves and rhizomes are collected throughout the year. The leaves are used fresh. The rhizomes are boiled hard to reduce itching compounds, then sun-dried or heat-dried.

Chemical composition : The rhizomes contain phytosterols, alkaloids, glucose and fructose.

Therapeutic uses : The leaves and the rhizome are prescribed for the treatment of impetigo, furunculosis, phlegmon and snake-bite in the form of a liquid extract for administration by mouth, and their residue is used for poulticing. They are also used in treating colic and vomiting, in a daily dose of 10 to 20g of dried rhizome in the form of a decoction. Their external use as a plaster is effective against furunculosis.

16 Alpinia galanga (L.) Willd. **Zingiberaceae**

Local names : Riềng, riềng ấm, riềng nếp, hậu khá (Thái).

English names : Greater galangal, Siamese ginger, Java galangal, Siamese galangal.

Description : Perennial herbaceous plant, 1-2m. high. Rhizome cylindrical, stout, aromatic, covered with scales. Leaves alternate, lanceolate, lower part surrounding the stem, the upper face glabrous and shining. Inflorescence in terminal dense raceme 20-30cm. long ; flowers white, lip veined with red. Fruit globose or ovoid.

Flowering period : May - September.

Distribution : Grows wild in the mountains and is cultivated everywhere.

Parts used : The rhizomes may be collected throughout the year, but preferably in autumn and winter, and are sun - dried or heat - dried before use.

Chemical composition : The rhizome yields an essential oil consisting of cineol, methyl cinnamate and flavones : galangin, alpinin, kaempferide and 3 -dioxy 4-methoxy flavone.

Therapeutic uses : The rhizome is an antibacterial agent and a digestive stimulant. It is indicated in the treatment of dyspepsia, flatulence, vomiting, gastralgia, colic, diarrhoea and malaria fever, in a daily dose of 3 to 6g, in the form of a decoction, powder or elixir. It is also applied externally on carious teeth to cure toothache.

17 Alstonia scholaris (L.) R. Br. Apocynaceae

Local names : Sữa, mò cua, mùa cua, mạy mản (Tày), co fin pất (Thái).

English names : Dita - bark tree, devil's tree.

Description : A large evergreen tree, about 15m. high. Bark greyish-brown, thick, lenticellate, much fluted. Leaves oblong, rounded at the apex, 3-8 - verticillate, but usually crowded at the end of branches ; secondary nerves parallel. Inflorescence in umbelliform cyme ; flowers small, greenish - white with a strong smell. Follicles long and narrow. Seeds brown, tipped with a coma of hairs at both ends. All parts of the tree contain a milky juice.

Flowering period : September - October.

Distribution : Grows wild in the mountains and is cultivated as a shade tree.

Parts used : The trunk bark, collected in spring and summer, is sun-dried or heat-dried.

Chemical composition : The bark contains alkaloids : ditaine, echitenine, echitamine (ditamine) and echitamidine together with triterpenes : α - amyrin and lupeol.

Therapeutic uses : The bark yields a tonic and antiseptic medicine. It is used to treat anaemia, menstrual disorders, malarial fever, colic, diarrhoea, dysentery and acute arthritis. The dosage is 1 to 3g per day, in the form of a decoction, powder, elixir or extract. A concentrated decoction of trunk bark is used as a wash in furunculosis and impetigo, and as a gargle in dental caries.

18 Amomum aromaticum Roxb. **Zingiberaceae**

Local names : Thảo quả, đò ho, mác háu (Thái).

English names : Bengal cardamom, Nepal cardamom.

Description : Tall perennial herb, 2-3m. high. Root - stock horizontal with many nodes. Leaves linear, sessile, lower part surrounding the stem. Inflorescence in radical spike ; flowers red. Fruit ovoid, 3 - valved, crimson. Seeds numerous, angular, with a pronounced fragrance.

Flowering period : May - July.

Distribution : Wild or cultivated in wet places in the forest highlands.

Parts used : The fruit, collected in winter, is sun - dried or heat - dried. The pericarp is removed before use.

Chemical composition : Essential oil from seeds 1 - 1.5%.

Therapeutic uses : The seeds have antibacterial and stomachic properties. They are used to alleviate dyspepsia, flatulence, colic, vomiting, diarrhoea and cough, in a daily dose of 3 to 6g in the form of a decoction, powder or pills. They are also prescribed as a gargle or mouth-wash or for perlingual administration to treat toothache, gingivitis and parodontosis. They are also used for flavouring cakes.

19 Amomum villosum Lour. **Zingiberaceae**

Local names : Sa nhân, mé tré bà, dương xuân sa, co nénh (Thái), mác nẻng (Tày), pa đoóc (K'dong), la vê (Ba Na).

English names : Malabar cardamom, Tavoy cardamom.

Description : Perennial herb, 0.5-1.5m. high. Root-stock horizontal, slender. Leaves alternate, linear, amplexicaul, acute-attenuate at the apex. Inflorescence in radical raceme ; flowers white, lip yellow, spotted with purple. Capsule 3-valved, with soft spines, brown red when ripe.

Flowering period : May - June.

Distribution : Grows wild in shady places in the mountains.

Parts used : The fruit is collected in summer and autumn and dried before the seeds are removed for use.

Chemical composition : The essential oil from the seeds consists of D-camphor, D-borneol, D-bornyl acetate, D-limonene, α- pinene, phellandrene, paramethoxyethyl cinnamate, nerolidol and linalol. The seeds also contain liquiritin and glucovanillic acid.

Therapeutic uses : The seeds possess antibacterial and stomachic properties. They are utilized in dyspepsia, colic, flatulence, diarrhoea, vomiting and oedema. The usual daily dose is 2 to 6g in the form of a decoction, powder or pills. They are a constituent of composite recipes against threatened abortion. They are also active against toothache if the maceration or the powder are applied to carious patches on the teeth.

20 Andrographis paniculata (Burm.f.) Nees — Acanthaceae

Local names : Xuyên tâm liên, công cộng.

English names : Creat, kariyat.

Description : Erect annual herb, 0.4 - 1m. high. Stems quadrangular, much-branched. Leaves opposite, short-petioled, oblong-attenuate at both ends, glabrous, pale beneath. Inflorescence in few-flowered axillary and terminal raceme or panicle ; flowers white with pink spots. Capsule linear-oblong, acute at both ends, pubescent. Seeds numerous, oblong, glabrous.

Flowering period : September - January.

Distribution : Species cultivated everywhere, especially in the south.

Parts used : The whole plants, especially the leaves, are collected in summer and sun-dried or heat-dried.

Chemical composition : The plant contains bitter glucosides : andrographolide, neoandrographolide, panaculoside, flavonoids, andrographin, panicalin, apigenin 7-4 - dimethyl ether.

Therapeutic uses : The whole plants, principally the leaves, possess antibacterial, anti-inflammatory and immunosuppressive properties. The leaves are used in treating dysentery, diarrhoea, enteritis, fever, coryza, cough, sore throat, tonsillitis, bronchitis, osteodynia, arthralgia, menstrual and post-partum haematometra, scrofula, hypertension and snake-bite. 10 to 20g of dried plant in the form of a decoction or 2 to 4g of dried leaves in the form of a powder or pills are administered daily. They are also used in a poultice for phlegmon and snake-bite.

21 Angelica dahurica (Fisch.ex Hoffm.) Benth. et Hook.f. **Umbelliferae**

Local names : Bạch chỉ, hương bạch chỉ, phương hương.

English name : Dahurian angelica.

Description : Stout perennial herbaceous plant 1m. or more in height. Stems cylindrical, hollow, greenish or violet-pink. Leaves large, 2-3-pinnate, fine downy above ; margins toothed. Inflorescence in terminal or axillary compound umbel ; flowers small, white. Fruit compressed, globose, about 6 mm. long.

Flowering period : April - June.

Distribution : Naturalized in the mountains and on the plains.

Parts used : The tubers are collected in autumn, avoiding scratches to the tuber skin and the breakage of roots. Roots of reproductive plants are rejected. The tubers are carefully washed and the radicles are removed. This is followed by sulfur fumigation for 24h, then sun-drying or heat-drying.

Chemical composition : The essential oil from the roots and fruits consists of phellandrene, resins 1%, angelicotoxin 0.43%, angelicin, angelic acid and furocoumarins.

Therapeutic uses : The tuberous roots are used for the treatment of fever, influenza, coryza, toothache, rheumatism, ostealgia and leucorrhoea. They are used as a haemostatic for epistaxis and bloody stools, in the form of a decoction or powder, in a dose of 4 to 12g per day.

22 Angelica sinensis (Oliv.) Diels — Umbelliferae

Local names : Đương qui, tần qui, can qui.

Description : Perennial herbaceous plant, 40 - 60cm. high. Stems striate, pale violet. Leaves alternate, amplexicaul, 3 - 4 - pinnate ; margins toothed. Inflorescence in dense terminal umbel ; flowers small, white. Fruit compressed. All parts of the plant, especially the roots, have a special scent.

Flowering period : June - August.

Distribution : Introduced species, cultivated in many places.

Parts used : The roots of the 2 or 3-year-old plants are collected in autumn and winter. The radicles are removed. The roots are air-dried or lightly heat-dried until completely dry.

Chemical composition : The roots yield an essential oil consisting of ligustilid, butylidenephthalide, bergapten, safrol, p-cymene, sesquiterpene, dodecanol, tetradecanol and vitamin B_{12}.

Therapeutic uses : The root has marked restorative, antianaemic and haemagogic properties. It is recommended for treating anaemia, general debility, headache, fatigue, lumbago, chest pains, colic, constipation, paresis, furunculosis, impetigo, contusions, menstrual disorders and dysmenorrhoea. The dose is 10 to 20g per day in the form of a decoction or elixir. In the case of menstrual disorders, the drug is taken a week before menstruation.

23 Areca catechu L. **Palmaceae**

Local names : Cau, binh lang, tân lang, mạy làng (Tày), pơ lạng (K'ho).

English names : Betel-nut palm, areca-nut palm, betel palm, areca palm, penang palm, catechu palm.

Description : Slender palm about 10m. tall. Stem erect, surmounted by a crown of pinnate leaves ; petiole broadly expanded at the base. Inflorescence in spadix encased in a spathe ; flowers yellowish-white in much-branched raceme, which bears both male and female flowers. Fruit ovoid ; pericarp hard and fibrous ; kernel (seed) brown.

Flowering period : May - December.

Distribution : Cultivated everywhere.

Parts used : The pericarps and kernels are used. Over-ripe fruit is collected. The pericarps and kernels are taken separately and sun-dried or heat-dried.

Chemical composition : The kernels yield tannin, catechin (70% in the young fruit, 15 - 20% in the over-ripe fruit), lipids consisting of laurin, olein and myristin ; glucides 50 - 60% ; alkaloids : arecoline, arecaidine, arecaine, guvacine and guvacoline.

Therapeutic uses : The pericarp is effective in the treatment of flatulence, oedema, dysuria and hyperaemesis of pregnancy. Its decoction is prescribed in a dose of 6 to 12g per day. The kernel is used to treat diarrhoea, and dysentery in a daily dose of 0.5 to 4g. It is also a taenifuge. It is also said to cure malaria. Arecoline induces pupillary contraction and decreases ocular tension in glaucoma.

24 Aristolochia roxburghiana Klotsch **Aristolochiaceae**

Local names : Mã đâu linh, dây khố rách, phi hùng, cuốp ma (H'mông).

Description : Slender climbing vine. Stems woody at the base, grooved, glabrous. Leaves alternate, long-petioled ; base cordate, acuminate at the apex. Inflorescence in axillary raceme ; bract small ; flowers numerous, purplish-brown ; perianth curved, mouth oblique. Capsule ovoid, splitting into 6 valves. Seeds numerous, deltoid, flat and winged.

Flowering period : March - June.

Distribution : Grows wild in mountainous regions.

Parts used : The roots may be collected throughout the year, but preferably in autumn. They are sun-dried or heat-dried before use.

Therapeutic uses : The roots are stomachic and are used in the treatment of colic, gastritis, enteritis, diarrhoea, dysentery, food poisoning, furunculosis, rheumatism, oedema and dysmenorrhoea. The daily dose is 6 to 12g in the form of a decoction or powder. A combination with some other plants is said to cure malaria.

25 Armeniaca vulgaris Lam. **Rosaceae**

Local names : Mơ, mai, hạnh, má pheng (Thái), mác mòi (Tày).

English name : Apricot.

Description : Small tree, 3-5m. high. Leaves alternate, obscurely cordate at the base, apex pointed ; margins toothed. Flowers white, appearing before the leaves. Drupe round-ovate, velvety pubescent when young, nearly glabrous at maturity, with a yellow skin ; stone hard, irregularly furrowed.

Flowering period : January - February.

Distribution : Cultivated as a fruit-tree with medicinal fruit.

Parts used : The fruit is picked in early summer and used fresh or salted and dried.

Chemical composition : The fruit contains organic acids : citric, tartaric, pangamic carotenoids : lycopene, α- carotene ; flavonoids : quercetin, isoquercetin ; vitamins A and C. The fruit kernels yield fixed oil, enzyme, amygdalin and emulsin.

Therapeutic uses : The salted fruit is used as an antiseptic and anti-inflammatory in respiratory and digestive diseases. It is used in the treatment of cough, dyspnoea, asthma, laryngitis, sore throat, ascariasis, dysentery and persistent diarrhoea. The daily dose is 4 to 8g administered perlingually or in pills. The liquid distilled from the seed kernels is toxic and active against cough, dyspnoea and gastralgia, in a daily dose of 1 to 4 ml. The oil from the seed kernels is used as a laxative, in the form of an emulsion with water.

26 Artemisia vulgaris L. Compositae

Local names : Ngải cứu, ngải diệp, thuốc cứu, nhả ngải (Tày), quá sú (H'mông), co linh li (Thái).

English names : Wormwood, mugwort, fleabane, felon herb, motherwort, sailor's tobacco.

Description : Aromatic, perennial herb, 0.4 - 1m. high. Young twigs pubescent. Leaves alternate, pinnately lobed, dark-green above, white-grey and pubescent beneath. Inflorescence in drooping small head of terminal, compound raceme ; flowers greenish-yellow. Achene minute, oblong-ellipsoid.

Flowering period : October - December.

Distribution : Grows wild in mountainous regions ; generally cultivated for medicinal purposes.

Parts used : The whole plant except the roots is collected in spring and summer before flowering. It is used fresh or in air-dried form.

Chemical composition : The essential oil from the plant consists of cineol, α - thujone, dihydro matricaria ester, tetradecatrilin, tricosanol, arachyl alcohol. In addition to the essential oil, it also contains adenine and choline.

Therapeutic uses : The entire plant, except the roots, is used as a haemagogic, antispasmodic and haemostatic. It is used to treat menstrual disorders, leucorrhoea, threatened abortion, haemorrhagic dysentery, haemoptysis, epistaxis, metrorrhagia, vomiting, colic, neuralgia, rheumatism and impetigo. The daily dose is 6 to 12g in the form of a decoction, extract or pills. The young leaves are used as a cautery to relieve neuralgia. In treating menstrual disorders, the plant is administered a week before menstruation.

27 Asarum maximum Hemsl. **Aristolochiaceae**

Local names : Hoa tiên, đầu tiên, trầu tiên.

Description : Perennial herb, 20 - 30cm. high. Leaves long-cordate, glabrous, acute at the apex ; petiole long, arising from the rhizome. Flowers tubular, brownish-grey, solitary in the axil of the leaves. Fruit enveloped in an accrescent perianth, bearing numerous seeds of dark-brown colour.

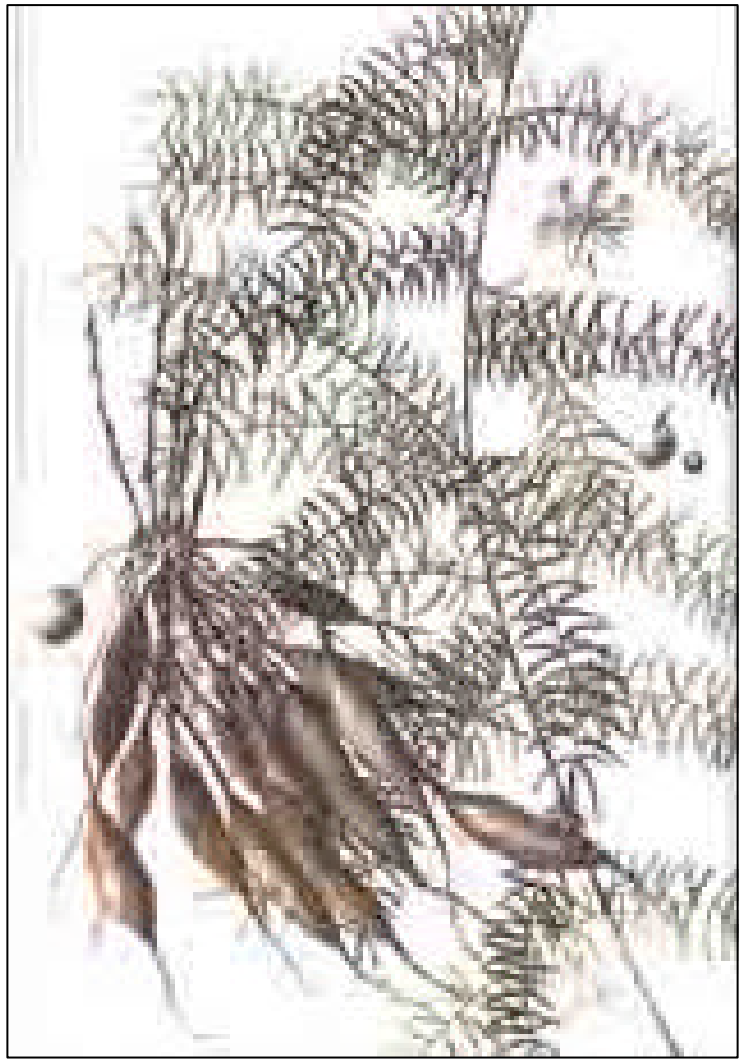
Flowering period : April - June.

Distribution : Wild species in moist places.

Parts used : The whole plant, collected throughout the year, is sun-dried or heat-dried before use.

Chemical composition : The flowers contain anthocyanoside.

Therapeutic uses : The flowers and the roots are a reconstituent, in a dose of 6 to 12g per day, in a decoction or elixir. The leaves are administered in a dose of 10 to 16g per day against dyspepsia and colic.



28 Asparagus cochinchinensis (Lour.) Merr. Liliaceae

Local names : Thiên môn, thiên môn đông, tóc tiên leo, co sin sương (Thái), mằn săm (Tày), sùa sú tùng (H'mông), đù mào siam (Dao).

Description : Perennial scandent shrub with tuberous roots. Stems glabrous, spinous. Branchlets reduced to leaves (cladophylls), falciform, angular. Flowers white, small, arising in the leaf-axils. Berry globose, pale-green at first, finally white. Seeds black.

Flowering period : May - July.

Distribution : Grows wild among shrubs on the sea-coast ; also cultivated as an ornamental plant.

Parts used : The roots, collected in winter and spring, are soaked in water or steamed and then sun-dried. The cores are removed and the roots are then soaked in alcohol and heat-dried before use.

Chemical composition : The roots contain asparagine, mucilage, starch and sugars.

Therapeutic uses : The root possesses pectoral, antitussive, diuretic and reconstituent properties. It is indicated in the treatment of persistent cough, haemoptysis, dry throat, fever, dysuria and constipation. It is also effective in neurasthenia. The daily dose is 8 to 16g in a decoction, extract, powder or elixir. It is often a constituent of composite restorative recipes, together with *Codonopsis javanica* and *Rehmannia glutinosa*.

29 Atractylodes macrocephala Koidz. **Compositae**

Local name : Bạch truật.

Description : Perennial herbaceous plant, 40 - 60cm. high. Stems cylindrical, much-branched in the upper part. Leaves alternate, toothed, the lower 3-lobed with long petiole, the upper entire, short-petioled. Inflorescence in terminal head ; flowers small, lilac, all tubulous. Achene globose, with a coma of hairs.

Flowering period : August - October.

Distribution : An introduced species, thriving at an altitude of 1000 - 1500m.

Parts used : The rhizomes are collected in November when the lower leaves begin withering. They are stripped of the small roots and sun-dried or heat- dried.

Chemical composition : The rhizomes contain essential oil 1.5%, atractylol, atractylon ; glucoside, inulin, vitamin A, potassium atractylate.

Therapeutic uses : The rhizome is used in treating various digestive diseases for its peptic, antiulcer, anti-inflammatory and cholagogic activity. It is used in the treatment of gastritis, peptic ulcer, hepatic hypofunction, dyspepsia, vomiting, lientery, chronic enteritis, colic in pregnant women and diaphoretic fever. It is also prescribed as a diuretic, antitussive and hypoglycaemic remedy, useful for the treatment of oedema and diabetes mellitus. The daily dose is 6 to 12g in a decoction, powder or extract.

30 Baeckea frutescens L. Myrtaceae

Local names : Chổi xuể, chổi trện, thanh hao.

Description : Small tufty shrub, about 1m. high. Stems slender, rigid, much-branched ; bark brown. Leaves opposite, very narrow, caducous ; main nerve conspicuous. Flowers white, solitary in the axil of the leaves. Capsule small ; seeds angular. All parts of the plant are strongly scented.

Flowering period : April - June.

Distribution : Grows wild on arid soils in the mountains and the midlands.

Parts used : The whole plant, except the roots. It is collected from July to October during its flowering period and sun-dried or heat-dried. The essential oil is obtained from the plant by distillation.

Chemical composition : The whole plant yields 0.76% essential oil, consisting of cineol, pinene, linalol and limonene.

Therapeutic uses : The whole plant, except the roots, possesses antibacterial, antifebrile and haemostatic properties. It is indicated in the therapy of coryza, influenza, headache, measles, colic and jaundice, in the form of a fumigation of the dried plant or the inhalation of vapour from a boiling decoction of the fresh plant. It is also prescribed against epistaxis, impetigo, dyspepsia, haemorrhagic dysentery and menstrual disorders, in a dose of 8 to 16g per day in a decoction. It is applied externally as an antiseptic in treating furunculosis and impetigo. The essential oil tincture is used for massage in cases of rheumatism.

31 Belamcanda chinensis (L.) DC. Iridaceae

Local names : Rẻ quạt, xạ can, lưỡi đòng, co quạt phi (Thái).

English names : Leopard lily, leopard flower, blackberry lily.

Description : Perennial herbaceous plant, 0.5 - 1m. high. Rhizome horizontal, creeping, much-branched. Leaves linear, amplexicaul and distichous, forming a fan ; nerves closely parallel. Flowers orange, spotted with purple. Fruit ovoid, bearing numerous seeds, shiny black.

Flowering period : July - October.

Distribution : Cultivated as an ornamental plant.

Parts used : The rhizomes, collected in autumn, are used fresh or dried.

Chemical composition : The rhizomes contain glucosides : belamcandin, tectoridin, shekanin and iridin.

Therapeutic uses : The rhizome is well-known for its antibacterial, anti-inflammatory, antifebrile and expectorant properties. It is prescribed in the treatment of cough, sore throat, tonsillitis, laryngitis and pertussis. It is also effective for fever, dysmenorrhoea, dyschezia, dysuria, mastitis, galactophoritis, otalgia and snake-bite. The usual daily dose is 3 to 6g of dried rhizome in a decoction, or 10 to 20g of fresh rhizome pounded with a little salt, for perlingual administration.

32 Berberis wallichiana DC. Berberidaceae

Local names : Hoàng liên gai, hoàng mù, hoàng mộc.

English names : Wallich's barberry, Wallich's berberis.

Description : Erect evergreen shrub, much-branched, 2 - 3m. high ; bark greyish ; wood yellow. Stems rigid, downy when young. Leaves in tufts of 2 - 5, narrow, subsessile, having branched spines at the base; margins sharply toothed. Flowers in short-stalked raceme, yellow, axillary. Berry ovoid, red at first, turning black on ripening.

Flowering period : May - July.

Distribution : Grows wild in the hills up to 1500m.

Parts used : The roots, collected in autumn, are sun-dried or heat-dried.

Chemical composition : The roots contain alkaloids : berberine, oxyacanthine and umbellantine.

Therapeutic uses : The roots possess antibacterial properties and are useful for treating diarrhoea, dysentery, ophthalmia and dyspepsia. They are available in decoction, powder or tablet form and are administered orally in doses of 4 to 6g per day. The alcoholic maceration is employed as a gargle for toothache and is orally administered for headache, vertigo and photopsia.

33 Biota orientalis (L.) Endl. Cupressaceae

Local names : Trắc bá, trắc bách diệp, bá tử, co tồng péc (Thái).

English names : Common Chinese arbor-vitae, oriental arbor-vitae.

Description : Small evergreen plant, much-branched, with reddish-brown bark. Branches erect, wide-spreading, parallel to the stem. Leaves opposite, flat, scale-like and dark-green. Flowers monoecious, male catkin at the tip of branches, female cone at the base. Fruit ovoid.

Flowering period : March - September.

Distribution : Naturalized species, extensively cultivated as an ornamental plant.

Parts used : Leaves and kernels. The leaves are collected throughout the year, the fruit in autumn. The pericarps are removed and the dried kernels or the oil free them are used.

Chemical composition : The leaves and fruits contain an essential oil, consisting of L-borneol, bornyl acetate, α - thujone, camphor and sesquiterpene alcohol. The leaves yield rhodoxanthin, amentoflavone, quercetin, myricetin, carotene, xanthophyll and ascorbic acid.

Therapeutic uses : The leaves and the fruit kernels are well-known for their haemostatic properties. The leaves are utilized for the relief of haematemesis, dysentery, bloody stools, haematuria, haemoptysis, post-partum uterine haemorrhage, metrorrhagia, epistaxis, fever and cough. The fruit kernels are also effective against insomnia, palpitation, hyperhidrosis and constipation. The plant drug is prescribed daily in a dose of 8 to 12g of dried leaves in the form of a decoction or liquid extract, and 4 to 12g of dried fruit kernels in powder or pill form.

34 Bischofia javanica Blume — Euphorbiaceae

Local names : Nhội, quả cơm nguội. xích mộc, mạy phát (Tày).

English names : Java cedar, vinegar wood.

Description : Large tree, up to 15 - 20m. in height. Bark nearly smooth. Leaves alternate, trifoliate, long-petioled ; leaflets crenate, glabrous. Flowers unisexual, sexes on separate plants, pale-green in axillary raceme. Berry globose, fleshy, brown ; seeds smooth, shining.

Flowering period : February - June.

Distribution : Grows wild in the mountains ; cultivated as a shade-tree.

Parts used : The leaves and shoots, collected in April and May, are used fresh or dried.

Chemical composition : The leaves contain tannin and vitamin C.

Therapeutic uses : The leaves and the young shoots are effective in the therapy of leucorrhoea, vulvovaginitis due to *Trichomonas vaginalis*, boils and impetigo. An extract is used as unguent and a decoction is prescribed for external application. The decoction of dried leaves cures diarrhoea, in a dose of 20 to 40g per day. It is also used in gingivitis, toothache, cough and sore throat.

35 Blumea balsamifera (L.) DC. Compositae

Local names : Đại bi, từ bi, đại ngải, co nát (Thái), phặc phà (Tày).

English name : Ngai camphor.

Description : Subshrub 1 - 2m. high. Stems striate-furrowed, much-branched at the top. Leaves alternate, bearing some linear segments at the base; margins toothed. Inflorescence in terminal corymb of many heads; flowers yellow. Achene hairy. All parts of the plant are clothed with a velvety tomentum and smell of camphor.

Flowering period : March - August.

Distribution : Grows wild in the mountains and the midlands.

Parts used : The leaves, collected in summer, are air-dried. The fresh leaves are occasionally used. Camphor and borneol are obtained from leaves by distillation.

Chemical composition : The essential oil from the leaves contains L-borneol, D-camphor and cineol.

Therapeutic uses : The leaves have antibacterial, antifebrile and anodyne properties. They are prescribed in the treatment of coryza, fever, influenza, cough and dyspepsia, in a daily dose of 6 to 12g in a decoction and also by inhalation of vapour from a boiling decoction of fresh leaves. Poultices of pounded leaves are used to treat haemorrhoids and an alcoholic maceration serves as a liniment for rheumatism. Borneol is administered in a dose of 0.10 to 0.20g per day for colic, chest pains, cough, sore throat, and toothache. External application is effective against impetigo.

36 Boehmeria nivea (L.) Gaud. Urticaceae

Local names : Gai, cây lá gai, trữ ma, bẩu pan (Tày), hạc co pán (Thái), chiều đủ (Dao).

English names : Ramie grass, China grass, false nettle, Chinese silk-plant, Chinese nettle.

Description : Tall plant, 1m. or over in height, woody at the base. Young twigs and petioles violet-purple, pubescent. Leaves alternate, denticulate, covered with silver-white hairs beneath. Inflorescence in axillary panicle ; flowers unisexual, monoecious. Achene with accrescent calyx.

Flowering period : November - February.

Distribution : Cultivated everywhere. Leaves used for making cakes, stem bark for textiles and roots for medicinal purposes.

Parts used : Roots. The plants can be taken all the year round, especially in winter. After separating from the plant, the roots are carefully washed, then cut into chips and spread in thin layers for drying in the sun or in dryers.

Chemical composition : The roots contain the flavonoid rutin. The whole plant yields cyanhydric acid and the seeds provide a fatty oil.

Therapeutic uses : The root possesses antibacterial and diuretic properties. It is prescribed in the therapy of threatened abortion, colic of pregnancy, metroptosis, metritis, haemorrhoids, leucorrhoea, pollakiuria, chyluria, haematuria, furunculosis and impetigo. The daily dosage is 12 to 20g in the form of a decoction, powder or pills. The cure for pregnancy colic takes only 2 to 3 days. The fresh root is pounded and applied externally as a poultice. The decoction is used as a wash.

37 Brucea javanica (L.) Merr. Simarubaceae

Local names : Sầu đâu rừng, xoan rừng, nha đảm tử, khổ sâm, ích bờ bê (Ba Na).

English name : Kosam.

Description : Evergreen shrub, about 2m. high. Young parts softly pubescent. Leaves unequally pinnate, alternate ; leaflets coarsely crenate-toothed, villous on both sides, especially beneath. Inflorescence in tomentose axillary raceme ; flowers small, unisexual, dioecious. Drupe ovoid, black when ripe ; seeds compressed, rugose, blackish-brown.

Flowering period : March - May.

Distribution : Grows wild, common on the sea-coast.

Parts used : Seeds can be harvested in autumn, when the fruit is ripe. The seeds obtained after eliminating the pulp of the fruit are thoroughly washed and sun-dried or heat-dried.

Chemical composition : The fruit yields fatty oil, a glucoside (kosamin) and saponins (brucein A, B, C, G and brusatol).

Therapeutic uses : The seeds are used as a parasiticide. They are effective for amoebiasis, in a daily dose of 4 to 16g in the form of a decoction or powder, divided into 3 part doses, for 3 to 7 days. They are active in malaria in a dose of 3 to 6g per day, divided into 3 part doses, after meals, for 4 to 5 days. The oil is extracted from the seeds to avoid its vomitive effect. Rectal injection of an aqueous maceration is less toxic. A poultice of pounded seeds relieves haemorrhoids.

38 Caesalpinia sappan L. Leguminosae

Local names : Tô mộc, cây vang, tô phượng, co vang (Thái), mạy vang (Tày).

English names : Sappan wood, brazil-wood, bukkum wood.

Description : Small tree, 5-7m. in height, with hard wood, brownish-red. Stems prickly. Young shoots tomentose, branches glabrous ; covered with short spines. Leaves alternate, pinnate ; leaflets trapeziform, glabrous above, tomentose beneath.

Inflorescence in terminal raceme ; flowers yellow ; peduncle clothed with a ferruginous tomentum. Pod compressed, with hard shell and sharp horn. Seeds yellowish-brown.

Flowering period : April - June.

Distribution : Grows wild in mountains and is cultivated in many places as a hedge plant.

Parts used : Trunk wood. The cutting can be done in autumn and winter. The wood is first cut into short fragments which are chopped into slices before drying.

Chemical composition : The woody part contains brasilin and brasilein and an essential oil consisting of D- α - phellandrene, ocimene, tannin, gallic acid and saponin.

Therapeutic uses : The trunk wood possesses antibacterial, demulcent and haemostatic properties. It is indicated for the treatment of bacillary dysentery, diarrhoea, intestinal and uterine haemorrhages, post-partum haematometra, contusions, wounds, dysmenorrhoea, colic, furunculosis, impetigo, leucorrhoea and parturient's anaemia. It is administered in a dose of 6 to 12g per day as a decoction, liquid extract or pills. The concentrated decoction is used externally as a wash.

39 Capsella bursa - pastoris (L.) Medik. **Cruciferae**

Local names : Tề thái, đình lịch, cỏ tâm giác.

English names : Shepherd's purse, blind-weed, toy-wort, mother's heart.

Description : Annual herb, 20-30cm. high. Leaves usually lobed and irregularly toothed ; the radical with long petiole, forming a rosette ; the upper sessile, amplexicaul, with diverging auricles at the base. Inflorescence in terminal raceme ; flowers small, white. Pod obcordate, compressed, self-dehiscent. Seeds numerous, reddish-brown.

Flowering period : March - August.

Distribution : Grows wild on river banks and waste ground.

Parts used : The whole plant, harvested in summer. The washed plants are dried in the sun.

Chemical composition : The whole plant contains the alkaloid: bursine; choline, diosmin; organic acids: thiocyanic, citric, malic, fumaric, tartaric, tannic and bursinic. It also contains vitamin C, inositol, rhamno-glucoside and hyssopin.

Therapeutic uses : The entire plant is a haemostatic remedy for haemoptysis, intestinal and uterine bleeding, menorrhagia, pulmonary oedema, fever, oedema and chyluria. It is prescribed in a dose of 6 to 12g per day as a decoction, liquid extract or tincture. The roots and seeds are effective in amblyopia and the flowers for chronic dysentery.

40 Cassia alata L. Leguminosae

Local names : Muồng trâu, cây lác.

English names : Ringworm shrub, winged senna, ringworm senna, candelabra bush, craw-craw plant.

Description : Small shrub, about 1.5m. high, with horizontal branches. Leaves paripinnate, alternate ; leaflets 8 - 12 pairs, broadly rounded, oblique at the base. Twigs and petioles usually reddish-brown. Inflorescence in axillary and terminal erect spike ; flowers yellow. Pod long, slightly compressed, with winged margin. Seeds numerous, black.

Flowering period : August - November.

Distribution : Grows wild in wet places and is also cultivated for its ornamental foliage and showy flowers.

Parts used: Leaves, harvested all the year round but preferably in April and May, before flowering. The leaves can be used fresh or dried.

Chemical composition : The leaves contain anthraglucosides, chrysophanic acid and rhein.

Therapeutic uses : The leaves and the stem have antiseptic and laxative properties. They are prescribed for constipation, oedema, hepatitis and icterus in a tea-like infusion. Dermatomycosis, tinea imbricata, ringworm, scabies and impetigo are treated externally by rubbing with pounded fresh leaves or by applying fresh leaf juice on the diseased parts. The powdered stem and leaves are used as a laxative in a daily dose of 4 to 8g. They are used as a purgative in a decoction in a single dose of 15 to 20g.

41 Cassia tora L. **Leguminosae**

Local names : Thảo quyết minh, muồng ngủ, đậu ma, lạc trời, muồng lạc, nhả lá mứn (Thái), nhả cóc bẻ (Tày), diêm tập (Dao), t'răng (Ba Na).

English names : Sickle senna, sickle pod, coffee weed, tavara.

Description : Annual shrubby weed, 30 - 90cm. in height. Leaves alternate, pinnate, with 3 pairs of obovate leaflets. Inflorescence in axillary raceme, shorter than the leaf ; flowers yellow : 1 - 3. Pod slender, very long, curved. Seeds numerous, dark-brown, shining.

Flowering period : April - May.

Distribution : Grows wild on roadsides and field margins in the midlands and mountains.

Parts used : Seeds of ripe fruit. The mature fruit is usually collected at the end of autumn. The seeds are separated from the dried fruit and roasted before use.

Chemical composition : The whole plant contains anthraglucosides that on hydrolysis yield emodin and glucose, chrysophanol and rhein. The seeds yield a fatty oil consisting of oleic, linolic, palmitic and lignoceric acids and sitosterol.

Therapeutic uses : The raw seeds are utilized as a laxative, in a dose of 10 to 15g per day. The torrefied seeds are effective for insomnia, headache, constipation, oliguria, cough, ophthalmia, dacryoliths, amblyopia, ocular congestion and hypertension. The daily dose is 5 to 10g in the form of a decoction, powder or pills. The alcoholic or vinegar maceration of pounded fresh leaves is used externally to treat eczema and dermatomycosis.

42 Catharanthus roseus (L.) G. Don — Apocynaceae

Local names : Dừa cạn, bông dừa, hoa hải đằng, trường xuân hoa, phjăc pót đông (Tày).

English names : Madagascar periwinkle, red periwinkle, pink periwinkle, rosy-flowered Indian periwinkle, Cape periwinkle, old maid.

Description : Graceful perennial herb, 30 - 80cm. high. Stems pinkish-red, much-branched. Leaves opposite, obovate, glabrous on both sides, dark shining above. Flowers pink or white in the axil of the leaves. Follicle cylindrical, narrow, slightly arched-recurved in pairs ; seeds numerous, tiny, blackish-brown.

Flowering period : May - October.

Distribution : Common wild plant in coastal areas and is cultivated as an ornamental plant.

Parts used : Leaves, harvested before flowering. They are used fresh or sun-dried.

Chemical composition : The leaves contain alkaloids : serpentine, ajmaline, ajmalicine, catharanthine, catharanthinole, vindoline, vindolinine, vincaleucoblastine, leurosidine, vincristine.

Therapeutic uses : The leaves are useful in treating oliguria, haematuria, diabetes mellitus and menstrual disorders, in a daily dose of 4 to 8g as a decoction or liquid extract. The roots and the leaves in the form of a decoction or extract are active on hypertension. The purified alkaloids extracted from the leaves are effective in treating leukaemia, and those from the roots are used to induce cerebrovascular dilatation and for hypertension.

43 Centella asiatica (L.) Urban — Umbelliferae

Local names : Rau má, liên tiền thảo, phắc chèn (Tày).

English name : Indian pennywort.

Description : Small trailing herb. Stems slender, prostrate, rooting at the joints. Leaves alternate or tufted at each node, orbicular, round or kidney-shaped, obviously crenate. Inflorescence in single umbel, bearing 1-5 small flowers, white or reddish, without stalks. Fruit very small, compressed.

Flowering period : April - June.

Distribution : Grows wild in wet places.

Parts used : The whole plant, collected all the year round. It is used fresh or dried.

Chemical composition : The whole plant contains essential oil, fatty oil consisting of glycerides of oleic, linolic, linolenic, lignoceric, palmitic and stearic acids ; an alkaloid : hydrocotyline ; a bitter substance : vellarine ; a glucoside : asiaticoside that yields asiatic acid and glucose and rhamnose on hydrolysis. It also contains vitamin C.

Therapeutic uses : The whole plant possesses antibacterial, anti-inflammatory, antifebrile, diuretic and galactagogic activity. It is used in the therapy of fever, measles, haematemesis, epistaxis, diarrhoea, dysentery, constipation, leucorrhoea, jaundice, dysuria, furunculosis, dysmenorrhoea and varices. The usual daily dose is 30 to 40g of fresh plant in the form of extracted juice or decoction. External application in the form of poultices is prescribed for contusions, closed fractures, sprains and furunculosis.

44 Cerbera manghas L. Apocynaceae

Local names: Mướp sát, hải qua tử.

English names : Odollam tree, pink-eyed cerbera, dog-bane.

Description : Medium-sized tree, nearly 10m. high. Bark thick and scabrous. Leaves alternate, usually crowded at the end of branches, shining glabrous on the upper side. Inflorescence in terminal cyme ; flowers white with a reddish-pink centre, fragrant. Drupe oval, with two flattened seeds. All parts of the plant contain a milky latex.

Flowering period : March - May.

Distribution : Grows wild in coastal areas.

Parts used : Seeds of the ripe fruit. The fruit can be harvested when ripe. After the pulp has been removed, the seeds are pressed for oil.

Chemical composition : The seeds contain glucosides : cerberin, cerberoside, neriifolin and thevetin.

Therapeutic uses : The seed oil in plasters applied to the skin is effective for scabies and prurigo, and applied to the hair kills head-lice. The glycosides extracted from the seeds are active on heart failure. The trunk bark or the leaves are occasionally used as a purgative, but strict precautions must be taken because of their high toxicity.

45 Chenopodium ambrosioides L. **Chenopodiaceae**

Local names : Dầu giun, cỏ hôi, rau muối dại, kinh giới đất.

English names : American wormseed, Mexican tea, wormseed goosefoot, Jerusalem tea, Mexican goosefoot, American goosefoot.

Description : Annual or perennial herb, 0.5-1m. high. Stems and twigs striate, glandular-pubescent, green or purple. Leaves alternate, sinuate-dentate, glandular-pubescent beneath. Flowers minute, in simple or paniculate axillary leafy spike. Utricle globular, membranous, pale-green. Seeds black, shining. All parts of the herb have a disagreeable strong smell.

Flowering period : May - July.

Distribution : Grows wild on river-banks.

Parts used : The whole plant, except for the roots, can be harvested all the year round, but preferably in May and June. After cutting, the plants must be immediately distilled to obtain the chenopodium essential oil.

Chemical composition : The whole plant contains essential oil (leaves 0.3 - 0.5%, seeds 1%) consisting of ascaridol, p-cymene, limonene, pinocarvone, aritason.

Therapeutic uses : The essential oil of the entire plant is an anthelminthic for *Ascaris* and *Oxyuris*. The dose for adults is 1ml of chenopodium essential oil diluted in 30ml of castor oil or in capsules. The purgative magnesium sulfate is administered later. It is indicated for children over five years of age. The dose, depending on their age, is 10 to 20 drops of chenopodium essential oil. It is highly toxic, so strict precautions are necessary.

46 Chrysanthemum indicum L. Compositae

Local names : Cúc hoa vàng, kim cúc, dã cúc, khổ ý, bioóc kim (Tày).

English name : Indian chrysanthemum.

Description : Annual or perennial herb, 20 - 50cm. high. Stems sulcate, glabrous. Leaves alternate, deeply lobed and irregularly toothed. Inflorescence is an axillary or terminal corymb of many heads ; flowers yellow. The species *Chrysanthemum morifolium* Ram. is also used medicinally.

Flowering period : November - January.

Distribution : Naturalized species grown for flavouring wines, spirits, etc... and for ornamental and medicinal purposes.

Parts used : Flowers. The flowers are picked in October and December. They are subjected to sulfur fumigation for 2-3 hours, then bulked together and reduced by compression. A black liquid should be extracted from the flowers. After pressing, the flowers are spread in thin layers to dry in an oven at low temperature.

Chemical composition : The flowers yield the glycoside chrysanthemin that yields glucose and cyanidin on hydrolysis, together with stachydrine, an essential oil and vitamin A. The semidried seeds contain 15.8% oil.

Therapeutic uses : The flowers possess antibacterial and antihypertensive properties. They are utilized in medication for photopsia, vertigo, fever, headache, ophthalmia, dacryolithiasis, xerophthalmia, amblyopia, hypertension, furunculosis and phlegmon. Their long-term use is rejuvenating. The daily dose is 8 to 16g in the form of a decoction. They are also a constituent of composite prescriptions. Washing with the decoction and poultices of pounded flowers are effective in furunculosis and impetigo.

47 Cibotium barometz (L.) J.Sm. Dicksoniaceae

Local names : Cẩu tích, cu li, kim mao, cút báng (Tày), co cút pá (Thái), nhải cù viằng (Dao).

English name : Golden moss.

Description : Arborescent fern. Rhizome stout and short, clothed with long brownish-yellow silky hairs. Leaves are fronds, tripinnate, over 2m. long, bearing many sori beneath ; spores minute, pale-brown.

Spore - bearing period : October - January.

Distribution : Grows wild in wet and shady ravines in mountainous regions.

Parts used : Rhizomes are harvested at the end of the year. After all the radicles and the yellow hairs covering them have been removed, the rhizomes should be chipped into slices and dried in the sun.

Chemical composition : The rhizomes contain 30% starch. The yellow fuzz yields tannin and pigments.

Therapeutic uses : The rhizome has anti-inflammatory and anodyne properties. It is utilized in the therapy of rheumatism, osteodynia, lumbago, sciatica, leucorrhoea, polyuria in the aged, dysuria and pollakiuria. The daily dosage is 10 to 20g in the form of a decoction or alcoholic maceration. The yellow hairs of the rhizome are used in a haemostatic poultice for wounds.

48 Cinnamomum camphora (L.) Presl — Lauraceae

Local names : Long não, dã hương, chương não, mạy khảo chuông (Tày).

English names : Camphor tree, Formosan wood.

Description : Evergreen tree about 15m. tall. Trunk bark thick and grooved. Leaves alternate, coriaceous, long-petiolate, shining on the upper side, 3-nerved at the base. Inflorescence in axillary panicle; shorter than the leaf ; flowers small, greenish-yellow. Berry globose, black when ripe.

Flowering period : May - June.

Distribution : Cultivated as a shade-tree and for medicinal purposes.

Parts used : Roots and wood of the trees when they reach 10 - 12 years of age, from which an essential oil is obtained by distillation.

Chemical composition : The stem wood and leaves contain an essential oil consisting of camphor, D-α-pinene, cineol, terpineol, caryophyllin, safrole, limonene, phellandrene, carvacrol, camphorene and azulene.

Therapeutic uses : The camphor from the trunk wood possesses cardiac, analeptic, antibacterial, demulcent and anodyne properties. Injections of camphor oil and sodium camphosulfonate are prescribed in cases of cardiovascular collapse. The peroral administration of camphor is effective for fever, colic, sore throat and impotence. It is applied externally as an antiseptic, demulcent and anodyne for impetigo, boils, neuralgia and rheumatism, in the form of a tincture, an aqueous solution or an ointment.

49 Cinnamomum cassia Blume — Lauraceae

Local names : Quế, quế đơn, may quẽ (Tày).

English names : Chinese cinnamon, Chinese cassia, cassia bark.

Description : Large tree, reaching a height of 10-20m. All parts glabrous. Leaves alternate, short-petioled, rigidly coriaceous, acute or slightly obtuse at the apex, triplinerved base, shining dark-green above, pale beneath. Inflorescence in axillary or terminal cymose panicle ; flowers white. Drupe ovoid, glabrous, purplish-brown when ripe.

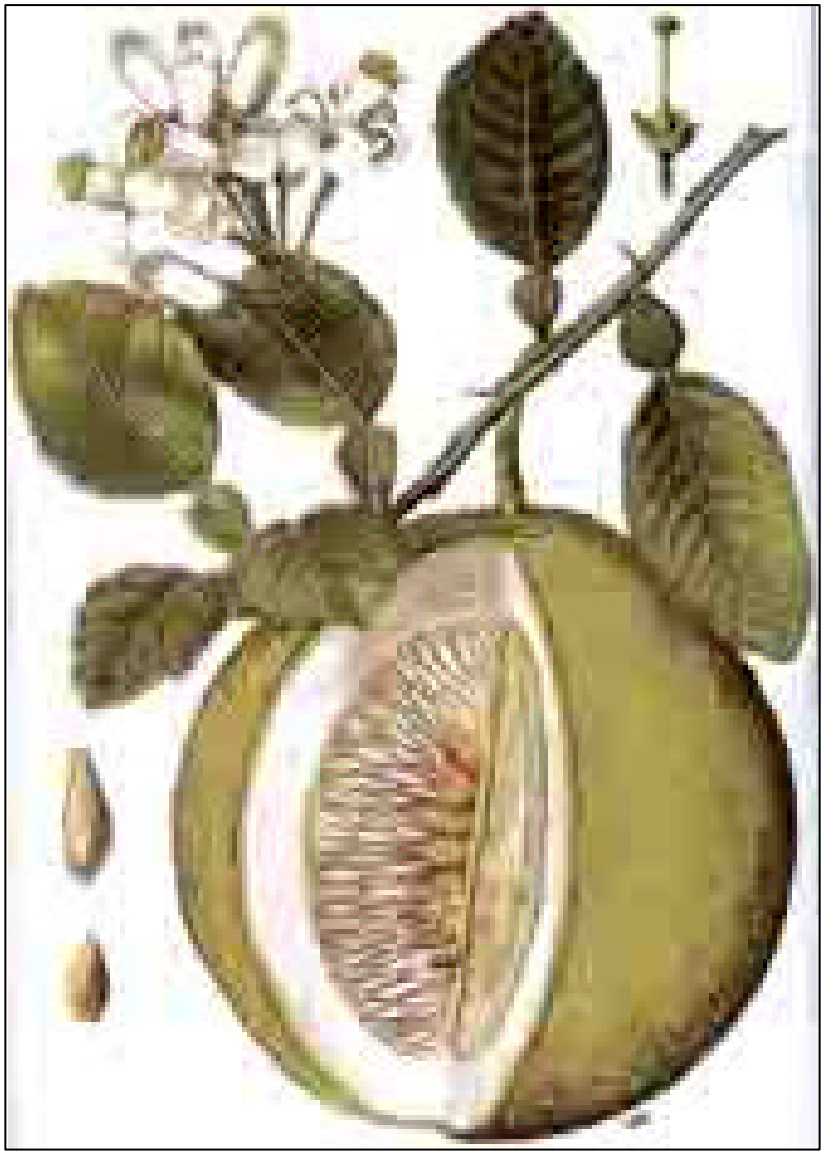
Flowering period : April - October.

Distribution : Occurs wild in mountainous regions ; also cultivated.

Parts used : Tree bark, collected during summer and autumn. The bark obtained is dried in the shade. An essential oil can be obtained by distillation.

Chemical composition : The whole plant, especially the stem bark and twig bark, contain an essential oil, cinnamic aldehyde, coumarin.

Therapeutic uses : The bark possesses antibacterial, circulatory, respiratory, uterotonic and stomachic properties. It is applied in the therapy of dyspepsia, colic, diarrhoea, cholera, dysentery, menstrual haematometra, coryza, influenza, cough, asthma, paresis and snake-bite. It is administered in a daily dose of 1 to 4g, in the form of a decoction, infusion, powder, pills or juice obtained by grinding it up with water. It is also recommended as a tonic. The essential oil from the bark is a constituent of balsams.



50 Citrus grandis (L.) Osbeck — Rutaceae

Local names : Bưởi, bòng, mác pục (Tày), mạ pộc điằng (Dao), plài plình (K'ho).

English names : Pomelo, shaddock, paradise apple, forbidden fruit, pompelmoose.

Description : A tree about 10m. high. Young shoots thorny. Leaves alternate, dark-green, shining above, obscurely puberulent beneath ; petiole broadly winged. Inflorescence in axillary cyme ; flowers white, fragrant. Fruit large, globose, pale-yellow ; rind thick ; vesicles numerous, distinct. Seeds angular.

Flowering period : March - May.

Distribution : Widely cultivated everywhere as a domestic fruit.

Parts used : Leaves, skin of fruit, flowers. The leaves are harvested throughout the year and used fresh. The ripe fruit is collected from July to September. Its skin is separated from the vesicles and dried in the shade.

Chemical composition : The essential oil from the leaves consists of dipentene, linalol, citral, limonene, flavonoids, vitamins A,C,B_1, rhamnose, citric acid, pectin and fatty oil.

Therapeutic uses : The fresh leaves in combination with leaves from some other aromatic plants are used in treating coryza, influenza and headache by inhalation of the vapour from the boiling decoction. The fruit rind is effective for dyspepsia, colic and cough, in a daily dose of 4 to 12g in the form of a decoction. The seed envelopes contain pectin, which is a haemostatic. The seeds, stripped of their envelope and charred, are applied externally for impetigo. Massage with heated young leaves is effective for treating bruises.

51 Citrus japonica Thunb. **Rutaceae**

Local names : Quất, kim quất.

English names : Kumquat, cherry orange.

Description: Shrubby plant, 1-3m. high, much-branched. Leaves alternate, short - petioled, oval or obovate,rounded at the apex, glabrous, with shining upper surface. Flowers white, axillary or terminal. Fruit globose, orange - red when ripe, with a leathery rind.

Flowering period: December - March.

Distribution: Species cultivated as an ornamental plant during Tết, a traditional Vietnamese festival.

Parts used: Fresh fruit, collected at the beginning of spring. The thoroughly washed fruit is used after being steamed with sugar- candy.

Chemical composition: The leaves and fruit contain an essential oil. The juice of the fruit contains sugars and organic acids.

Therapeutic uses: The fresh fruit has an antitussive and expectorant action. It is also effective in sore throat. The dose is 8 to 12g of fruit mixed with sugar - candy or honey and steamed, or in the form of dry candied fruit or syrup, 2 to 3 times a day. It is very good for infants.

52 Citrus limonia Osbeck **Rutaceae**

Local names : Chanh, má điêu (Thái), mác vo (Tày), chứ hở câu (H'mông), piều sui (Dao).

English names : Canton lemon, ninmeng, Japanese citron.

Description: Evergreen shrub, armed with long, sharp, axillary thorns. Leaves alternate, coriaceous, glabrous, dark green above, obscurely crenate - serrate. Flowers white, solitary or in few - flowered raceme. Fruit globose, rind smooth and thin, yellow when ripe.

Flowering period: March - May.

Distribution: Cultivated everywhere as a spice and medicinal plant.

Parts used: Leaves, fruit. The leaves are collected all the year round and are used fresh. The fruit is picked in autumn. After being washed carefully it is used fresh or salted (pickled for 2 - 3 months).

Chemical composition: The leaves contain essential oil 0.3 - 0.5%, strachydrine. The skin of the fruit yields an essential oil consisting of D-limonene, α - pinene, β- phellandrene, camphene, citral and pectin. The juice of the fruit contains citric acid 5 - 10%, calcium and potassium citrate 1 - 2%, vitamins C, B_1, riboflavin.

Therapeutic uses : The leaves, the roots and the fruit rinds possess antibacterial and demulcent properties. The boiling decoction of fresh leaves is indicated for inhalation against coryza and influenza. The leaves, the roots and the fruit rinds are used to treat cough, sore throat, dyspnoea, headache, ophthalmalgia, mastitis, galactophoritis, anorexia, vomiting and snake-bite. The daily dose is 6 to 12g, administered perlingually or in the form of a decoction.

53 Citrus reticulata Blanco — Rutaceae

Local names : Quít, quất thực, mạy cam chỉa (Tày).

English names : Tangerine, Maltese orange, loose - skinned orange, satsuma.

Description: Medium - sized plant, 5 - 8m. high, naked or with short spines. Leaves alternate with rounded or acute coriaceous apex, entire, glabrous; petiole obscurely winged. Flowers white in axillary raceme. Berry globose or subglobose, deep - orange when fully ripe; pulp juicy, sweet. Other species and varieties are also used medicinally.

Flowering period: July - December.

Distribution: Cultivated everywhere.

Parts used: Green fruit, the rind of ripe fruit and seeds. The green fruit is collected in July and August. It is cut transversally into two parts and dried in the sun or in dryers. The rind and seeds of ripe fruit are collected and dried (at low temperature for rind).

Chemical composition: The leaves and the skins of the fruit yield an essential oil consisting of D-limonene, DL-limonene, linalool, citral, nonylic and decylic aldehyde, methyl anthranilate. The juice of the fruit contains sugars, citric acid, vitamin C and carotene.

Therapeutic uses: The dried rind of the fruit is effective in treating cough, chest pain, excessive expectoration, dyspepsia, colic, diarrhoea, eructations and vomiting. It is also an antirheumatic and diuretic drug. The usual dose is 4 to 12g per day in the form of a decoction. External application of a poultice made of heated fresh leaves and a decoction of dried leaves taken by mouth in a dose of 6 to 12g daily, are prescribed for the treatment of colic and mastitis.

54 Clerodendrum fragrans (Vent.) Willd. Verbenaceae

Local names : Mò mâm xôi, mò trắng, bấn trắng, ngọc nữ thơm, puồng pỉ (Tày), burng sin mía (Dao).

English name : Chinese glory tree.

Description : Small shrub, 0.5-1.5m. high. Young twigs quadrangular, pubescent. Leaves opposite, long-petioled, cordate or flat at the base, tomentose on both sides ; margins toothed or wavy. Inflorescence in terminal head of dense, white flowers. Berry globose, calyx persistent.

Other species : *C. squamatum* Vahl, *C.viscosum* Vent. and *C. paniculatum L.* are also used medicinally.

Flowering period : May - August.

Distribution : Grows wild ; common in many places.

Parts used : Roots harvested in July and August. The root is removed from the plant, thoroughly washed, then dried in the sun or in dryers.

Therapeutic uses: The roots have antibacterial and anti-inflammatory activity. They are utilized in treating metritis, metrorrhoea, menstrual disorders, furunculosis, impetigo, osteodynia, lumbago, hypertension and icterus. The daily dose is 12 to 16g, in the form of a decoction and pills. The decoction serves also as an external antiseptic for the washing of infected wounds, burns and impetigo.

55 Clerodendrum squamatum Vahl **Verbenaceae**

Local names : Xích đồng nam, mò hoa đỏ, lẹo cái, co púng pính (Thái).

Description : Small shrub about 1m. high. Stems and branches glabrous, quadrangular. Leaves opposite, long-petioled, round cordate, entire or slightly dentate. Inflorescence in terminal cymose panicle flowers tinged red, stamens and style very long, exserted. Berry globose.

The species *C. viscosum* Vent., with white flowers, is also used medicinally.

Flowering period: May - August.

Distribution: Widely grown everywhere.

Parts used: Leaves and roots, harvested all the year round, usually at the beginning of the flowering period. The leaves are thoroughly washed, then lightly dried in dryers. The roots are washed, cut into slices and dried in the sun or in ovens.

Therapeutic uses: The entire plant has antibacterial and anti-inflammatory properties. It is indicated in the treatment of leucorrhoea, metritis, menstrual disorders, jaundice, furunculosis, impetigo, arthralgia, osteodynia, lumbago and hypertension. It is administered in a daily dose of 15 to 20g in the form of a decoction, extract or pills. A poultice of pounded fresh leaves and washing with their juice help to heal wounds, burns, boils and impetigo.

56 Codonopsis javanica (Blume) Hook.f. Campanulaceae

Local names : Đảng sâm, cây đùi gà, mằn rày cáy (Tày), co nhả dòi (Thái), cang hô (H'mông).

Description : Slender perennial twining herb with tuberous roots and milky juice. Leaves opposite, cordate ; margins entire or denticulate. Flowers campanulate, ivory-yellow, violet-veined inside, solitary at the leaf-axil. Berry globose, violet ; seeds numerous.

Flowering period: October - May.

Distribution: Grows wild on meadows and waste lands or at forest edges in mountainous areas.

Parts used: Roots. The best time for harvesting is in autumn. Separated from the stem, the roots are washed clean, then dried in the sun or in dryers.

Chemical composition: The roots contain sugars, fatty substances, essential oil, the glucoside scutellarin and a small amount of alkaloids.

Therapeutic uses: The root is a stomachic, expectorant and diuretic. It is recommended in treating general debility, anaemia, fatigue, cough, jaundice, dyspepsia, diarrhoea, nephritis, albuminuria, oedema, haemorrhoids, metroptosis, metrorrhagia and lymphatic system diseases. It is administered in a daily dose of 15 to 30g in the form of an infusion, decoction, pills, powder or elixir.

57 Coix lachryma-jobi L. Gramineae

Local names : Ý dĩ, bo bo, hạt cườm, mạy păt (Tày), co đươi (Thái).

English name : Job's tears.

Description : Shrubby herbaceous plant, 1-2m. tall. Stems glabrous, hollow. Leaves alternate, strap-shaped, base surrounding the stem; margins wavy. Inflorescence in erect axillary spikelet; flowers unisexual, the two sexes on the same plant. Fruit oval, shining, smooth, greyish, with a thick and hard pericarp.

Flowering period: May - December.

Distribution: Grows wild but is also cultivated in many parts for its edible fruit.

Parts used: Grains of ripe fruit, collected in winter. After drying, the fruit is pounded in a mortar to separate the husk from the grain. The husks are discarded and the grains roasted before use.

Chemical composition: The grains contain carbohydrates, proteins, lipids, amino acids, leucine, lysine, arginine, tyrosine, coixol, coixenolid, sitosterol, dimethyl glucoside.

Therapeutic uses: The grains are considered to be nutritious by virtue of their high protein and fat content. They are used for the treatment of enteritis, persistent diarrhoea in children, oedema, urinary lithiasis, rheumatism and acrodynia. Doses of 10 to 30g per day in the form of powder or decoction are given.

58 Coleus amboinicus Lour. Labiatae

Local names : Húng chanh, rau tần lá dày, rau thơm lông, dương tử tô.

English names : Country borage, Indian borage.

Description : Perennial succulent aromatic herb, 20 - 50cm. high. Lower part of the stem woody. Leaves opposite, thick, succulent, crenate, pale-green on both sides. Inflorescence in elongate and terminal raceme; flowers closely whorled, small and purple. Fruit of 4 reddish-brown nutlets.

All parts of the herb are covered with soft hairs and lemon-scented.

Flowering period: March - May.

Distribution: Species cultivated as a culinary herb and medicinal plant.

Parts used: Fresh leaves, harvested throughout the year.

Chemical composition: The whole plant contains an essential oil consisting of carvacrol.

Therapeutic uses: The fresh leaves possess antibacterial, antifebrile and antitussive properties. They are used in treating coryza, influenza, hyperthermia, adiaphoretic pyrexia, cough, asthma, haemoptysis, sore throat, laryngitis, hoarseness, haematemesis and epistaxis. They are prescribed in a daily dose of 10 to 16g in the form of a decoction, extracted juice, inhalation of vapour from a boiling decoction, or perlingual administration of pounded leaves together with a little salt. For infants, the pounded fresh leaves are mixed with honey and steamed.

59 Combretum quadrangulare Kurz **Combretaceae**

Local names : Trâm bầu, chưng bầu, tim bầu, săng kê, song re.

Description : Medium-sized tree, 2 - 10m. high.Branchlets short, unleafy, spiniform. Young shoots angular, margins winged. Leaves opposite, short-petioled, pubescent on both sides, densely beneath. Inflorescence in axillary and terminal spike; flowers small, yellow. Fruit 4-winged with single seed, rhombiform.

Flowering period: September - November.

Distribution: Grows wild but is usually cultivated in the plains in the south.

Parts used: Seeds. The fruit is harvested in autumn and winter. After drying, it is broken to release its seeds.

Chemical composition: The leaves and the seeds contain tannin.

Therapeutic uses: The seeds are anthelminthic for ascariasis and oxyuriasis. They are torrefied and orally administered together with ripe banana. The daily dose for adults is 10 to 15 seeds (14 to 20g), and for children, depending on their age, 5 to 10 seeds (6 to 12g), for 3 days. The leaves, the stem bark and the stem bark mucilage possess similar therapeutic properties.

60 Coscinium fenestratum (Gaertn.) Colebr. Menispermaceae

Local names : Vàng đắng, vang đằng, hoàng đằng lá trắng, dây mỏ vàng, loong t'rơn, kơ trơng (Ba Na).

English names : False calumba, Ceylon calumba root, turmeric tree.

Description : Lofty woody climber. Roots and stems yellow inside. Stem-bark longitudinally fluted, whitish-grey in colour. Leaves alternate, coriaceous, shining above, minutely whitish tomentose beneath ; petiole long, inserted not far from the base of lamina ; basal nerves 3 - 5. Inflorescence in paniculate raceme, borne in the axil of fallen leaves. Flowers unisexual. Drupe globose.

Flowering period : January - May.

Distribution : Grows wild and is indigenous to South Viet Nam.

Parts used : Stems and roots harvested all the year round.

Chemical composition : The stems and the roots contain the alkaloid berberine 1.5 - 3 %.

Therapeutic uses : Berberine is antibacterial. The stem, the roots and the purified berberine are used in treating diarrhoea, bacillary dysentery, enteritis, jaundice, pyrexia and dyspepsia. The daily dose is 10 to 16g of dried stem and root in the form of a decoction, powder or pills ; or 0.30 to 0.50g of berberine chloride in 0.05g tablets. The dose for children depends on their age. An eye-lotion of 0.5 to 1% berberine chloride is effective for ophthalmia.

61 Costus speciosus (Koenig) Smith — Zingiberaceae

Local names : Mía dò, cát lồi, đọt đắng, sẹ vòng, tậu chó, nó ưởng (Tày), co ướng bôn (Thái).

English name : Elegant costus.

Description: Erect herbaceous plant, attaining 2m. in height, occasionally branched. Rhizome stout, creeping horizontally. Leaves alternate, lower part surrounding the stem, tomentose, arranged in a spiral when young. Inflorescence in dense terminal spike; flowers white with yellowish centre; bracts red. Capsule with numerous black seeds.

Flowering period: June - August.

Distribution: Grows wild in wet places in mountainous regions.

Parts used : Stems and rhizomes, harvested all the year round. After thorough washing, the plants are dried in the sun or in ovens.

Chemical composition : The rhizomes yield steroidal saponins that give diosgenin and tigogenin on hydrolysis.

Therapeutic uses : The rhizome possesses anti-inflammatory activity. It is indicated in the treatment of fever, urodynia, biliuria, rheumatism, lumbago and neuralgia. It is administered in a daily dose of 10 to 20g in the form of a decoction or liquid extract. The juice of pounded fresh tops of young branches is instilled in the ear for otitis. The plant can be used as raw material for diosgenin extraction.

62 Crinum asiaticum L. Amaryllidaceae

Local names : Náng hoa trắng, lá náng, chuối nước, tỏi voi, cap gụn (Tày), co lạc quận (Thái).

English name : Asian poison bulb.

Description: Stout perennial herb. Rootstock bulbous. Leaves linear, fleshy, about 1m. long ; margins entire and undulate. Inflorescence in terminal umbel with 2 spathaceous bracts ; stalk solid, slightly compressed ; flowers large, white, fragrant. Stamens often reddish. Fruit subglobose.

Flowering period: June - August.

Distribution : Grows wild in many places and is also cultivated for its showy flowers.

Parts used : Fresh leaves and bulbs, collected at the end of the year.

Chemical composition : The bulbs contain alkaloids consisting principally of lycorine and crinamine.

Therapeutic uses : Poultices prepared with heated pounded fresh leaves are used to treat contusions, phlegmon, sprains, luxations and closed fractures. Poultices made of heated pounded fresh bulbs relieve rheumatism and osteodynia. A decoction of dried leaves is used as a wash for healing external haemorrhoids. Juice from the fresh bulbs, taken several times per mouth, induces vomiting. It is also instilled in the ear to treat otitis.

63 Croton tiglium L. Euphorbiaceae

Local names : Ba đậu, ba đậu tàu, mạy vát (Tày), mần đề, pụt tau (Dao).

English names : Purging croton, purgative croton, true croton, croton-oil plant.

Description: Medium-sized tree, 3-6m. in height. Leaves alternate, toothed, glabrous, pinkish-violet when young. Inflorescence in terminal raceme ; flowers unisexual, monoecious ; female flowers without petals. Capsule ovoid, obtusely 3-lobed, yellow. Seeds small with hard brownish-yellow shell.

Flowering period: May - July.

Distribution: Grows wild in hills and damp forests.

Parts used : The seeds are harvested in August and September, when the fruit is ripe but its pericarp has still not opened. After drying, the fruit is threshed to release the seeds.

Chemical composition : The seeds yield fatty oil composed principally of stearin, palmitin, glycerides of crotonic and tiglic acids ; proteins 18% ; the glucoside crotonoside ; amino acids : arginine, lysine ; alkaloids ; the enzyme lipase.

Therapeutic uses : The processed seeds are used in treating flatulence, dyspepsia, constipation, colic, oedema, dyspnoea and persistent cough. A daily dose of 0.01 to 0.05g of pounded and torrefied seeds from which the oil has already been eliminated is given, in the form of pills or extract. It should be used cautiously because of its high toxicity. Should not be administered to pregnant women. *Croton tiglium* poisoning is treated with a decoction of *Coptis teeta* and *string beans*.

64 Croton tonkinensis Gagnep. Euphorbiaceae

Local names : Khổ sâm, cù đèn, co chạy đón (Thái).

Description : Small plant, 1-1.5m. high. Leaves alternate, sometimes clustered, 2-glandular at the base, covered with minute silvery scales on both sides, densely beneath. Inflorescence in axillary or terminal raceme ; flowers white, unisexual, monoecious. Capsule ovoid, 3-lobed seeds brown.

Flowering period : May - August.

Distribution : Grows wild and is cultivated everywhere.

Parts used : Leaves. The best time for harvesting is in May and June, during the flowering period. The washed leaves are dried in the sun or in dryers until they go hard.

Therapeutic uses : The torrefied leaves are employed in the treatment of abscesses, boils, impetigo, rhinitis, dysentery, bloody stools, colic, gastric and duodenal ulcers and dyspepsia. A decoction of leaves is administered in a daily dose of 16 to 20g. Washing with a concentrated decoction is effective against boils and impetigo.

65 Curcuma domestica Valet. Zingiberaceae

Local names: Nghệ, nghệ vàng, uất kim, khương hoàng, co hem, co khản mỉn (Thái), khinh lương (Tày).

English names : Common turmeric, long turmeric.

Description : Tufty perennial herb about 1m. high. Rhizome thick, much-branched, golden-yellow. Leaves large, entire, long-sheathed, glabrous on both sides. Inflorescence cylindrical, arising from the leaves, on a scape of yellow flowers and greenish or whitish bracts with pink tips.

Flowering period : March - May.

Distribution : Extensively cultivated as a spice and medicinal plant.

Parts used : Rhizomes, harvested in November and December. The rhizomes are separated from the stem, then dried in the sun or in dryers after thorough washing.

Chemical composition : The rhizomes contain the pigment curcumin; an essential oil consisting of sesquiterpenes, zingiberene, D-α -phellandrene, turmerone, dehydroturmerone, γ and α - alanto lactone, curcumene, cineol.

Therapeutic uses : The rhizome is well known for its anti- gastric-ulcer, anti-inflammatory and cholagogic properties. It is prescribed in the therapy of gastric and duodenal ulcers, hepatitis, jaundice, menstrual disorders, post-partum or menstrual haematometra, contusions, rheumatism, pain in the extremities, boils and impetigo. The daily dose is 4 to 12g, in the form of powder or extract. It is also used as a poultice for wounds to avoid their cicatrization.

66 Curcuma zedoaria (Berg.) Rosc. Zingiberaceae

Local names : Nga truật, nghệ đen, nghệ tím, bồng truật, nghệ đăm (Tày), sùng meng (Dao), m'gang m'lung (Ba Na).

English names : Round zedoary, long zedoary, Cochin turmeric.

Description : Beautiful perennial herb, 0.5-0.8m. high. Rhizome conical, bearing several small tubers with long stalks. Leaves entire, largely sheathed, with purple veins along the main nerve on the upper face. Inflorescence cylindrical, arising from the rhizome before the leaves; flowers yellow; bracts greenish, pink at the tips.

Flowering period : April - May.

Distribution : Grows wild in damp deciduous forests; is also cultivated for ornament.

Parts used : Rhizomes, which can be harvested in November and December, are washed clean, then dried in the sun.

Chemical composition : The rhizomes yield an essential oil consisting principally of α -pinene, D-camphene, cineol, D-camphor, D-borneol, sesquiterpene alcohol, zingiberene.

Therapeutic uses : The rhizome has stomachic and emmenagogic properties. It is active in dyspepsia, colic, vomiting, cough, menstrual haematometra and menstrual disorders. It is also used as a restorative. The dosage is 3 to 6g per day in the form of a decoction, powder or pills.

67 Cymbopogon citratus (DC.) Stapf — Gramineae

Local names : Sả, hương mao, chạ phiéc (Tày), phắc châu (Thái), mờ b'lang (K'ho).

English names : Lemon grass, ginger grass, citronella grass, sere grass.

Description : Perennial, densely tufted, aromatic grass. Stems underground, short, whitish or pale-violet. Leaves in dense clusters, linear, amplexicaul, rough-margined, glaucous green on both sides. Inflorescence in many-branched panicles without stalks. All parts of the grass are lemon-flavoured.

Flowering period : March - April.

Distribution : Species cultivated as a culinary herb and for medicinal use.

Parts used : The whole plant can be harvested all the year round. The plant is used fresh or dried. An essential oil is extracted from it by distillation.

Chemical composition : The whole plant contains an essential oil consisting of citral, limonene, isopulegol, citronellic acid, geranium acid and α -camphorene.

Therapeutic uses : The entire plant possesses antiseptic, antifebrile and stomachic properties. It is used in treating coryza, influenza and pyrexia, in a dose of 10 to 20g of roots and leaves in a decoction, by peroral administration or inhalation. It is also prescribed against dyspepsia and vomiting and as a carminative, using three to four drops of the essential oil, diluted in water. Used externally to treat eczema. The essential oil is used as an insecticide against mosquitoes and as a deodorant.

68 Cyperus rotundus L. **Cyperaceae**

Local names : Cỏ gấu, củ gấu, cỏ cú, hương phụ, sa thảo, nhả khuôn mu (Thái), tùng ghấy thật mía (Dao).

English names : Nut grass, coco grass.

Description : Glabrous perennial grass, 20-30 cm. high. Rhizome tuberous, reddish-brown, aromatic. Leaves long, very narrow, sheathed and one-nerved. Inflorescence consisting of 4-6 spikes radiating from a slender, triangular stalk, purplish. Fruit angular, greyish. The sea-coast species is usually highly valued.

Flowering period : March - July.

Distribution : Weed found wild everywhere in Viet Nam.

Parts used : Rhizomes, collected throughout the year but preferably in autumn. After singeing the rhizomes to eliminate all their radicles, they are well washed, then dried in the sun or in a dryer.

Chemical composition : The rhizomes yield an essential oil (0.5-1.2%) consisting of cyperene, cyperol, α - cyperone, cineol and L- α - pinene, together with starch.

Therapeutic uses : The rhizomes give successful results in the treatment of irregular menstruation, dysmenorrhoea, gastralgia, dyspepsia, diarrhoea and vomiting. They can be used for oral administration in the form of a decoction, powder, pills or tincture. The usual dose is 8 to 12g per day, alone or in association with other drugs.

69 Datura metel L. **Solanaceae**

Local names : Cà độc dược, cà diên, cà lục lược (Tày), mạn đà la, sùa tùa (H'mông), hìa kía piêu (Dao).

English names : White datura, white thornapple, downy thornapple, recurved thornapple.

Description : Small herbaceous plant, 1 - 1.5 m . high. Branches pubescent when young, marked with leaf scars. Leaves alternate, unequal at the base, minutely pubescent on both surfaces ; margins wavy. Flowers large, white, solitary in the leaf axil. Capsule globose, covered with slender spines. Seeds numerous, blackish - brown.

Flowering period : June - December.

Distribution : Grows wild on waste land ; also cultivated for ornament.

Parts used : Leaves and flowers. Leaves are harvested from April to October. Flowers are collected in autumn. Both flowers and leaves are dried at low temperature.

Chemical composition : The whole plant, especially the leaves and flowers, contain alkaloids : scopolamine, hyoscyamine, atropine and norhyoscyamine, as well as vitamin C. The total alkaloid content of the roots is 0.10 - 0.20% ; leaves 0.1 - 0.5% ; flowers 0.25 - 0.60% ; fruits 0.12%.

Therapeutic uses : The leaves possess antispasmodic, sedative and anodyne properties. They are used for treating cough, asthma, rheumatism, chilblains, gastric ulcers, haemorrhoids, sea sickness and air sickness. The maximum dose is 0.2g per dose and 0.6g in 24 hours, in the form of powder, extract or tincture. The dried leaves and flowers are cut into small chips and used in antiasthmatic cigarettes. A poultice of the pounded fresh leaves has an anodyne effect. Warning should be given of their high toxicity.

70 Dendrobium nobile Lindl. Orchidaceae

Local names : Thạch hộc, kẹp thảo, hoàng thảo cẳng gà, phi điệp kép, co vàng sào (Thái), xè kẹp (Tày).

Description : Tufty epiphyte on old branches and rockwalls, 30-50cm. high. Stems slightly compressed, sulcate, pale-yellow when dry. Leaves alternate, thick, coriaceous, truncate at the apex. Inflorescence in axillary raceme of 2 - 4 pink flowers. Capsule rhombiform, longitudinally dehiscent when dry; seeds numerous.

Some species of the *Desmotrichum* genus are also used medicinally in the same way as *Dendrobium.*

Flowering period : Ferbruary - April.

Distribution : Grows wild in the mountains and is cultivated for its ornamental flowers.

Parts used : The whole plant. The best time for harvesting is at the end of the year. The washed plants are dried in the sun or in dryers. The dried plants are imbued with alcohol and steam-cooked before use.

Chemical composition : The whole plant contains mucilaginous substances and the alkaloid dendrobine.

Therapeutic uses : The entire plant is applied as a tonic in pulmonary tuberculosis, general debility, flatulence, dyspepsia, reduced salivation, parched and thirsty mouth, night sweats, fever and anorexia. It is likewise effective for sexual impotence, amblyopia, arthralgia, myasthenia, lumbago and pain in the extremities. It is prescribed in a daily dose of 8 to 16g in the form of a decoction, powder or pills.

71 Desmodium triangulare (Retz.) Merr. Leguminosae

Local names : Ba chẽ, niễng đực, ván đất, đậu bạc đầu, mạy thập moong (Tày), biền ong (Dao).

Description : Small tree, 2-3m. high, branched. Leaves alternate; leaflets 3, ovate to lanceolate, the terminal largest, covered with a dense silvery pubescence beneath. Inflorescence in short axillary raceme; flowers white. Pod minutely constricted between the seeds. Seeds reniform.

Flowering period : May - August.

Distribution : Grows wild in hilly and mountainous regions.

Parts used : The leaves, harvested in dry weather during spring and summer. They are separated from the plants, carefully washed, then lightly dried in ovens.

Chemical composition : The leaves contain tannin, flavonoids, organic acids and alkaloids.

Therapeutic uses : The leaves possess antibacterial and anti-inflammatory properties. They are indicated in the treatment of bacillary dysentery, dysenteric syndrome and diarrhoea. The usual dose is 30 to 50g per day, divided into 2 to 3 part doses, for 3 to 5 days in the form of a decoction, a liquid extract or pills made from extract. Snake-bite is treated with finely pounded fresh leaves, the juice being extracted for oral administration and the residue used for a poultice.

72 Dichroa febrifuga Lour. Saxifragaceae

Local names : Thường sơn, thường sơn tía, ô rô lửa, thục tất, áp niệu, sleng slảo mè (Tày).

Description : Small shrub, 1 - 2m. high ; stems glabrous, greenish or pale - violet. Leaves opposite, oblong, acuminate ; margins toothed. Petiole and main nerve usually violet. Inflorescence in axillary or terminal divaricate cyme ; flowers and berries bluish or lilac. Seeds small, pear-shaped.

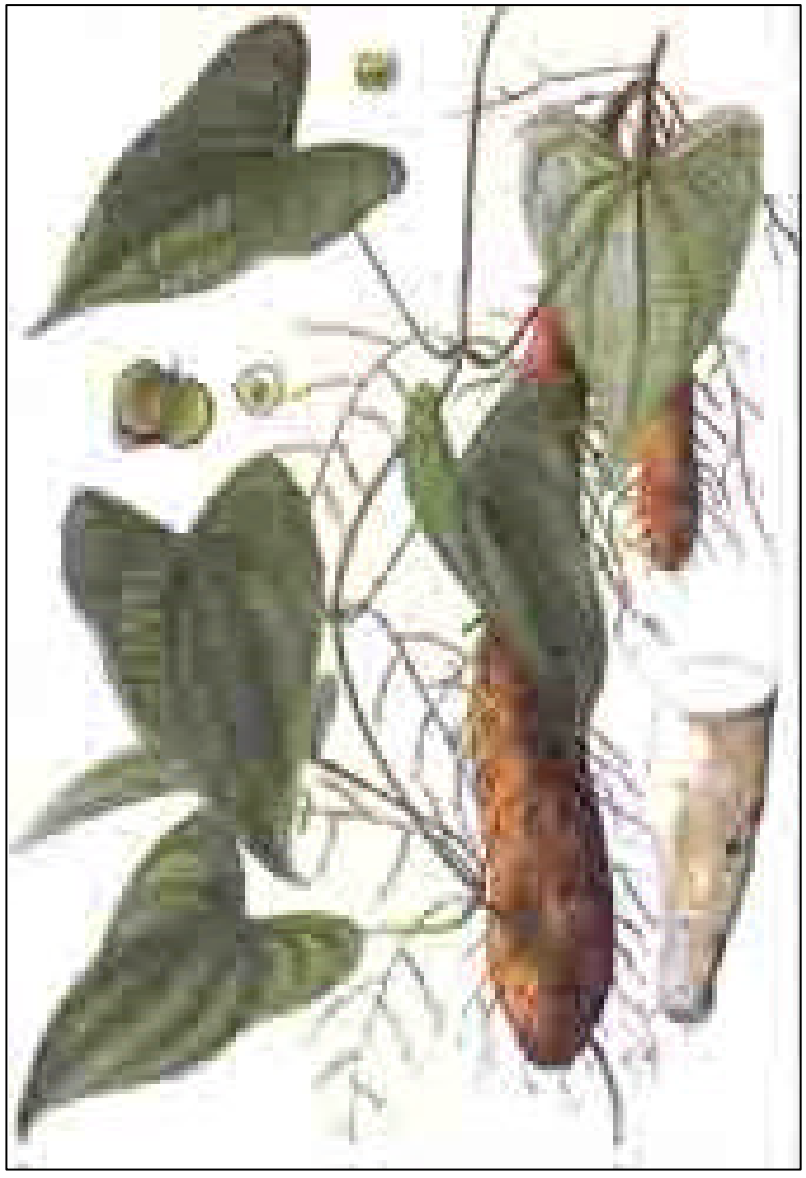
Flowering period : May - June.

Distribution : Grows wild in wet places or on stream banks.

Parts used : Roots and leaves, harvested all the year round. After careful washing, the roots are cut into slices, then spread in thin layers for drying in the sun or in dryers. They are impregnated with alcohol, then roasted before use.

Chemical composition : The roots contain alkaloids : α – dichroine, β - dichroine, γ - dichroine and 4 - ketodihydroquinazoline.

Therapeutic uses : The roots and the leaves possess antifebrile, expectorant and diuretic properties. They are indicated in the treatment of pyrexia, malaria, intermittent fever, cough and oliguria. The raw plant material is vomitive, so the roots and leaves are impregnated with alcohol and torrefied. They are administered at the rate of 6 to 12g per day in a decoction, or in the form of purified total alkaloids, used on their own or in combination with other plant remedies.



73 Dioscorea persimilis Prain et Burkill — Dioscoreaceae

Local names : Củ mài, khoai mài, sơn dược, hoài sơn, mán định(Thái), mằn chèn(Tày),gờ lờn(K'dong), hìa dòi(Dao).

English name : Yam.

Description : Glabrous climber. Tuber single or paired, stout and slightly flat ; the tip round, resembling a gourd, descending deep into the soil. Stems usually bearing axillary bulbils (aerial tubers). Leaves alternate or opposite, broadly ovate-cordate. Inflorescence in axillary raceme ; flowers small, yellow. Fruit 3-winged.

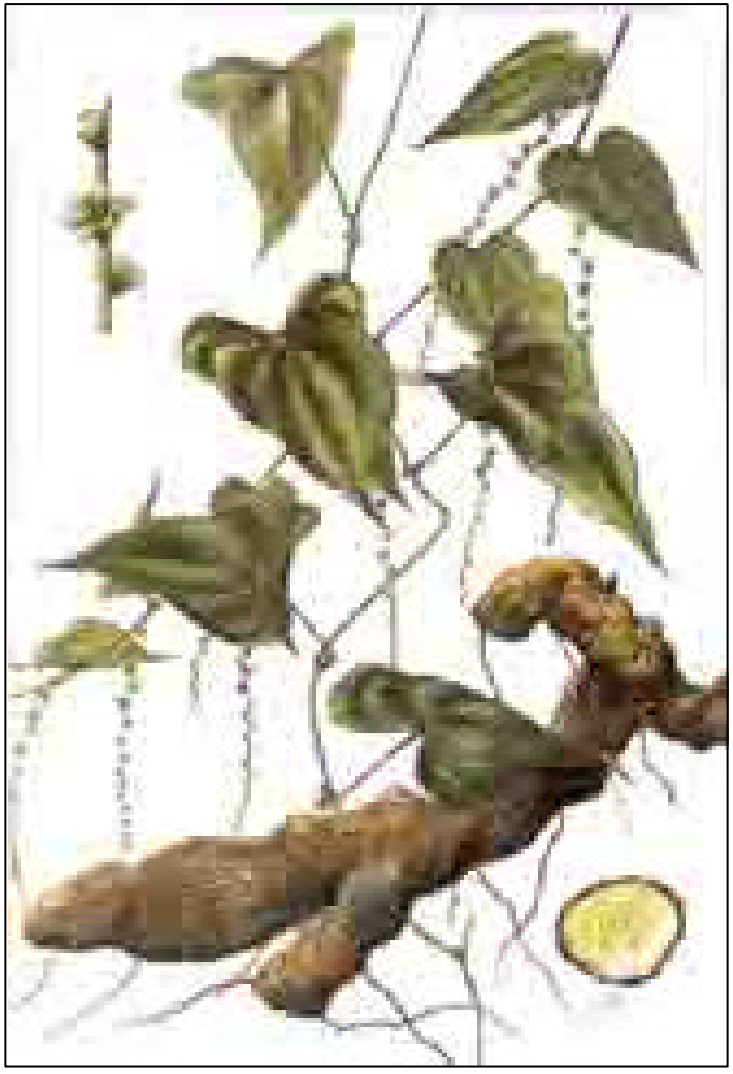
Flowering period : May - July.

Distribution : Grows wild and is cultivated for its edible tubers.

Parts used : Rhizomes, collected in summer and in autumn, when the plant begins to wither. The carefully washed rhizomes are soaked in an aqueous solution of alum for 2-3 hours, then subjected to sulfur fumigation for 48 hours. They are then dried in the sun or in ovens.

Chemical composition : The rhizome contains hydrocarbons 63.25% ; proteins 6.75% ; lipids 0.45% ; mucilaginous substances 2 - 2.8% ; saponins : dioscin, sapotoxin, allantoin and dioscorin ; and amino acids.

Therapeutic uses : The rhizomes constitute a restorative and antifebrile remedy. They have a beneficial effect in dyspepsia, general debility, chronic enteritis, chronic diarrhoea and dysentery, spermatorrhoea, night sweats, diabetes mellitus, polyuria, metrorrhoea, lumbago, vertigo and photopsia. The usual dose is 10 to 25g per day in decoction or powder form. Used externally for poulticing boils.



74 Dioscorea zingiberensis C.H.Wright **Dioscoreaceae**

Local names : Mài gừng, cờ lọh (Ba Na).

Description : Glabrous rigid climber, 5-10 m. long. Rhizome creeping horizontally with rough dark-brown skin. Rootlets rigid. Leaves alternate, base sagittate ; apex apiculate. Petiole long, armed with prickles towards the base. Inflorescence in long axillary spike ; flowers small, purplish. Fruit 3-winged.

Flowering period : February - May.

Distribution : Grows wild on the lower slopes of mountains, indigenous in south Viet Nam.

Parts used : The rhizome, collected in autumn, when the plant begins to wither, is well washed and dried in the sun or in ovens.

Chemical composition : The rhizome contains diosgenin 2-2.5%.

Therapeutic uses : Diosgenin is one of the principal materials for the synthesis of steroid drugs such as sex hormones, anti-inflammatory corticosteroids, contraceptive drugs and anabolic steroids.

75 Dipsacus japonicus Miq. **Dipsaceae**

Local names : Tục đoạn, sơn căn thái, oa thái, rễ kế, đầu vù (H'mông).

Description : Annual herbaceous plant ; 60 - 90 cm. high. Roots tuberous, solitary, 10 - 15cm. long. Stems obscurely angular and sparsely spinous. Leaves opposite, margins toothed, the lower deeply lobed, the upper entire. Inflorescence in dense, long-stalked, cylindrical head, surrounded by an involucre of strong and wiry bracts ; flowers white. Achene 4-angled, glabrous.

Flowering period : August - November.

Distribution : Common weed of savannas at an altitude of 1000 m. and above.

Parts used : The roots, harvested in autumn, are well washed and dried in the sun or in dryers.

Chemical composition : The roots contain alkaloids, tannins and sugars.

Therapeutic uses : The roots possess tonic, anodyne and demulcent properties. They are effective in the treatment of lumbago, rheumatism, osteodynia, chilblains, spermatorrhoea, metrorrhoea, colic in pregnancy, hepatic and renal hypofunction, ascites, trauma, sprains, closed fractures and furunculosis. They are also galactagogic and haemostatic. The usual dose is 10 to 20g per day in the form of a decoction, alcoholic maceration, powder or pills.

76 Disporopsis aspera (Hua) Engl. ex Krause — Liliaceae

Local name : Ngọc trúc hoàng tinh

Description : Perennial herb, 20 - 50cm. high, withering every year in winter. Rhizome slender, creeping horizontally, pale-yellow. Leaves alternate, subsessile, coriaceous, dark-green above, pale beneath. Inflorescence in axillary bi-flowered raceme ; flowers white, campanulate. Berry globose, dark-violet when ripe.

Flowering period : May - June.

Distribution : Grows wild in damp places in the highlands.

Parts used : The rhizome, harvested when the fruit forms (August and September), is well washed and carefully dried in the sun or in ovens.

Therapeutic uses : The rhizome is tonic and is used in general debility, persistent fever, hyperhidrosis, night sweats, polyuria, spermatorrhoea, dry cough and thirst. The daily dose is 6 to 12g in the form of a decoction, elixir, pills or powder. It is prescribed on its own or in combination with other plants.

77 Disporopsis longifolia Craib — Liliaceae

Local names : Hoàng tinh hoa trắng, hoàng tinh lá mọc so le, cây đót, co hán han (Thái), voòng chinh, néng lài (Tày).

Description : Perennial herb, about 1 m. high. Stems glabrous, erect, spotted with red. Rhizome stout, horizontal with hollow scar resembling a cup. Leaves alternate, ovate. Flowers white, campanulate, axillary. Berry globose, dark-violet when ripe.

Flowering period : March - May.

Distribution : Grows wild in wet places in mountainous regions.

Parts used : Rhizomes harvested in autumn, are separated from the plant, well washed, soaked in molasses, steamed and then dried. These processes must be repeated 9 times before use.

Therapeutic uses : The rhizome has tonic and anodyne properties. It is used in general debility, fatigue, anorexia, lumbago, arthralgia and dry throat. The dose is 12 to 20g per day, in the form of a decoction, powder or alcoholic maceration. It may be used on its own or in combination with certain other plants.

Local names : Đậu ván trắng, bạch biển đậu, bạch đậu, đậu biển, thúa bản khao (Tày), tập bảy pẹ (Dao).

English names : Egyptian kidney bean, purple hyacinth bean, lablab bean, bonavist bean.

Description : Perennial twining plant ; stems green or pale purple, covered with hairs while young. Leaves alternate, trifoliate, slightly hairy. Inflorescence in axillary raceme ; flowers white. Pod flat, incurved with remains of persistent style. Seeds reniform, whitish.

Flowering period : April - May.

Distribution : Cultivated everywhere for its edible young pods and medically useful fully ripe seeds.

Parts used : Seeds from fully ripe fruit. The dry fruit is threshed to release the seeds, which are then well dried and roasted before use.

Chemical composition : The seeds contain hydrocarbons, proteins, lipids, amino acids : tryptophan, arginine, tyrosine, tyrosinase ; vitamins A, B_1, B_2, C ; hydrocyanic acid, and salts of Ca, P, Fe.

Therapeutic uses : The seeds are considered to be nutritious. They are also antifebrile and depurative. They are effective in cases of sunstroke, nausea, vomiting, diarrhoea, enteritis, abdominal pains, alcoholism or arsenism. They are used in the form of powder or a decoction in a dose of 8 to 16g per day. For sore throat the juice of fresh leaves is administered by mouth.

79 Dracaena cambodiana Pierre ex Gagnep. Liliaceae

Local names : Huyết giác, cây xó nhà, cau rừng, dứa dại, giáng ông, ỏi càng (Tày), co ỏi khang (Thái).

English name : Dragon tree.

Description : Small tree, 2 - 4m. high. Stems erect, occasionally woody at the base, hollow and brownish-red. Leaves linear with lax sheath and entire margins, crowded in bundles at the end of the branch. Inflorescence in terminal compound raceme ; flowers yellowish-green. Berry globose, red when ripe, single-seeded.

Flowering period : February - May.

Distribution : Grows wild, usually in rocky localities.

Parts used : Red wood obtained from the foot of the tree, preferably in winter. After washing, the wood is well dried in the sun or in dryers.

Therapeutic uses : The woody part of the stem is a blood circulation stimulant and demulcent remedy. It is used to treat contusions, blood stasis, menstrual haematometra, rheumatism, paresis, lumbago and osteodynia. It is administered in a dose of 8 to 12g in the form of a decoction or elixir. An alcoholic maceration of the mixture with *Cinnamomum cassia* is used externally as a liniment.

80 Drynaria fortunei (Kze) J.Sm. Polypodiaceae

Local names : Bổ cốt toái, ráng bay, tắc kè đá, co tạng tó (Thái), đờ rờ (K'ho), hộc quyết, tổ phượng, sáng viằng (Dao).

Description : Perennial fern. Rhizome thick, fleshy, covered with brown cordate scales. Fronds of two kinds : sterile, covering the rhizome and gathering humus, sessile, small and brown when they age, and fertile, which are longer and larger, dark-green, deeply and pinnately lobed, sporiferous beneath.

Spore-bearing period : May - August.

Distribution : Grows wild, as an epiphyte on trees and rocks in mountainous regions.

Parts used : Rhizome, harvested all the year round. After all the radicles and scales have been removed from them, the rhizomes are cut into fragments, then well dried in the sun or in ovens.

Therapeutic uses : The rhizome possesses antiphlogistic and anodyne properties and has a beneficial effect in lumbago, arthritis, ostealgia, contusions, sprains, closed fractures, nephrosis, tinnitus, parodontosis and gingivitis. The usual dose is 6 to 12g per day in the form of a decoction or elixir. It is used externally in poultices applied on areas of inflammation.

81 Eclipta alba (L.) Hassk. **Compositae**

Local names : Cỏ mực, nhọ nồi, hạn liên thảo, nhả cha chát (Thái), phong trường, mạy mỏ lắc nà (Tày).

English names : Dyer's weed, dye-weed.

Description : Perennial herb, erect or prostrate, 30 - 40 cm. high. Stems green or purple, bristly, thickened at the nodes. Leaves opposite, subsessile, lanceolate-oblong, denticulate, hirsute on both sides. Flowers white in axillary or terminal head ; the female radiated, the bisexual in the centre. Achene 3 - angled, slightly flattened.

Flowering period : February - May.

Distribution : Common weed in damp places throughout the country.

Parts used : The whole plant, collected the whole year round. The plants are used fresh or dried.

Chemical composition : The whole plant contains alkaloids : ecliptine, nicotine ; coumarin lactone : wedclolactone.

Therapeutic uses : The entire plant possesses antibacterial and haemostatic properties. It is recommended in the treatment of internal and external haemorrhages, metrorrhagia, menorrhagia, epistaxis, haemorrhoids, haematuria, bloody stools, haemoptysis, haematemesis and hypodermic haemorrhage. It is also used in erythema, measles, cough, asthma, sore throat, burns, dermatomycosis and thrush of the tongue in infants. The daily dose is 12 to 20g of torrefied plant in the form of a decoction or pills, or 30 to 50g of juice from the fresh plant. It is used externally for lime burns, wounds and thrush of the tongue in infants.

82 Eleusine indica (L.) Gaertn. **Gramineae**

Local names : Cỏ mần trầu, thanh tâm thảo, nguru căn thảo, co nhả hút (Thái), hang ma (Tày), hìa xú xan (Dao).

English names : Crowfoot grass, dog's tail grass, crabgrass, wire grass.

Description : Annual herb ; stems erect or occasionally prostrate in tufts, 30 - 60cm.high. Leaves loricate, narrow, arranged in two rows ; the blade glabrous ; sheath hairy. Inflorescence in whorl of 5 - 7 digitate spikes, with single spikelet or two spikelets separated below. Fruit oblong, nearly trigonal.

Flowering period : May - July

Distribution : Common weed on pasture and roadsides.

Parts used : The whole plant, collected all the year round. Used fresh or dried.

Chemical composition : The whole plant contains nitrates.

Therapeutic uses : In Viet Nam traditional medicine, the plant is a component of the "basic remedy". It is considered diuretic, laxative, stomachic, depurative and good for the liver. It is used against influenza, hypertension, oliguria and retention of urine. It is orally administered in the form of a decoction in doses ranging from 60 to 100g per day.

83 Eleutherine subaphylla Gagnep. **Iridaceae**

Local names : Sâm đại hành, hành đỏ, tỏi đỏ, tỏi lào, phong nhan, hom búa lượt (Thái).

Description : Perennial herb, 30 - 40cm.high ; usually withered in the dry season. Bulb purplish. Leaves lanceolate, acute at both ends, with numerous parallel nerves. Inflorescence in long raceme ; flowers white. Capsule many-seeded.

Flowering period : April - June.

Distribution : Grows wild but is also cultivated everywhere.

Parts used : The bulbs, harvested when the plants begin to wither, are well washed, cut into thin slices and dried at low temperature.

Chemical composition : The bulbs contain quinoid substances, eleutherin, isoeleutherin, eleutherol.

Therapeutic uses : The bulbs are an antibacterial, demulcent and haemostatic remedy. They are used in treating sore throat, pertussis, boils, impetigo, jaundice, haemoptysis, uterine haemorrhage, trauma, wounds, abortion, anaemia, headache and photopsia and in inserting intra-uterine devices. The daily dose is 4 to 12g in the form of a decoction, infusion, powder or pills. The external use of an alcoholic maceration and ointment is effective for impetigo and boils. The bulbs are also a constituent of composite sedative recipes.

84 Elsholtzia ciliata (Thunb.) Hyland. **Labiatae**

Local names : Kinh giới, khương giới, giả tô, nhả nát hom (Thái).

Description : Small annual plant, with soft pubescence ; 40 - 60 cm. high ; stem quadrangular. Leaves opposite, margins serrate ; nerves apparently impressed on the lower side. Inflorescence in terminal, unilateral spike; flowers pale-violet or purplish. Achene oblong, glabrous. All parts of the plant are scented.

Flowering period : August - October.

Distribution : Extensively cultivated as spice and medicinal plant.

Parts used : Branches, leaves and flower panicles dried in the shade before use. The plant is harvested when in flower.

Chemical composition : The whole plant contains an essential oil consisting of *Elsholtzia* ketones.

Therapeutic uses : The entire plant is used against influenza, headache, sore throat, measles, ostealgia and furunculosis. It is also haemostatic and is used in menorrhagia, metrorrhagia, haemoptysis and bloody stools. The usual dose is 10 to 16g of dried plant in the form of a decoction or infusion, or 30g of the fresh plant in the form of juice. The vapour from the boiling decoction can be inhaled.

85 Eriobotrya japonica (Thunb.) Lindl. Rosaceae

Local names : Tỳ bà diệp, nhót tây, sơn tra Nhật Bản, phì phà (Tày).

English names : Loquat, Japanese medlar, Japanese plum.

Description : Medium-sized evergreen tree, 5 - 7 m. high ; branches pubescent when young, then glabrous. Leaves alternate, oblong, thick and stiff ; velvety pubescent beneath ; margins toothed. Inflorescence in terminal raceme, covered with a dense silvery pubescence. Drupe oval or pyriform, yellow when ripe ; pulp sweetish, acid and edible ; 3 - 5 seeds.

Flowering period : September - February.

Distribution : Cultivated for its ornamental foliage and edible fruit.

Parts used : Leaves, picked in the months of April and May. After the leaf surface has been carefully wiped to eliminate all the hairs, the leaves are cut into small pieces, then dried in the sun or in dryers.

Chemical composition : The fruit contains sugars : levulose and sucrose ; malic, citric, tartaric and succinic acids ; cryptoxanthin, β - carotene, neo - β -carotene. The seeds contain amygdalin and a fatty oil. The leaves yield saponins, ursolic acid, oleanolic acid and caryophyllene.

Therapeutic uses : The leaves possess antitussive and antispasmodic properties. They are prescribed in the treatment of cough, chronic bronchitis, excessive expectoration, fever, coryza, hyperemesis, especially vomiting of pregnancy, epistaxis and dyspepsia. The daily dose is 10 to 20g in a decoction or liquid extract. The decoction is also used to wash wounds.

86 Erythrina variegata L. var. orientalis (L.) Merr. **Leguminosae**

Local names : Vông nem, lá vông, hải đồng, thích đồng, cò toóng lang (Thái), bơ tòng (Tày).

English names : India bean, Indian coral-bean, mochi wood tree, East Indies coral tree.

Description : Tree reaching about 10 m. in height. Stems branched, smooth, sparsely covered with short prickles. Leaves alternate, trifoliate, the terminal largest ; leaflet-stalk glandular. Inflorescence in dense axillary and terminal raceme ; flowers red , appearing before the leaves. Pod long, black, constricted between the seeds. Seeds reniform, red or brown.

Flowering period : March - May.

Distribution : Grows wild in deciduous forests and is cultivated in gardens for ornament.

Parts used : Leaves, used fresh or dried and harvested in spring.

Chemical composition : The leaves and stems contain the alkaloid erythrinaline. The seeds yield the alkaloid hypaphorine and a saponin : migarrhin.

Therapeutic uses : The leaves are reported to be sedative. They are used for the relief of insomnia and anxiety. Dried leaves are usually administered in the form of a decoction or an extract in a dose of 8 to 16g per day. They are often asssociated with other plants such as *Passiflora hispida* and *Morus alba*. Crushed fresh leaves are used externally as a poultice in haemorrhoids and metroptosis. Powdered leaves are topically applied for wounds and ulcers. The stem bark is used against rheumatism in the form of a decoction, extract or tincture in a dose of 5 to 10g per day.

87 Eucommia ulmoides Olive Eucommiaceae

Local names : Đỗ trọng, dang ping (Tày).

English name : Gutta-percha tree.

Description : Medium-sized tree, 10 m. high or more. Leaves alternate, petiolate, margins toothed. The bark and leaves contain a milky latex which stretches into numerous strands when broken. Flowers unisexual, dioecious ; perianth none in either sex. Fruit rhomboidal, flat, brown, single-seeded.

Flowering period : March - May.

Distribution : An imported plant, cultivated in mountainous regions.

Parts used : The bark, separated from the tree in summer and pressed flat, is left in heaps for 6 - 7 days until the internal surface takes on a blackish tinge. It is then dried in the sun or in ovens.

Chemical composition : The bark yields gutta-percha, resins, the glucosides aucubin and loganin ; lipids, proteins, essential oil and chlorogenic acid.

Therapeutic uses : The trunk bark, which possesses antihypertensive and anti-inflammatory properties, is used to regulate the activity of the sex hormones. It is also used in treating nephrosis, lumbago, arthrodynia, spermatorrhoea, impotence, uterine colic and uterine haemorrhage in pregnancy, hypertension, polyuria, rheumatism, inflammation and oedema. It is given in a daily dose of 12 to 20g in the form of a decoction, liquid extract, powder, pills or elixir.

88 Eupatorium staechadosmum Hance **Compositae**

Local names : Mần trới, trạch lan, lan thảo, co phất phứ (Thái).

Description : Perennial herbaceous plant, reaching a height of 1m. Young shoots purplish-violet, longitudinally sulcate. Leaves opposite, oblong, acute ; margins denticulate ; strongly scented when crushed. Inflorescence in dense terminal axillary corymb of many heads ; flowers pale-violet. Achene small, black.

Flowering period : September - October.

Distribution : Cultivated as a vegetable and medicinal plant.

Parts used : The whole plant, harvested in summer before flowering, must be well washed. It may be used fresh or dried in the shade.

Chemical composition : The plant contains an essential oil.

Therapeutic uses : The aerial parts of the plant possess antiseptic, diuretic, stomachic and haemagogic properties. They are used in treating fever, menstrual disorders, dysmenorrhoea, colic following post-partum haematometra, oedema, trauma, vertigo, furunculosis and impetigo. They are prescribed in a daily dose of 10 to 20g of dried plant in a decoction. The fresh plant is used as an insecticide for killing lice, bugs, fleas and moths.

89 Euphorbia thymifolia L. **Euphorbiaceae**

Local names : Cỏ sữa lá nhỏ, vú sữa đất, thiên căn thảo, nhả nậm mòn, nhả mực nọi (Thái).

English name : Thyme-leaved spurge.

Description : Small annual herb with milky juice. Stems prostrate, slender, purple and downy. Leaves opposite, oval-shaped, obscurely serrulate, slightly pubescent beneath. Inflorescence in few-flowered axillary cyme. Capsule hairy. Seeds quadrangular, glabrous.

Flowering period : May - October.

Distribution : Grows wild on pasture land, on railway embankments and in gardens.

Parts used : The whole plant, harvested all the year round but preferably in summer, is washed and used fresh or else dried and roasted before use.

Chemical composition : The whole plant contains 5, 7, 4 - trihydroxy flavone 7-glucoside ; essential oil.

Therapeutic uses : The entire plant possesses antibacterial and galactagogic properties. It is used in treating bacillary dysentery, boils, hypogalactia, galactophoritis, metrorrhagia and infantile lientery. It is administered in a dose of 20 to 30g per day in the form of a decoction for adults, and in a dose of 10 to 20g for children. A combination in equal parts with *Portulaca oleracea* is also used for dysentery. A poultice of the pounded leaves is effective against dermatosis and wounds. The plant is also used as an insecticide.

90 Euphoria longan (Lour.) Steud. Sapindaceae

Local names : Nhãn, lệ chi nô, mạy ngậm, mác nhan (Tày).

English name : Longan.

Description : Medium-sized tree, 5 - 10 m. high. Leaves pinnate, alternate ; leaflets 5 - 9, oblong-lanceolate, glabrous. Inflorescence in terminal panicle ; flowers pale-yellow. Fruit globose, skin glabrous or slightly rough, brownish-yellow. Seeds shining black, coated with a fleshy aril.

Flowering period : April - May.

Distribution : Extensively cultivated for its edible fruit.

Parts used : Pulp and seeds. The fruit can be picked in July and August. The pulp is dried in the sun or in ovens. Seeds removed from the pulp are dried before use.

Chemical composition : The arils contain sugars : glucose, saccharose ; vitamin A and B ; proteins and lipids. The seeds yield saponins, tannin, fatty substances, starch.

Therapeutic uses : The aril is considered to be nutritious. It is useful for the treatment of neurasthenia, insomnia, amnesia and mental deficiency. It is usally prescribed in the form of a decoction or extract. The average dose is 9 to 10g per day. Powdered seed is applied topically against furunculosis and impetigo.

91 Fibraurea recisa Pierre **Menispermaceae**

Local names : Hoàng đằng, hoàng liên nam, dây vàng giang, khau khem (Tày), co lạc khem (Thái), tốt choọc, t'rơn (K'dong).

Description : Woody climbing plant. Roots and old branches yellow inside. Leaves alternate, apex acute, base round or slightly cordate ; obviously 3-nerved ; petiole long, swollen at both ends. Flowers unisexual, dioecious, greenish-yellow in raceme of old branches. Fruit oval, yellow when ripe ; single-seeded.

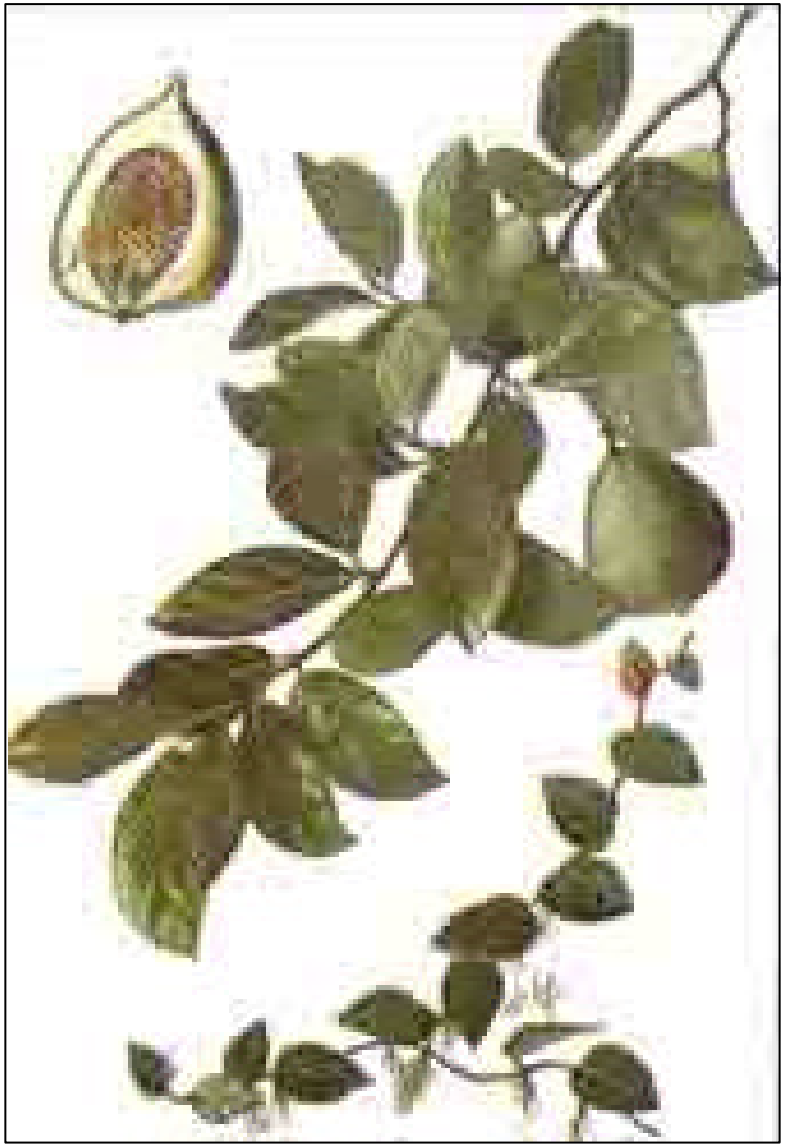
Flowering period : May - August.

Distribution : Grows wild in mountainous regions.

Parts used : Roots and stems, harvested in autumn, after being well washed are cut into suitable sizes and dried in the sun or in dryers.

Chemical composition : The roots yield alkaloids : palmatine, jatrorrhizine, columbamine, and berberine.

Therapeutic uses : A decoction of the roots is used to treat ophthalmia, furunculosis, prurigo, enteritis, gastritis, cystitis, dysentery and fever. The doses given range from 4 to 12g daily. In cases of purulent otitis, the powdered roots associated with alum are applied topically.



92 Ficus pumila L. **Moraceae**

Local names : Trâu cổ, cây xộp, vảy ốc, cơm lênh, bị lệ, mộc liên, sung thằn lằn, mác púp (Tày).

English names : Creeping fig, climbing fig.

Description : Climbing shrub. Stems rooting at the nodes. Leaves alternate, glabrous, of two kinds, one kind shaped like scales and the other obovate. Inflorescence in the axil of the leaves, bearing male flowers above and female below. Fig solitary, pyriform, glabrous, brownish-violet when ripe.

Flowering period : May - October.

Distribution : Grows wild on rocks and tree trunks and is cultivated for covering walls.

Parts used : Fruit and leafy branches. The leafy branches can be harvested all the year round. The fruit is picked in autumn.

Chemical composition : The gum obtained from the plant yields glucose, fructose and arabinose on hydrolysis. The fruit contains proteins and latex.

Therapeutic uses : The aerial parts constitute a systemic remedy and blood reconstituent. They are used in treating chronic dysentery, haemorrhoids, galactophoritis, spermatorrhoea, impotence, menstrual disorders. dysuria, dyschezia, rheumatism, lumbago, osteodynia, boils and impetigo. The daily dose is 8 to 16g of climbing stems and leaves, in the form of a decoction, extract or alcoholic maceration or 3 - 6g fruit, in the form of a decoction, extract or candied fruit.

93 Gardenia jasminoides Ellis — Rubiaceae

Local names : Dành dành, chi tử, thủy hoàng chi, mác làng curong (Tày).

English name : Cape jasmine.

Description : Small evergreen tree, 1 - 2 m. high. Leaves opposite or in whorl of 3, shining, glabrous on the upper side ; stipule large, amplexicaul. Flowers yellowish-white, fragrant, solitary at the end of branchlets. Fruit ovoid, angular, tipped with remains of calyx, pulp yellowish-orange. Seeds numerous.

The species *Gardenia stenophyllus* Merr. is also used medicinally.

Flowering period : March - May.

Distribution : Grows wild in wet places and is cultivated for ornament.

Parts used : Leaves and fruit. The leaves can be harvested all the year round. After being well washed, they are dried in the sun or in dryers. The ripe fruit is picked from August to November.

Chemical composition : The leaves and fruit contain glucosides (gardenoside, gentiobioside, geniposide, crocin, gardenin) ; tannin ; essential oil ; pectin ; β -sitosterol ; D - mannitol ; nonacosane.

Therapeutic uses : The leaves and fruit possess antibacterial, antifebrile, demulcent, cholagogic and diuretic properties. They are used in treating fever, jaundice, epistaxis, sore throat, haemoptysis, bloody stools, dysuria, burns, boils and impetigo. The daily dose is 6 to 12g of fruit in decoction, used on its own or in combination with *Adenosma glutinosum*. A poultice of pounded fresh leaves is effective for wounds, phlegmon and acute conjunctivitis.

94 Gomphandra tonkinensis Gagnep. **Icacinaceae**

Local names : Bổ béo, bùi béo, béo trắng, tiết hùng, lô nội.

Description : Small erect tree, 2 - 4 m. high ; young shoots silky pubescent. Tuberous roots fleshy. Leaves alternate, lance-shaped, margins entire, soft and velvety beneath. Inflorescence in compound corymb, opposite to the leaf ; flowers small, white. Fruit rhomboidal, pubescent, with remains of calyx.

Flowering period : May - September.

Distribution : Grows wild in mountainous regions.

Parts used : The roots, collected the whole year round, but preferably in autumn, after being well washed are cut into slices, soaked in rice wash for 24 hours, then dried in the sun or in dryers.

Therapeutic uses : The root is used as a reconstituent and stomachic, as a stimulant to the appetite and as a galactagogic, laxative and diuretic remedy. Its continuous administration brings about a weight increase and good health. A daily dose of 10 to 20g is given in the form of a decoction, elixir or powder or mixed with honey pills.

95 Hedyotis capitellata Wall. ex G.Don var. mollis Pierre ex Pitard **Rubiaceae**

Local names : .Dạ cẩm, loét mồm, đứt lưới, ngón cúi, ngón lợn, chạ khẩu cắm (Tày), sán công mía (Dao).

Description : Twining suffrutescent climber. Stems cylindrical, swollen at the nodes. Leaves opposite, dark-green above, pale below ; stipule ciliate. Inflorescence in axillary or terminal paniculate cyme ; flowers white or yellowish-white. Capsule small, many-seeded, crowned by segments of the persistent calyx. All parts of the plant are densely tomentose.

Flowering period : May - July.

Distribution : Grows wild in the hills and mountains.

Parts used : The whole plant, harvested the whole year round, but preferably in spring and summer, is washed and dried in the sun or in ovens.

Chemical composition : The whole plant contains alkaloids, saponins and tannin.

Therapeutic uses : The stem offers an effective remedy for gastralgia, gastric ulcer and heartburn. The usual dose is 20 to 40g per day in the form of a decoction, powder or extract, divided into 2 subdoses, during the colic pains or before meals. A mouth-wash prepared with *Hedyotis* stem liquid extract and honey is used for ulcerous stomatitis. A poultice made of pounded fresh leaves acts as a vulnerary, promoting tissue regeneration in wounds.

96 Hemerocallis fulva L. Liliaceae

Local names : Hoa hiên, huyên thảo, kim châm, hoàng hoa thái, phắc chăm (Tày), rau huyên.

English names : Yellow day-lily, orange day-lily, tawny day-lily.

Description : Perennial herbaceous plant with tuberous roots. Leaves linear, arranged in two rows. Flowers funnel-shaped, orange-yellow, 6 - 10 on a forked scape. Fruit triangular. Seeds shining black.

Flowering period : May - September.

Distribution : Cultivated for ornament and medicinal use.

Parts used : Tubers, leaves and flowers. The leaves and tubers are harvested all the year round, the leaves being used fresh, the tubers dried. The flowers are picked at the beginning of the flowering period and dried at low temperature.

Chemical composition : The flowers yield proteins, fatty substances, sugars, vitamin A and C ; amino acids : adenine, choline, arginine and iodine.

Therapeutic uses : The roots, the leaves and the flowers possess anti-inflammatory and heamostatic properties. They are used in treating fever, colitis, dysentery, oedema, dysuria, urinary lithiasis, heamorrhage, hacmoptysis, epistaxis, mastitis and rheumatism. The daily dose is 6 to 12g of roots or 30 to 50g of flowers, in the form of a decoction or juice from the fresh plant. The external application of pounded fresh roots and leaves in a poultice is effective against inflammation.

97 Heterosmilax erythrantha Baill. **Liliaceae**

Local names : Khúc khắc, dây kim cang, củ cun, kim cang mỡ, dây nâu.

Description : Glabrous climber, unarmed. Leaves alternate, ovate, base subcordate ; petiole long, with tendrils. Inflorescence in long-stalked axillary umbel ; flowers pink or spotted with red, the male and female on different plants. Fruit globose, 8 - 10 mm. in diameter, black when ripe. Seeds 2 - 4, ovate.

Flowering period : May - October.

Distribution : Grows wild in the mountains and the midlands.

Parts used : The tubers, collected in summer, are well washed, cut into slices and dried in the sun or in ovens.

Chemical composition : The tuberous roots contain saponins, tannin and resins.

Therapeutic uses : The tuberous roots possess anti-inflammatory and antiallergic properties and are used in treating rheumatism, arthralgia, osteodynia, lumbago, boils, impetigo and prurigo. The daily dose is 15 to 30g in the form of decoction, aqueous extract, powder or pills.

98 Hibiscus mutabilis L. **Malvaceae**

Local names : Phù dung, mộc liên, mộc phù dung, boóc đao (Tày).

English names : Chinese rose, changeable rose, rose-mallow, cotton-rose.

Description : Plant growing several metres high ; young twig tomentose. Leaves alternate, long-petioled, palmatilobed, hairy on the lower side, margins toothed. Flowers large, simple or compound, solitary in the axil of the leaves, first white then pink. Capsule globose, covered with hairs. Seeds ovate and silky-villous.

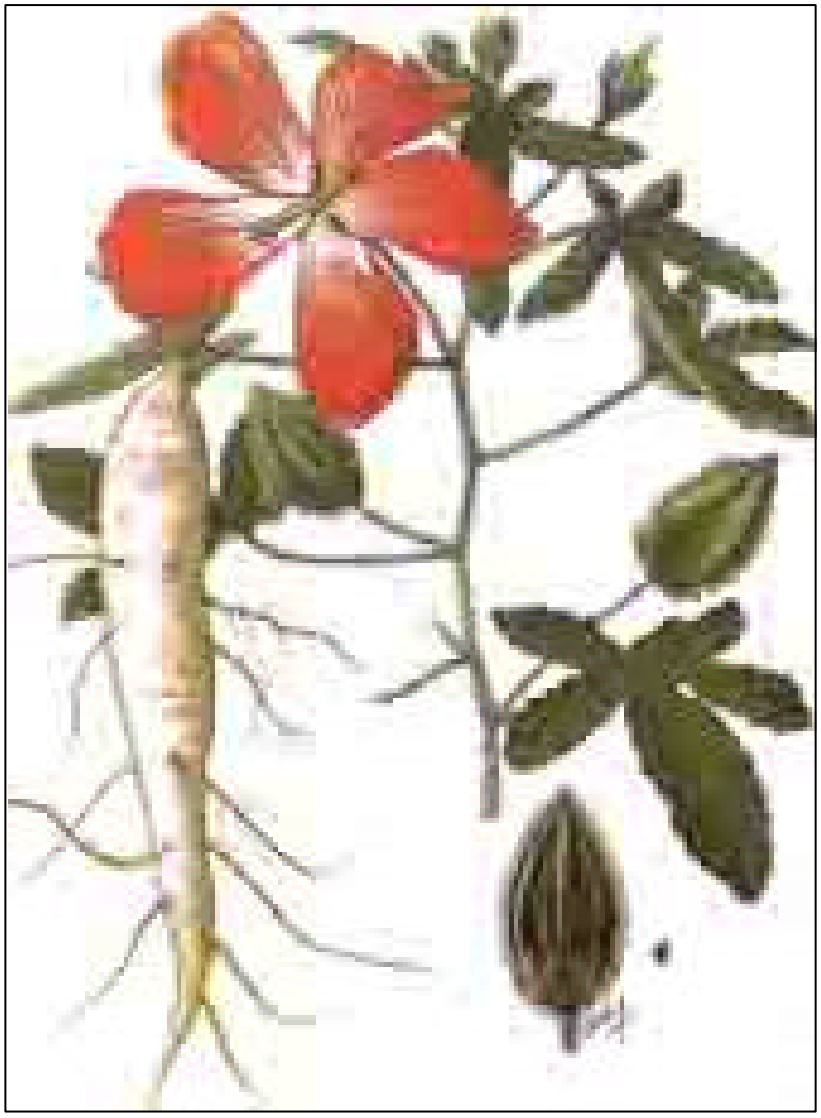
Flowering period : September - November.

Distribution : Cultivated everywhere for ornament.

Parts used : Leaves and flowers, both used fresh. Leaves can be harvested all the year round. The flowers are picked during the flowering period.

Chemical composition : The flowers contain anthocyanosides.

Therapeutic uses : The leaves and the flowers possess antibacterial, demulcent and diuretic properties. They are used in treating boils, particularly on the chin, in the form of poultice made of powdered dried leaves and flowers mixed with concentrated tea infusion, which makes the boils burst earlier and less painfully. Also used in treating impetigo, prurigo, metritis, leucorrhoea, mastitis, nephritis, cytitis, dysuria and infections, usually in a dose of 5 to 20g per day, in the form of a decoction.



99 Hibiscus sagittifolius Kurz var. quinquelobus Gagnep. **Malvaceae**

Local names : Sâm bố chính, thổ hào sâm, nhân sâm Phú Yên.

Description : Herbaceous plant about 50 cm. high. Tuberous roots fleshy. Leaves alternate, long-petioled, serrate, polymorphous, the lower entire, the upper palmately 5-lobed. Flowers large, red, solitary in the leaf-axils. Capsule ovate-acuminate, loculicidally 5-valved when ripe. Seeds numerous, brown. All parts of the plant are hirsute.

Flowering period : May - September.

Distribution : Grows wild in mountainous regions and is cultivated for medicinal use.

Parts used : The roots, collected in autumn and winter, are soaked in rice wash for 12 hours, then steamed and dried in the sun or in dryers.

Chemical composition : The roots yield starch and mucilaginous substances.

Therapeutic uses : The roots, which possess reconstituent, antitussive and emmenagogic properties, are used in treating general debility, insomnia, pulmonary tuberculosis, anorexia, infantile stomatitis, rachitis, persistent fever and cough, sore throat, bronchitis, menstrual disorders, lumbago, body pains, photopsia, vertigo and leucorrhoea. The daily dose is 10 to 20g in the form of a decoction, powder or elixir.

100 **Holarrhena antidysenterica (Roxb. ex Flem.) A.DC.** **Apocynaceae**

Local names : Mức hoa trắng, mộc hoa trắng, thừng mực lá to, sừng trâu, mộc vài (Tày), xi chào (K'ho), hổ liên.

English names : Conessi bark, kurchi bark, bitter oleander, dysentery rose-bay, Tellicherry bark.

Description : A tree reaching about 10m. in height or more. Bark pale-brown, lenticellate. Young twigs tomentose. Leaves opposite, oval, subsessile. Flowers white in axillary or terminal corymbiferous cyme. Follicles cylindrical in pairs, long, narrow, incurved. Seeds numerous, brownish, crowned with a tuft of long hairs at one end. All parts of the plant yield a milky juice.

Flowering period : April - May.

Distribution : Grows wild in the mountains and the midlands.

Parts used : The bark, collected in February and March. Removed from the stem, the bark is well washed, then dried in the sun or in ovens.

Chemical composition : The trunk bark contains alkaloids : conessine, nor-conessine, conessimine, isoconessimine, kurchine, conimine, conamine, conkurchine, holarrhine, holarrhenine and holarrhimine ; gum, resins, tannin, triterpene alcohol, lupeol, β -sitosterol.

Therapeutic uses : The trunk bark possesses amoebicidal properties. It is effective against amoebiasis in a daily dose of 8 to 10g of dried trunk bark, or 4 to 6g of dried seeds in the form of powder, tincture or liquid extract. The sum of the alkaloids and conessine are also used. A bath containing a decoction of bark or leaves cures scabies. An alcoholic maceration of pounded roots is also used topically against scabies.

101 Homalonema occulta (Lour.) Schott — Araceae

Local names : Thiên niên kiện, sơn thục, ráy hương, bao kim, vắt vẻo, vạt hương (Tày), tráo yêng (K'ho), duyên (Ba Na), hìa hẩu ton (Dao).

Description : Perennial herb. Rhizome long, tubular, with hard fibres. Leaves large, sagittate-cordate with tightly clasping sheath. Inflorescence in axillary spadix ; the male flowers above, the female below ; perianth absent in both sexes. Berry red when ripe. All parts of the plant, especially the rhizome, are aromatic.

Flowering period : April - June.

Distribution : Grows wild along stream banks and on the sides of rocky ravines in mountainous regions.

Parts used : The root-stocks, collected in autumn and winter, are well washed and then dried in the sun or in ovens. The fresh leaves are also used.

Chemical composition : The rhizome contains an essential oil consisting of linalol, α-terpineol, linalyl acetate, sabinene, limonene, propionic aldehyde and acetic acid.

Therapeutic uses : The rhizome possesses anti-inflammatory, anodyne and stomachic properties. It is used in treating rheumatism, arthralgia, paresis, gastralgia, dysmenorrhoea, osteodynia of the aged and dyspepsia. It is administered in a dose of 6 to 12g per day in the form of a decoction, elixir or extract. Massage with a fresh rhizome maceration has an anodyne effect. A poultice of pounded fresh leaves is active on boils. The rhizome is also an insecticide against moth.

102 Houttuynia cordata Thunb. Saururaceae

Local names : Diếp cá, lá giấp, rau giấp, tập thái, ngư tinh thảo, cù mua mía (Dao), co vầy mèo (Thái), rau vẹn, phjăc hoảy (Tày).

English name : Tsi.

Description : Perennial herbaceous plant, 20-40cm. high. Stems greenish or reddish-purple. Leaves alternate, heart-shaped with stalk sheathing the stems, emitting a fishy smell when crushed. Inflorescence in axillary or terminal spike ; flowers small, pale-yellow ; bracts white. Seeds oval, glabrous.

Flowering period : May - July.

Distribution : Grows wild in rice-fields and on stream banks.

Parts used : The whole plant, except for the roots. The plant, which can be harvested all the year round, is used fresh.

Chemical composition : The whole plant yields an essential oil consisting of methyl-nonyl ketone, myrcene, D-limonene, α-pinene, p-cymene, linalol and geraniol ; the alkaloid cordaline ; the flavone quercitrin ; lipids ; hexadecanoic and decanoic acids.

Therapeutic uses : The whole plant has a beneficial effect in the treatment of haemorrhoids, acute conjunctivitis and ocular infections due to *Bacillus pyocyaneus*. It is also used in treating measles, enteritis and irregular menstruation. It is used in the form of a decoction in doses of 6 to 12 g of dried or 20 to 30g of fresh plant. The juice of the crushed fresh plant is also administered orally. In cases of contusions and ophthalmia, crushed fresh leaves are applied externally in a poultice.

103 Hovenia dulcis Thunb. **Rhamnaceae**

Local names : Khúng khéng, vạn thọ, chỉ cụ, kẻ trảo.

English names : Japanese raisin tree, coral tree.

Description : Evergreen tree about 7-10m. in height. Young twigs lenticellate and pubescent. Leaves alternate, long-petioled, with 3 nerves from the base ; margins sharply denticulate. Inflorescence in axillary or terminal cyme ; flowers pale-green. Fruit globose, borne on pinkish-brown swollen peduncles, sweetish and edible. Seeds round, slightly compressed.

Flowering period : June - August.

Distribution : Grows wild and is cultivated in the mountains.

Parts used : Fruit and fruit-bearing branches, collected when the fruit is fully ripe. After picking, they are dried in the sun or in dryers.

Chemical composition : The fruit contains sugars : glucose, fructose and sucrose ; salts : potassium nitrate, potassium malate.

Therapeutic uses : The ripe fruit and the small twigs bearing ripe fruit are a reconstituent and depurative remedy. They are used for the treatment of alcoholic intoxication, dysuria, general debility and dry throat. The daily dose is 3 to 5g in an alcoholic maceration.

104 Hydnocarpus anthelmintica Pierre **Flacourtiaceae**

Local names : Chùm bao lớn, đại phong tử, lọ nồi.

English names : Sponge - berry, common chaulmoogra tree.

Description : Tall tree, 10m. high or more. Bark whitish-grey. Leaves alternate, coriaceous, shining green ; entirely pinkish when young. Flowers unisexual or polygamous, in axillary raceme, both sexes on the same plant. Fruit large, globose. Seeds numerous, angular, embedded in the pulp.

Flowering period : April - June.

Distribution : Grows wild, but is commonly cultivated for shade and ornament.

Parts used : Seeds of mature fruit, picked when fully ripe. Separated from the fruit, the seeds are pressed to yield oil.

Chemical composition : The seed kernels contain lipids 40-55%, a glucoside that yields glucose and hydrocyanic acid on hydrolysis ; a fatty oil consisting of glycerides of chaulmoogric, hydnocarpic and gorlic acids...

Therapeutic uses : The seed kernels are used in treating leprosy, scabies, impetigo and some other dermatitides. They are applied externally in the form of a medicinal oil or ointment. An emulsion of the seed kernel oil is exceptionally administered orally in the form of drops, but caution must be exercised because of its very high toxicity.

105 Illicium verum Hook. f. Magnoliaceae

Local names : Hồi, bát giác hồi hương, đại hồi, hồi sao, mác chác, mác hồi (Tày).

English names : True star-anise, Chinese anise.

Description : Medium-sized tree, 6 - 10m. high, branches erect, glabrous and brittle. Leaves entire, thick and shining glabrous, usually crowded in bundles at the end of the branches. Flowers pink, solitary in the leaf-axil. Fruit of 8 follicles, radiating, compressed ; each follicle contains one seed. All parts of the plant, especially the fruit, are strongly aromatic.

Flowering period : March - June.

Distribution : Cultivated in mountainous regions, especially in Lạng Sơn province.

Parts used : Ripe fruit, picked in autumn, is lightly dried, then distilled to obtain an essential oil.

Chemical composition : The fruit contains an essential oil (9 - 10%) consisting of anethol (85 - 90%), α-pinene, limonene, β-phellandrene, α-terpineol, farnesol and safrol.

Therapeutic uses : The fruit is considered to be carminative, stomachic and galactagogic. It is also used in treating vomiting, dyspepsia, abdominal pains and food poisoning. The average dose ranges from 4 to 8g per day in the form of a powder or decoction. An alcoholic maceration is prescribed for massage in rheumatism and ostealgia.

106 Imperata cylindrica (L.) P. Beauv. Gramineae

Local names : Cỏ tranh, cỏ tranh săng, bạch mao, nhá ca (Thái), gan (Dao).

English names : Lalang-grass, alang-alang, bedding grass.

Description : Perennial herb, 0.60 - 1.50m. high. Rhizome hard, coriaceous, descending deeply into the soil. Culms erect, with wiry hairs. Leaves narrow and long, prominently nerved ; scabrous on the upper surface ; margins sharp-edged. Inflorescence of many spikes, silver-white, densely silky.

Flowering period : Almost throughout the year.

Distribution : A common weed everywhere, especially in hilly regions.

Parts used : The rhizomes, harvested the whole year round, are washed and well dried in the sun or in an oven.

Chemical composition : The rhizomes contain glucose, fructose and organic acids.

Therapeutic uses : The rhizome, a diuretic and febrifuge, is used in the treatment of urodynia, pollakiuria, haematuria and fever. It is available in the form of a decoction for oral administration. The usual dose is 10 to 40g per day. The drug is often combined with corn silk, which enhances its diuretic action.

107 Jasminum subtriplinerve Blume **Oleaceae**

Local names : Vằng, chè vằng, râm trắng, râm ri, lài ba gân.

Description : Small trailing shrub. Branches glabrous. Leaves opposite, glabrous and shining on both surfaces, 3 nerves from the base. Inflorescence in axillary or terminal raceme ; flowers 2 - 3, white, fragrant. Berry globose with remains of persistent calyx, black when ripe.

Flowering period : March - April.

Distribution : Grows wild in the mountains and the midlands.

Parts used : Leaf-bearing twigs, collected all the year round. They are used in the dried state.

Chemical composition : The leaves contain alkaloids, resins and flavonoids.

Therapeutic uses : The branches and the leaves possess antibacterial and anti-inflammatory properties. They are used in treating post-partum hyperthermic infection, lymphadenitis, metritis, galactophoritis, leucorrhoea, rheumatism, ostealgia, impetigo, prurigo, dysmenorrhoea and haematometra. They are also effective as a bitter tonic for parturients. The daily dose is 20 to 30g in decoction form. A decoction of the fresh leaves is used for washing and bathing in the case of wounds and impetigo and a fresh-leaf poultice is used for abscesses and mastitis.

108 Kaempferia galanga L. **Zingiberaceae**

Local names : Địa liền, thiền liền, sơn nại, tam nại, sa khương, co xá choóng (Thái).

English name : East Indies galingale.

Description : Perennial herbaceous plant. Rhizome includes little ovate tubers. Leaves : 2 - 3 with broad blade, spreading flat on the ground, appearing annually in rainy season, hairy beneath. Flowers white tinged with violet, sessile, arising from the axil. All parts of the plant, especially the rhizome, are strongly aromatic.

Flowering period : May - July.

Distribution : Grows wild in the mountains and is cultivated in some places for medicinal use.

Parts used : The root-stocks, grubbed up in winter and spring, are well washed, then dried in the sun or in an oven.

Chemical composition : The rhizomes contain an essential oil (2.4 - 3.9%), consisting of p-methoxy transcinnamate ethyl, p-methoxy transcinnamic acid, transcinnamic acid, p-methoxystyrene, p-coumaric acid, n-pentadecane, Δ3 carene, borneol and camphene.

Therapeutic uses : The rhizome is recommended for dyspepsia and is very useful for the treatment of pectoral and abdominal pains, headache, toothache and cold. It is prescribed in decoction, powder or pill form for oral administration. The average doses range from 3 to 6g per day. An alcoholic maceration is employed externally in massage for the treatment of rheumatism.

109 Kalanchoe pinnata (Lam.) Pers. **Crassulaceae**

Local names : Thuốc bỏng, cây sống đời, trường sinh, diệp sinh căn, đả bất tử, tầu púa sung (Dao).

Description : Perennial succulent herb, 40 - 60cm. high. Stems tubular and glabrous, mottled with purple. Leaves opposite, entire or 3-lobed, rarely 5 - 7 - lobed ; blade thick and fleshy ; margins crenate. Inflorescence in terminal paniculate cyme with long stalk ; flowers pendulous, red or orange-red. Fruit of 4 follicles.

Flowering period : January - March.

Distribution : Commonly found in arid soil and cultivated for ornament.

Parts used : The leaves, which can be harvested all the year round, are used fresh.

Chemical composition : The whole plant contains bryophyllin and organic acids : citric, isocitric and malic.

Therapeutic uses : The fresh leaves, which possess antibacterial and demulcent properties, are used in the treatment of burns, wounds, impetigo, ulcer, phlegmon and congestive ophthalmia ; they are also haemostatic and depurative. They are administered daily in a dose of 20 to 40g in the form of juice. Poultices and ointments are prepared with fresh leaves for external application.

110 Lactuca indica L. **Compositae**

Local names : Bồ công anh, mũi mác, diếp dại, rau bao, phắc bao (Tày), lày máy kìm (Dao).

English name : Indian lettuce.

Description : Annual herbaceous plant, 0.5 - 1m. high ; rarely branched. Leaves alternate, sessile ; the lower deeply lobed ; the upper occasionally entire ; margins toothed. Inflorescence in terminal head ; flowers yellow. Achene small, tipped with a tuft of hairs. All parts of the plant contain a milky juice.

Flowering period : June - August.

Distribution : Grows wild in waste places.

Parts used : The whole plant, except for the roots. It is collected at the beginning of summer, before flowering. The roots are removed and the aerial parts dried in the sun or in dryers.

Therapeutic uses : The entire plant, and especially the leaves, is employed as a depurative and demulcent. The leaves are used in treating mastitis, galactophoritis, furunculosis and abscesses. They are also effective for gastralgia and dyspepsia. The usual dose is 8 to 20g per day in the form of a decoction, extract or syrup. A mixture with some other plants is used externally in the form of a poultice of pounded fresh leaves.

111 Leonurus artemisia (Lour.) S. Y. Hu — Labiatae

Local names : Ích mẫu, cây chói đèn, sung úy, chạ linh lo (Thái), làm ngài (Tày).

English names : Siberian motherwort , lion's tail.

Description : Annual herbaceous plant, 0.5 - 1m. high. Stems quadrangular. Leaves opposite, the basal nearly round, long-petioled, dentate-crenate ; the middle long, pinnatipartite ; the upper short, usually entire. Flowers white or pink in axillary whorls. Nutlet small, glabrous.

Flowering period : March - May.

Distribution : Grows wild in wet places and is also cultivated.

Parts used : Shoots carrying young leaves, harvested in summer before flowering and dried in the shade or in dryers at low temperature.

Chemical composition : The whole plant contains a flavonoid (rutin), leucoanthocyanoglucosides, steroids, alkaloids, choline, amino acids and tannin.

Therapeutic uses : The drug enjoys a long-standing reputation in the treatment of irregular menstruation, dysmenorrhoea, polymenorrhoea and post-partum haematometra. It is also used for hypertension and heart disease. It is given in doses of 8 to 10g per day, in the form of a decoction, extract or pills.

112 Leucaena leucocephala (Lam.) De Wit — Leguminosae

Local names : Keo giậu, cây keo, bồ kết dại, bọ chét, bình linh, phiắc can thin (Tày).

English names : Lead tree, white popinac, jumpy bean.

Description : Small evergreen tree, several metres in height. Leaves bipinnate, leaflets small. Flowers white in axillary panicle. Pod thin and flat, brownish when ripe. Seeds glabrous, dark-brown.

Flowering period : April - June.

Distribution : Grows wild and is cultivated as a shade tree in coffee plantations.

Parts used : Seeds of the mature fruit, picked in summer, when the fruit becomes fully ripe. The pods are removed and the seeds obtained are dried in the sun or in ovens.

Chemical composition : The seeds contain a fatty oil, consisting of palmitic, stearic, oleic, linoleic, behenic and lignoceric acids and the alkaloid leucenine (leucenol) 3 - 5%. The leaves yield tannin, quercitrin and alkaloids.

Therapeutic uses : The seeds have a beneficial effect in ascariasis. The usual dose for adults is 25 to 50g, and for children, according to their age, 5 to 20g per day, for 3 to 5 days, administered in the morning on an empty stomach. The torrefied seeds are prescribed in the form of a powder or sugared cakes. They are occasionally used fresh.

113 Lilium brownii F. E. Brown var. colchesteri Wilson **Liliaceae**

Local names : Bách hợp, tỏi rừng, khẻo ma (Tày), xuốn phạ, kíp pá (Thái), cò ngái dòi (Dao).

English name : Brown's lily.

Description : Perennial herbaceous plant, 0.5 - 1m. high. Bulb stout, white. Leaves alternate, oblong-lanceolate, subsessile ; margins entire. Flowers 3 - 5, funnel-shaped, white in terminal raceme. Capsule 3-celled. Seeds numerous, small.

Flowering period : May - July.

Distribution : Grows wild in savannas at an altitude of 1000m. or above.

Parts used : The bulbs, which can be harvested from the end of summer to the middle of autumn, after flowering, when the plants begin to wither. Separated from the plants, the bulbs are exposed to the sun for some days. When they become dryish, the scales are separated from each other and dried in the sun or in ovens.

Chemical composition : The bulbs contain proteins 4%, lipids 0.1%, glucides 30%, vitamin C and colchiceine.

Therapeutic uses : The bulbs are an effective remedy for dry cough or cough with consistent phlegm, haemoptysis, bronchitis, fever and neurasthenia. They are also diuretic and useful in oedema. The normal dose is 15 to 30g in the form of a powder or decoction. In cases of cough with chest pains and haemoptysis, they are commonly used fresh, in the form of expressed juice.

114 Lonicera japonica Thunb. Caprifoliaceae

Local names : Kim ngân, dây nhẫn đông, chừa giang khằm (Thái), bjooc kim ngần (Tày).

English name : Japanese honeysuckle.

Description : A twining evergreen plant, pubescent. Stems brownish-red. Leaves opposite, tomentose. Flowers in axillary pedunculate pairs, often crowded at the end of branchlets, fragrant, white when blooming, then changing to yellow. Berry globose, black when ripe.

Other species, such as *Lonicera dasystyla* Rehd. ; *L. confusa* L. ; *L. macrantha* DC. and *L. cambodiana* Pierre, are also used medicinally.

Flowering period : March - May.

Distribution : Grows wild in the mountains and is cultivated for ornament.

Parts used : The climbing stems bearing leaves and flowers. They are harvested at the beginning of the flowering period and dried at low temperature before use.

Chemical composition : The whole plant contains tannins, saponins, luteolin, inositol and a carotenoid : cryptoxanthin.

Therapeutic uses : The leaf-bearing stem is antibacterial and antiallergic. It is recommended in the treatment of boils, impetigo, urticaria, allergic rhinitis, fever, malaria, erythema, measles, diarrhoea, dysentery, syphilis, rheumatism and lichen tropicus. The daily dose is 4 to 8g of flowers or 10 to 20g of stems and leaves in the form of a decoction, infusion, extract or alcoholic maceration.

115 Ludwigia adscendens (L.) Hara **Onagraceae**

Local names : Rau dừa nước, rau dừa trâu, thụy thái, thủy long, du long thái, co nha pót (Thái), phjăc póp nặm (Tày).

English name : Floating Malayan willow-herb.

Description : Aquatic herb, creeping by means of ovate, white, porous floats. Stems slender, rooting at the nodes. Leaves alternate, oval, base long, apex round. Flowers white, solitary in the axil of the leaves. Capsule long, villous. Seeds numerous.

Flowering period : June - August.

Distribution : A common weed found everywhere in rice-fields, ponds and swamps.

Parts used : The whole plant, except for the roots. It is harvested from June to November and dried before use.

Therapeutic uses : The entire plant, except the roots, is recommended as an antibacterial and diuretic in cases of fever, cystitis, dysuria, oliguria, haematuria, chyluria, haematochyluria and haemorrhagic dysentery. The dried plant is administered in a dose of 100 to 200g per day, in the form of a decoction. External application of poultices made of pounded fresh plant matter is prescribed against snake-bite, burns, impetigo and diseases of the scalp.

116 Lycium chinense Mill. **Solanaceae**

Local names : Câu kỷ, khủ khởi, khởi tử, địa cốt bì, phjăc khau khỉ (Tày).

English names : Chinese box-thorn, Chinese desert thorn, Chinese wolfberry, Chinese matrimony vine.

Description : Small shrub, 0.5 - 1m. high ; branches spinulous. Leaves alternate or in fascicles of 3 - 5, short-petioled ; margins entire. Flowers small, pale-violet, solitary or fascicled in the axil of the leaves. Berry ovoid, bright red when ripe. Seeds numerous, small.

Flowering period : July - October.

Distribution : Largely cultivated for its leaves, eaten as a vegetable ; the roots and seeds are medicinal.

Parts used : Ripe fruit, root-bark. The fruits are picked from August to October, early in the morning and late in the afternoon. They are spread in thin layers to dry in the shade. When the pericarp begins to wrinkle, they are dried in the direct sun or in ovens at a temperature of 40 - 45^{0}C. The roots are collected in spring and autumn ; after they have been well washed, the bark is removed and dried in the sun or in ovens.

Chemical composition : The berries contain salts of Ca, Fe, NH_4 ; P ; vitamin C, nicotinic acid, carotene ; amino acids (lysine, choline, betaine) ; lipids , proteins and hydrocyanic acid. The root-bark yields saponins 1.07%, alkaloids 0.08%.

Therapeutic uses : The fruit is used in treating general debility, impotence, spermatorrhoea, lumbago, amblyopia, vertigo and diabetes mellitus. It also has rejuvenating properties. The daily dose is 4 to 16g in the form of a decoction or alcoholic maceration. The root-bark is effective for haemoptysis, night sweats and haematuria. The dose is 6 to 12g daily in the form of a decoction.

117 Maclura cochinchinensis (Lour.) Corner **Moraceae**

Local names : Mỏ qụa, hoàng lồ, cây bớm, sọng vàng, gai mang, nam phịt (Tày), gai vàng lồ.

Description : Spreading shrub ; bark grey, spotted with white. Stems and branches with incurved spines. Leaves alternate, shining green above. Flowers dioecious, pale-yellow ; the male long-pedicelled in a short raceme, the female sessile in a dense axillary head. Fruit : a syncarp. All parts of the plant contain a milky juice.

Flowering period : April - May .

Distribution : Grows wild in the hills and mountains and on roadsides.

Parts used : The roots and leaves, collected all the year round. The roots are used dried and the leaves fresh.

Chemical composition : The roots and leaves contain flavonoids.

Therapeutic uses : The fresh leaves, stripped of their petioles and finely pounded, or a decoction of leaves, are used in poultices for the healing of wounds of the soft parts. For penetrating wounds, poultices are applied on both sides and covered with a dressing. Poultices and dressings are changed once a day. The roots are effective in rheumatism, oedema, blood stasis, dysmenorrhoea and contusions. They are used in a dose of 10 to 30g per day, in the form of a decoction.

118 Malus doumeri (Bois.) A. Chev. **Rosaceae**

Local names : Sơn tra, sán sá (Tày), chua chát, cây gan, co sam sa (Thái).

Description : Evergreen tree, up to 15m. high. Young stems spinous and pubescent. Leaves alternate, ovate, base round, apex pointed ; margins toothed ; pubescent when young, then glabrous. Inflorescence in axillary cluster ; flowers 3 - 5, white. Drupe globose, slightly compressed, greenish-yellow when ripe, edible.

The species *Docynia indica* (Wall.) Decne is also used medicinally.

Flowering period : February - March.

Distribution : Grows wild and is cultivated in mountainous regions.

Parts used : The fruit, collected at the end of the year, is halved and dried in the sun.

Chemical composition : The fruit contains tannin, sugars, and tartaric and citric acids.

Therapeutic uses : The fruit possesses stomachic properties. It is used in treating dyspepsia, colic, flatulence, diarrhoea and colic consequent upon post-partum haematometra. It is also antihypertensive and anodyne. The usual dose is 8 to 20g in the form of a decoction, liquid extract, powder or pills. Bathing and washing with a decoction of the fruit are effective against impetigo and lacquer allergic dermatitis.

119 Melaleuca leucadendra (L.) L. **Myrtaceae**

Local names : Tràm, chè đồng, chè cay, bách thiên tầng, co tràm (Thái).

English names : Cajeput tree, paper bark tree.

Description : Erect evergreen tree, up to 10m. high. Bark white, soft, peeling off in rough flakes. Leaves alternate, entire, thick, incurvedly nerved with whitish villi when young. Inflorescence in more or less interrupted elongate terminal spike ; flowers small, creamy white. Capsule subglobose, many-seeded.

Flowering period : March - May.

Distribution : Grows wild in the hills and in salt-marshes.

Parts used : The leaves, harvested at the beginning of summer, are dried before use. An essential oil can be obtained by distillation of the leaves.

Chemical composition : The leaves yield an essential oil consisting of cineol 50 - 65%, α-terpineol and its esters, L-α-pinene, L-limonene, dipentene, sesquiterpene, azulene, sesquiterpene alcohol, valerianic aldehyde and benzaldehyde.

Therapeutic uses : The leaves possess antibacterial, anti-inflammatory and anodyne properties. They are effective for coryza, influenza, cough, asthma, dyspepsia, earache, toothache, rheumatism, osteodynia, neuralgia, wounds, burns and post-partum haematometra. The normal dose is 20 to 40g of fresh leaves or 5 to 10g of dried leaves in the form of a decoction or infusion. An essential oil solution is prescribed for massage and for oral administration, parenteral injection or nasal instillation.

120 Melia azedarach L. Meliaceae

Local names : Xoan, sầu đâu, khổ luyện, mạy riẻn (Tày).

English names : Margosa tree, China berry, Barbados lilac, pride of India, Persian lilac, bead tree, hoop tree.

Description : A tree 10m. high or more. Bark pale-brown, lenticellate, longitudinally furrowed. Leaves alternate, odd-pinnate ; leaflets opposite, serrate, glabrous on both sides. Inflorescence in axillary or terminal biparous cyme ; flowers white-lilac. Drupe ovate or ellipsoid-globose with 4 seeds, yellow when ripe.

Flowering period : March - April.

Distribution : Cultivated everywhere for wood.

Parts used : Root-bark, collected from the trees when they reach 7 - 8 years of age. The bark is scraped to remove the outside black skin, then dried in the sun or in ovens.

Chemical composition : The stem-bark and root-bark contain the alkaloid azaridine (margosine), sterols and tannins. The leaves yield the alkaloid paraisine and the flavonoid rutin. The seeds are rich in fatty oil consisting of stearic, palmitic, oleic and linoleic acids.

Therapeutic uses : The internal silky layer of the torrefied root-bark is used in treating ascariasis and oxyuriasis ; it is less toxic than the trunk bark. The usual dose for adults is 2 to 3g per day, for 3 days, and for children, according to their age, 0.1 to 1.5g per day. Vaginal injection of the decoction is effective for trichomonas infections. Precautions must be taken because of the drug's high toxicity.

121 Mentha arvensis L. Labiatae

Local names : Bạc hà, bạc hà nam, nạt nặm, chạ phjăc hom (Tày).

English names : Field mint, corn mint, Japanese mint, Japanese peppermint.

Description : Perennial herb, 30 - 50cm. high, usually withered in winter. Stems quadrangular, erect or prostrate, rooting at the nodes. Leaves opposite, ovate, softly tomentose on both sides ; margins serrate. Inflorescence in axillary capitate whorl ; flowers small, white or lilac. All parts of the plant are aromatic.

The species *Mentha piperita* L. is also used medicinally.

Flowering period : June - September.

Distribution : Grows wild in the mountains and is cultivated everywhere.

Parts used : The whole plant, apart from the roots, is harvested before flowering, when the weather is dry. The plants are used fresh or dried in the shade or in ovens at low temperature. An essential oil can be obtained from the leaves by distillation.

Chemical composition : The whole plant yields an essential oil consisting of L-menthol 65 - 85%, menthyl acetate, L-menthone, L-α-pinene, L-limonene.

Therapeutic uses : The entire plant, apart from the roots, is antibacterial and antifebrile. It yields an essential oil and menthol which exert, through their rapid evaporation, a slightly anaesthetic and anodyne local effect. It is effective in coryza, adiaphoretic fever, headache, rhinitis, cough, sore throat, arthralgia, neuralgia, colic, vomiting, dyspepsia, diarrhoea and prurigo. The normal daily dose is 12 to 20g in the form of a decoction or infusion. The essential oil and menthol are the constituents of several balsams. Poultices of fresh leaves and the inhalation of essential oil and menthol are also prescribed.

122 Millettia speciosa Champ. Leguminosae

Local names : Cát sâm, sâm nam, sâm trâu, sâm chèo mèo, hay chỏn (Tày).

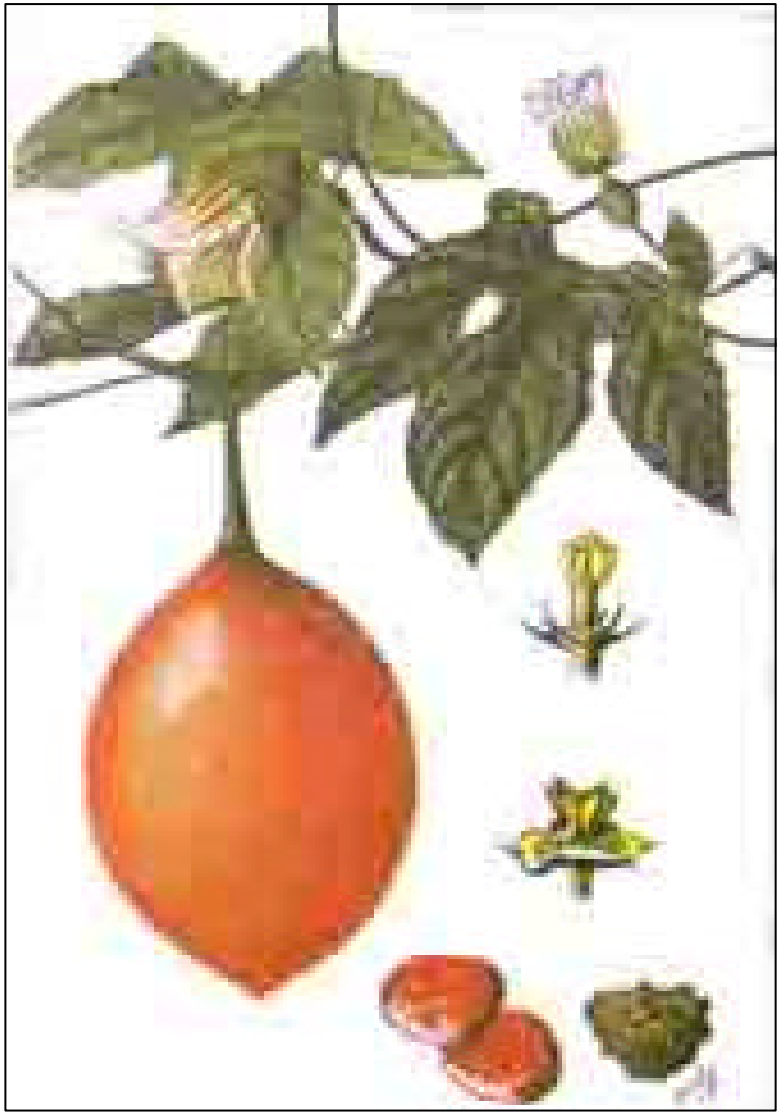
Description : Woody climber, reaching 5 - 6m. Roots fleshy. Young shoots hoary. Leaves odd-pinnate, alternate, pubescent, especially when young. Inflorescence in axillary or terminal raceme ; flowers white or pale-yellow. Pod compressed, pubescent. Seeds 2 - 5, subquadrangular.

Flowering period : June - August.

Distribution : Grows wild in forests and in the hills.

Parts used : Tuberous roots, collected from the one-year-old plant. After being washed, they are dried in the sun or in dryers, then cut into slices, soaked in an aqueous extract of ginger or in molasses, then lightly roasted before use.

Therapeutic uses : The tuberous roots possess reconstituent and antitussive properties. They are utilized in the treatment of general debility, anorexia, phlegmy cough (soaked in ginger juice and torrefied), and headache, dry cough, thirsty evening fever, dysuria (soaked in honey and torrefied). The usual dose is 15 to 30g, occasionally 40g, in the form of a decoction or powder.



123 Momordica cochinchinensis (Lour.) Spreng. **Cucurbitaceae**

Local names : Gấc, mộc miết, má khấu (Thái), mác khẩu (Tày), địa tả piếu (Dao).

Description : Twining perennial with tendrils. Leaves alternate, deeply 3 - 5 - lobed ; margins toothed ; leaf-stalk glandular. Flowers unisexual, monoecious, pale-yellow, solitary in the axil of the leaves. Fruit big, oval-shaped, densely aculeate, red when ripe. Seeds round, compressed, the margins sculptured.

Flowering period : July - October.

Distribution : Cultivated everywhere for its edible fruit.

Parts used : Seed membranes, kernels, roots. The ripe fruit is picked from August to February. The seed membranes are lightly dried at low temperature. An oil can be extracted from them. The seed kernels are dried in the sun or in ovens. An oil can be pressed out of the kernels. Roots are collected in winter. They are washed, then dried in the sun or in ovens.

Chemical composition : The seed membranes contain β-carotene and lycopene. The seed kernels yield a fatty oil, the roots contain triterpenoid saponins.

Therapeutic uses : The seed membrane is rich in β-carotene and is used in treating infantile rickets, xerophthalmia and nyctalopia. The oil extracted from the membranes is given in doses ranging from ten to twenty drops for adults and five to ten drops for children per day. The juice of kernels triturated in alcohol or vinegar is applied locally for furunculosis and phlegmon. In cases of rheumatism the roots are prescribed in the form of a decoction in doses of 6 to 12g per day.

124 Morinda citrifolia L. Rubiaceae

Local names : Nhàu, nhàu rừng, cây ngao.

English names : Indian mulberry, East Indian mulberry, awl tree.

Description : Medium-sized tree, 6 - 8m. in height. Young twigs angular, slightly compressed and grooved. Leaves opposite, stipuliferous ; shining green above, pale below ; margins undulate. Inflorescence in dense ovoid head, opposite to the leaf ; flowers white, then yellow. Fruit ovoid, including many drupelets, yellow when ripe. Seeds numerous, embedded in the pulp.

Flowering period : November - February.

Distribution : Grows wild and is extensively cultivated in the south of Viet Nam.

Parts used : Roots, fruit and leaves. The roots are collected in winter, the fruit in summer and the leaves in spring. They are all used in the dried state.

Chemical composition : The root-bark contains morindon, morindin, morindadiol, soranjidiol, rubichloric acid, alizarin α-methyl ether, and rubiadin l-methyl ether.

Therapeutic uses : The root-bark has a beneficial effect in hypertension, osteodynia and lumbago ; it is prescribed in a dose of 10 to 20g daily in the form of a decoction or alcoholic maceration of torrefied material. A decoction of the leaves taken by mouth is effective for fever, dysentery and diarrhoea. A poultice of pounded fresh leaves cures furunculosis. The fruit, taken together with a little salt, is stomachic, aperient, and active on dysentery, uterine haemorrhage, metrorrhoea, cough, coryza, oedema and neuralgia.

125 Morinda officinalis How **Rubiaceae**

Local names : Ba kích, ba kích thiên, dây ruột gà, chẩu phóng xì, sáy cáy (Thái), thau tày cáy (Tày), chồi hoàng kim, chày kiàng đòi (Dao).

Description : Perennial slender climbing shrub. Young shoots violet, hairy. Leaves opposite, oblong, hairy on both sides. Stipule tubular. Inflorescence in axillary panicle ; flowers small, white. Fruit globose, scarlet when ripe, 2-seeded.

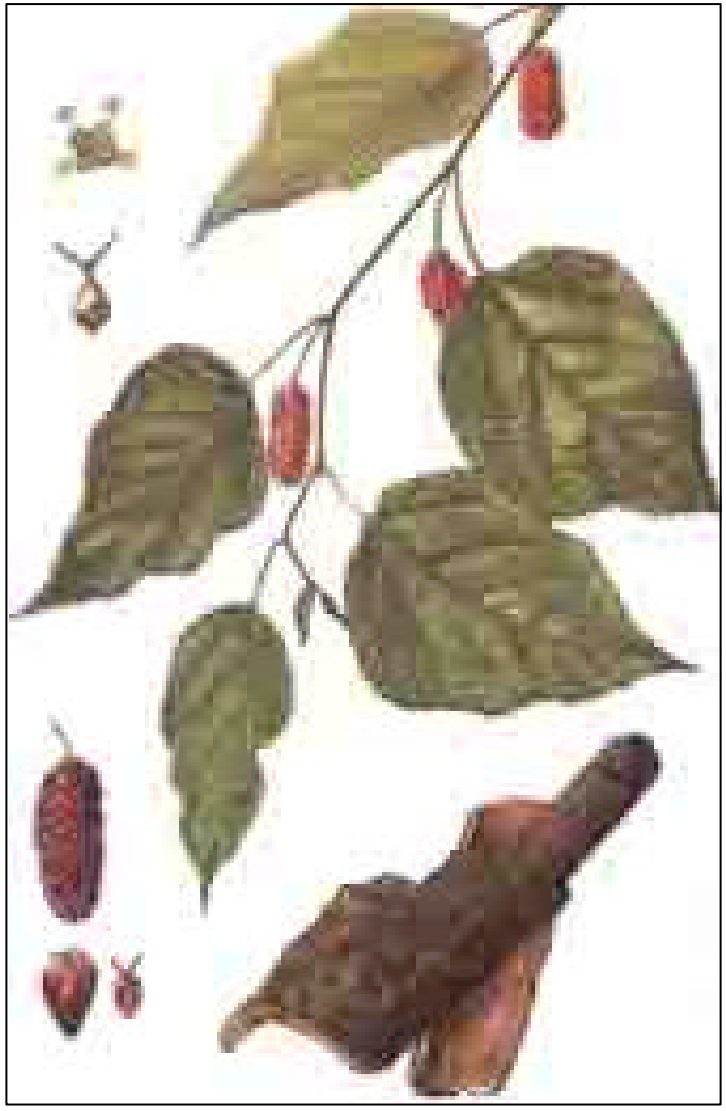
Flowering period : May - June.

Distribution : Indigenous to north Viet Nam, commonly found wild in hilly and mountainous regions.

Parts used : Roots, collected all the year round, especially in autumn and winter. After the radicles have been stripped off, the roots are well washed and exposed to the sun for some days, then flattened and dried in the sun or in ovens.

Chemical composition : The roots contain organic acids, sugars, resins, vitamin C, an essential oil, anthraglucosides and phytosterols.

Therapeutic uses : The roots are reported to exert a tonic effect. They are useful in treating impotence, spermatorrhoea, delayed menstruation, hypertension and rheumatism. They are prescribed in the form of a decoction, liquid extract or elixir in doses ranging from 8 to 16g per day.



126 Morus acidosa Griff. **Moraceae**

Local names : Dâu tằm, dâu cang (H'mông), tang, mạy mọn (Tày), nằn phong (Dao).

Description : Small plant, 2 - 3m. high, occasionally reaching 5 - 6m. when old. Leaves alternate, entire or trilobed ; margins toothed ; 3 nerves from the base. Flowers unisexual, monoecious, in axillary spike (catkin). Fruit : a syncarp of many drupes, initially red then dark purple to black.

Flowering period : March - May.

Distribution : Cultivated for its leaves, used as food for silk-worms, and its edible fruit, used in elixirs and drugs.

Parts used : Leaves, fruit and root-bark. The leaves are harvested at the beginning of summer. Root-bark is collected all the year round. Fruit is picked when ripe. The leaves and root-bark are used fresh or dried. The fruit is used fresh.

Chemical composition : The leaves contain amino acids : phenylalanine, leucine, alanine, arginine, sarcosine ; pipercholic acid ; proteins ; vitamins C, B_1, D ; organic acids : succinic, propionic and isobutyric ; tannin.

Therapeutic uses : The leaves are used in treating coryza, cough and insomnia, in a daily dose of 6 to 18g in the form of a decoction. The root-bark is employed in the treatment of asthma, oliguria, rheumatism and osteodynia, in a dose of 6 to 12g daily in the form of a decoction. The fruit in elixir and syrup form is prescribed for anaemia and dysopia, the usual dose being 12 to 20g per day. Syrup made of the ripe fruit serves as a mouth-wash in cases of sore throat and ulcerous stomatitis.

127 Murraya glabra Guill. **Rutaceae**

Local names : Vương tùng, củ khỉ, hồng bì núi, sơn hoàng bì, xi hắc (H'mông), sọ khỉ, cây ton.

Description : Medium-sized bush, 3 - 7m. high. Young shoots reddish-purple. Leaves alternate, imparipinnate, including 4 - 7 leaflets, thick, entire or minutely dentate. Inflorescence in terminal corymbiferous cyme ; flowers white, fragrant. Berry subglobose, rough, with glands, red when ripe. All parts of the plant, especially the leaves and fruit, are strongly aromatic.

Flowering period : April - June.

Distribution : Common wild plant among limestone rocks.

Parts used : The leaves and roots, collected the whole year round, are used fresh or dried. An essential oil can be extracted from the leaves by distillation.

Chemical composition : The whole plant, especially the leaves and fruit, yield an essential oil containing isomenthone and menthone.

Therapeutic uses : The leaves and roots give beneficial results in the treatment of influenza, headache and abdominal pains. They are also useful for the treatment of rheumatism and arthralgia. The usual dose is 8 to 16g per day in the form of a decoction. The essential oil from the leaves is used externally as a liniment. In cases of luxation or closed fracture the leaves are crushed and employed locally as a poultice.

128 Nelumbo nucifera Gaertn. **Nymphaeaceae**

Local names : Sen, liên, bó bua (Thái), ngậu (Tày).

English names : Sacred lotus, Chinese water-lily, Indian lotus, Egyptian bean, baladi bean.

Description : Perennial aquatic herb. Root-stock stout, cylindrical, embedded in the mud. Leaves peltate, radiately nerved ; margins wavy ; petiole long, aculeate, inserted in the middle of the leaf. Flowers large, solitary, handsome and fragrant, rosy or white. Carpels numerous, ovoid, fleshy, sunk separately in cavities of receptacle, maturing into nut-like achenes ; skin hard and blackish-brown when ripe.

Flowering period : May - July.

Distribution : Common, cultivated in ponds and swamps.

Parts used : Leaves, seeds, receptacles, filaments and plumules. The leaves can be harvested in autumn ; the flowers in summer. The seeds are collected when fully ripe. Leaves and seeds are dried in the sun or in dryers. The pericarps are removed before the seeds are used. The receptacles without seeds are dried before use.

Chemical composition : The leaves contain alkaloids : nuciferine, roemerine, nor-nuciferine and the flavonoid : quercetin. The plumules yield proteins, sugars and vitamins. The receptacles contain quercetin.

Therapeutic uses : The ripe seeds produce a wholesome effect in cases of neurasthenia, spermatorrhoea and metrorrhoea, in a daily dose of 10 to 30g in the form of a decoction or powder. The leaves (15 to 20g) and the seed cores (2 to 4g) in decoction are effective for insomnia, haemorrhage and haematemesis. The plumules (6 to 12g), the filaments (5 to 10g) or the receptacles (15 to 30g) in the form of a decoction are used in treating bloody stools, haematuria, uterine haemorrhage and haematemesis.

129 Nerium odorum Soland. **Apocynaceae**

Local names : Trúc đào, đào lê.

English names : Roseberry spurge, sweet-scented oleander, rose-bay.

Description : Small evergreen bush, 5 - 6m. high, much-branched. Young shoots triangular. Bark ash-coloured. Leaves in whorls of 3, oblong-lanceolate, dark-green above. Inflorescence in terminal cyme ; flowers pink, white or yellow. Follicles in pairs, narrow, cylindrical, straight. Seeds numerous, tipped with a coma of brownish hairs at one end.

Flowering period : May - July.

Distribution : Cultivated for its elegant foliage and handsome flowers.

Parts used : The leaves, harvested just before or during the flowering period and immediately dried in the sun or in dryers.

Chemical composition : The leaves contain cardiotonic glucosides oleandrin, neriifolin, adynerin and neriantin ; and flavonol glucosides : rutin, kaempferol-3 rhamnoglucoside.

Therapeutic uses : Oleandrin (neriolin) extracted from the leaves has a salutary effect in heart failure. It is more quickly absorbed by mouth and is less cumulative than digitoxin. It is prescribed orally in a dose of 0.1mg, 2 to 3 times per day in the form of a 1/5000 solution in 70^0 alcohol or of 0.1 mg tablets. An aqueous maceration of the pounded seeds can be used as an insecticide.

130 Nervilia fordii (Hance) Schltr. Orchidaceae

Local names : Cây một lá, thanh thiên qùi, trân châu diệp, lan cờ, slam lài, bưa thoọc (Tày).

Description : A perennial herb, dying down in winter and reappearing in spring. Tuber small, fleshy ; stems very short. Leaves round or heart-shaped, usually single ; margins undulate. Inflorescence in spike, arising from the tuber before the leaves ; flowers white with pinkish-violet spots. Capsule many-seeded.

Flowering period : March - April.

Distribution: Grows wild in wet places in mountainous regions.

Parts used : The leaves, harvested in autumn, are washed, then dried at low temperature. During drying, the leaves are lightly rumpled 2 - 3 times a day. They can be steamed before drying.

Therapeutic uses : The leaves are used in treating pulmonary tuberculosis, cough and furunculosis. They may also be used as a depurative. The daily dose is 10 to 20g in the form of an infusion or decoction. Poultices of the pounded leaves are used against impetigo, furunculosis and painful inflammation.

131 Ocimum gratissimum L. **Labiatae**

Local names : Hương nhu trắng, é lá lớn.

English names : Lemon basil, large basil, shrubby basil.

Description : Much-branched perennial shrub, 1 - 1.5m high. Stems quadrangular, pubescent, woody at the base. Leaves opposite, apiculate, pubescent on both surfaces ; margins coarsely toothed. Inflorescence axillary or terminal in simple or branched whorled raceme ; flowers white. Nutlets subglobose, rugose. All parts of the plant are strongly scented.

Flowering period : May - July.

Distribution : Grows wild but is cultivated for its essential oil.

Parts used : The whole plant, except for the roots. It is harvested during the flowering period and after the roots have been removed, it is lightly dried in the sun or in an oven at low temperature.

Chemical composition : The whole plant contains an essential oil (0.6 - 0.8%), consisting of eugenol 45 - 70%, methyl eugenol 20%, carvacrol, ocimene, p-cymene, camphene, limonene, α-pinene and β-pinene.

Therapeutic uses : The whole plant is used in treating sunstroke, headache and influenza. It is also considered to be diaphoretic. It is given in doses ranging from 6 to 12g per day, in the form of an inhalation or decoction. It serves also as material for the extraction of essential oil and eugenol. Eugenol is used widely in odontology and for the synthesis of vanillin.

132 Ocimum sanctum L. — Labiatae

Local names : Hương nhu tía, é tía, é đỏ.

English names : Monk's basil, sacred basil, holy basil, rough basil, tulsi.

Description : Erect, small plant, annual or perennial, about 1m. in height. Stems and branchlets purple, pubescent. Leaves opposite, usually purplish-brown, long-petioled ; margins slightly denticulate, pubescent on both surfaces. Inflorescence in close-whorled terminal raceme ; flowers small, lilac or white. Nutlets sub-globose, slightly compressed. All parts of the plant are sweet-scented.

Flowering period : May - July.

Distribution : Cultivated everywhere for medicinal use.

Parts used : The whole plant, except for the roots. It is harvested during the flowering period. The roots are removed and the plants lightly dried in the sun or in an oven at low temperature.

Chemical composition : The whole plant yields an essential oil consisting of eugenol, methyl eugenol, carvacrol, α-cymene, p-cymene, camphene, α-pinene and β-pinene.

Therapeutic uses : The entire plant, except for the roots, possesses antibacterial, antifebrile and demulcent properties. It is prescribed for coryza, fever, headache, colic, diarrhoea, chest pains, vomiting, chilblains, oedema and epistaxis. The usual dose is 6 to 12g per day in the form of a decoction, either by mouth or as an inhalation. The decoction serves also as a gargle for halitosis : 10g of plant material is boiled for 15 minutes with 200 ml of water.

133 Ophiopogon japonicus (L.f.) Ker. - Gawl. Liliaceae

Local names : Mạch môn, tóc tiên, lan tiên, duyên giới thảo, xà thảo, phiếc kép phạ (Tày).

Description : A stoloniferous perennial herb, growing in tufts with tuberous roots, fleshy. Leaves linear, long, dark-green above, pale below, with numerous parallel nerves. Inflorescence in axillary spike with long stalk ; flowers small, pale-green. Berry globose, violet then silvery grey.

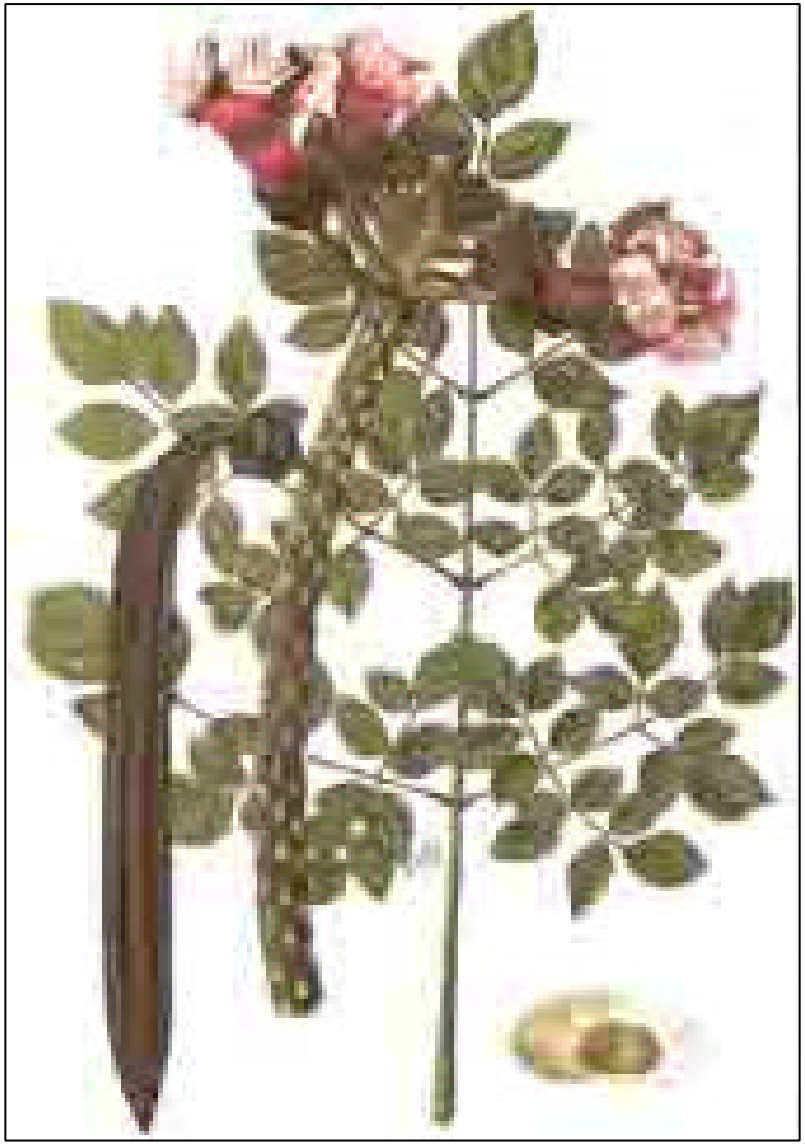
Flowering period : June - August.

Distribution : Grows wild among limestone rocks and is also cultivated in gardens for ornament and medicinal use.

Parts used : Tuberous roots of 2-year-old plants, collected from September to December. The well-washed roots are dried in the sun or in dryers after the two ends and the core have been removed.

Chemical composition : The tuberous roots contain mucilage and sugars (glucose, fucose, rhamnose, xylose); β-sitosterol ; ophiopogenins A,B,C,D ; ruscogenin.

Therapeutic uses : The tuberous roots possess expectorant and antitussive properties. They have a beneficial effect in sore throat, bronchitis, tuberculosis, haemoptysis, haematemesis, evening fever with thirst, epistaxis, oliguria, hypogalactia, galactophoritis and constipation. The daily dose is 6 to 20 g in the form of a decoction, pills or syrup.



134 Oroxylum indicum (L.) Vent. Bignoniaceae

Local names : Núc nác, nam hoàng bá, mộc hồ điệp, mạy ca (Tày), co ca liên (Thái), p'sờ lụng (K'ho), kờ lúc (K'dong), póc ta lốp (Ba Na).

English names : Indian trumpet flower, broken bones, midday marvel.

Description : Medium-sized tree, up to 10m. high, with sparse branches. Bark rough, thick, ash-coloured and yellowish inside. Leaves large, tripinnate, up to 1.5m. long. Inflorescence in terminal raceme ; flowers large, dark reddish-brown. Capsule flat, ensate, curved, with numerous winged seeds.

Flowering period : June - August.

Distribution : Grows wild in mountainous regions and is also cultivated everywhere.

Parts used : Stem-bark and root-bark are collected all the year round, together with the seeds from ripe fruit ; all dried before use.

Chemical composition : The root-bark and stem-bark contain flavonoids : oroxylin A, baicalein, chrysin. The seeds contain baicalein and tetuin (baicalein-6 glucoside).

Therapeutic uses : The root-bark and stem-bark possess antiallergic properties and are used in treating allergic diseases, urticaria, jaundice, asthma, sore throat, laryngitis, hoarseness, gastralgia, diarrhoea, dysentery, infantile erythema and measles. The normal dose is 8 to 16g of bark in the form of a decoction, extract or powder. The seeds are active on chronic cough and gastralgia : 5 to 10g daily in the form of a decoction or powder. An alcoholic maceration of fresh bark is applied externally for lacquer allergic dermatitis.

135 Orthosiphon aristatus (Blume) Miq. Labiatae

Local names : Râu mèo, cây bông bạc.

English names : Java tea, kidney tea plant.

Description : Perennial herb, 0.5 - 1m. high. Stems erect, quadrangular, usually tinged violet-brown. Leaves opposite, short-petioled, coarsely toothed ; apex acute. Inflorescence in a close-whorled raceme at the end of the branches ; flowers white, stamens and pistil exserted. Nutlets oblong, compressed, rugulose.

Flowering period : April - July.

Distribution : A rare wild plant in mountainous regions but cultivated in some places.

Parts used : The whole plant, except for the roots. The plant is harvested in March and April, before flowering ; the roots are removed and the plants well washed and then dried in the sun or in dryers.

Chemical composition : The whole plant contains a bitter glucoside : orthosiphonin , saponins, alkaloids, tannin, essential oil, flavonoids, triterpenoid alcohol, choline, betaine, organic acids (tartaric, citric and glycolic), and potassium salts.

Therapeutic uses : The entire plant, except for the roots, possesses diuretic properties and is used in treating urinary lithiasis, oedema, eruptive fever, influenza, rheumatism, hepatitis, jaundice and biliary lithiasis. The usual dose is 15 to 40g in the form of an infusion, decoction, or liquid extract. A course of treatment normally takes 8 days, followed by a pause of 2 to 4 days.

136 Paederia foetida L. **Rubiaceae**

Local names : Mơ tam thể, dây thối địt, lá mơ, dắm chó, khau tất ma (Tày), co tốt ma (Thái).

English names : Chinese moon-creeper, king's tonic, stinking opalberry.

Description : Perennial climbing plant. Leaves opposite, margins entire, purple beneath. Inflorescence in axillary cyme ; flowers small, white with pale-violet spots. Fruit sub-ovoid, slightly compressed, glabrous. The whole plant is covered with pubescence ; it has a fetid smell when crushed.

Flowering period : August - October.

Distribution : Grows wild and is also cultivated as a spice and medicinal plant.

Parts used : Fresh leaves, collected the whole year round.

Chemical composition : The leaves contain an essential oil and alkaloids α-paederine and β-paederine.

Therapeutic uses : The leaves are well known for their antidysenteric properties and are indicated in the treatment of bacillary dysentery. The single dose is 30 to 50g of fresh leaves, which are fine-cut and mixed with a hen egg, then covered with banana leaves and grilled, or fried (without fat) in a frying-pan, then administered 2 to 3 times per day, for 5 to 8 days. A decoction of the leaves is also used in treating urinary lithiasis, dysuria, rheumatism, dyspepsia, gastritis and enteritis.

137 Panax bipinnatifidus Seem. **Araliaceae**

Local names : Tam thất hoang, vũ diệp tam thất, trúc tiết nhân sâm, tam thất lá xẻ.

English name : Wild false-ginseng.

Description : Perennial herb. Tuberous roots, long and many-noded. Stems erect, 30 - 50 cm. high, usually withered in the dry season. Leaves palmate, with 2 - 3 in a whorl ; leaflets 5 - 7, long, irregularly lobed ; margins toothed and ciliated.Inflorescence in terminal simple umbel ; flowers small, greenish-white. Berry scarlet when ripe, 1 - 2 - seeded.

Flowering period : July - September.

Distribution : Grows wild in the mountains at an altitude of about 1600m. and above.

Parts used : The tuberous roots of old plants are well washed and then dried in the sun or in dryers.

Therapeutic uses : The roots, which possess tonic and antianaemic properties, are used in treating anaemia and general debility and are especially valuable in treating parturients for those conditions. They are also aphrodisiac and have salutary effects in the treatment of sterility. The daily dose is 5 to 6g in the form of a powder or elixir.

138 Panax pseudo-ginseng Wall. Araliaceae

Local names : Tam thất, sâm tam thất, thổ sâm, kim bất hoán.

English name : False ginseng.

Description : Perennial herb. Tuberous roots, short and fleshy. Stems erect, 30 - 50 cm. high, usually withered in the dry season. Leaves palmate, long-petioled in whorl ; leaflets 5 - 7, margins dentate, hairy on both sides. Inflorescence in terminal simple umbel ; flowers small, yellowish-green. Berry globose, slightly compressed, red when ripe, 2 - seeded.

Flowering period : May - July.

Distribution : Cultivated in cold, climatic regions.

Parts used : Tuberous roots, obtained from plants over 5 years old. After being well washed, the roots are dried in the sun or in ovens.

Chemical composition : The tuberous roots contain triterpenoid saponins (saponins A, B, C, D), oleanolic acid, amino acids : leucine, valine, proline, oxyproline, histidine, lysine and cysteine ; Fe, Ca.

Therapeutic uses : The roots possess well known haemostatic, tonic, hormonal and circulation-promoting properties and have a beneficial effect in haematemesis, metrorrhagia, menorrhagia, post-partum haematometra, ocular congestion, bloody stools, epistaxis, rheumatism, phlegmon and contusions. They are also effective in cases of anaemia and general debility, especially in parturients, and sterility. The usual dose is 4 to 6g in the form of a powder, decoction or liquid extract.

139 Papaver somniferum L. Papaveraceae

Local names : Thuốc phiện, a phiến, a phù dung, anh túc, cây thẩu, co khoẳn nhẹng (Thái), chừ gia dính (H'mông), lảo fèn (Tày).

English names : Opium poppy, white poppy.

Description : Erect annual herb, about lm.high. Stems slender, glabrous. Leaves alternate, sessile, amplexicaul, irregularly lobed and toothed. Flowers large, handsome, of various shades : white, scarlet or lilac, solitary at the top, with long stalk. Capsule globular, longitudinally grooved. Seeds numerous, small and black.

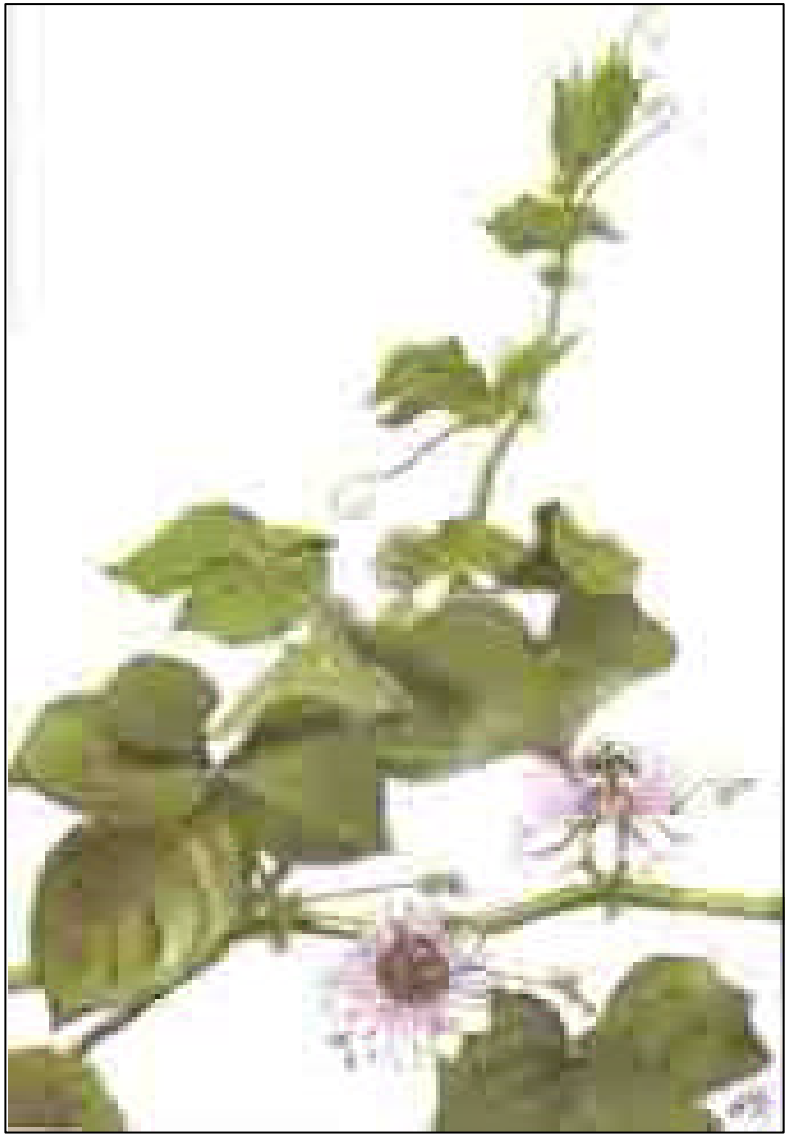
Flowering period : March - May.

Distribution : Cultivated in the highlands.

Parts used : Latex obtained by incising unripe capsules ; dry capsules without latex. The collection of latex starts in the middle of February and lasts until the middle of April. The latex collected is concentrated by evaporation to yield opium. After the latex has been drawn off, the capsules are picked and dried in the sun or in ovens.

Chemical composition : The latex is rich in alkaloids : morphine, codeine, thebaine, narcotine, narceine and papaverine ; organic acids : meconic, lactic, malic, tartaric, citric, acetic and succinic ; it contains in addition proteins, dextrose and pectin.

Therapeutic uses : The latex possesses hypnotic, analgesic, antitussive and antidiarrhoeal properties. It is also effective in dyspnoea consequent upon heart failure. It is prescribed daily in a dose of 0.005-0.02g according to the amount of morphine. The cure is limited to 7 days. The capsules from which the latex has been drawn off are used in treating chronic cough, pertussis, and diarrhoea, in a daily dose of 4 to 8g.



140 Passiflora foetida L. **Passifloraceae**

Local names : Lạc tiên, dây nhãn lồng, chùm bao, dây lưỡi, co hồng tiên (Thái), mác quánh mon (Tày).

English names : Stinking passion flower, tagua passion flower, hispid granadilla.

Description : Perennial climber with tendrils. Stems hollow, tubular. Leaves alternate, trilobed. Flowers white, solitary in the axil of leaves ; coronal violet. Fruit globose, enveloped by remains of pinnatifid bracts, yellow when ripe, edible ; seeds numerous. The whole plant is densely hirsute.

Flowering period : May - July.

Distribution : Found wild among shrubs.

Parts used : The whole plant, harvested in spring and summer. The roots are removed and the plants dried in the sun or in dryers.

Chemical composition : The fruit, seeds and leaves contain an unstable substance that yields hydrocyanic acid and acetone. The ripe fruit yields Ca, P, Fe.

Therapeutic uses : The whole plant is considered to have sedative properties and is used in the treatment of neurasthenia, insomnia, nightmares and anxiety. It is also indicated for hypertension in the form of a decoction, fluid extract or syrup. The average dose ranges from 20 to 40g per day.

141 Perilla frutescens (L.) Britton — Labiatae

Local names : Tía tô, tử tô, hom to, hom đeng (Thái), fần cưa (Tày), cần phân (Dao).

English name : Perilla.

Description : Small aromatic plant, 0.5 - 1m. high. Stems 4 -angled, striate. Leaves opposite, long-petioled, coarsely serrate, pale-green or purplish-violet above, purplish-violet beneath. Inflorescence in terminal whorled spike ; flowers white. Achene of 4 nutlets. All parts of the plant are covered with a dense pubescence. The variety *Perilla ocymoides* L. var. *bicolorlaciniata* is of greater value.

Flowering period : May - August.

Distribution : Cultivated in gardens as a spice and medicinal plant.

Parts used : The whole plant, except for the roots. The leaves are harvested before the plant flowers, then branches are collected ; the fruit is picked from plants cultivated exclusively for that purpose. They are lightly dried in the sun or in ovens at a low temperature.

Chemical composition : The whole plant contains an essential oil consisting of perilla-aldehyde (4-isopropenyl 1-cyclohexen-7-al) ; limonene, α-pinene, and dihydrocumine. The seeds yield a fatty oil, containing oleic, linoleic and linolenic acids ; and amino acids : arginine, histidine, leucine, lysine and valine.

Therapeutic uses : In the therapy of influenza, coryza and headache, the plant is recommended in the form of a decoction. The drug is also useful in cases of threatened abortion. It is prescribed in doses ranging from 6 to 10g of leaves and twigs. The fruit is effective against cough in doses of 3 to 5g per day in the form of a decoction.

142 Phellodendron amurense Rupr. **Rutaceae**

Local names : Hoàng bá, hoàng nghiệt.

English name : Amur cork tree

Description : A tree 15m. or more in height, much-branched. Trunk bark thick, yellow inside. Leaves imparipinnate, of 5 - 13 leaflets. Inflorescence in terminal panicle ; flowers unisexual, greenish-yellow. Fruit globose, 2 - 5 - seeded, dark-violet when ripe.

Flowering period : May - November.

Distribution : Naturalized in mountainous regions, up to 1500m.

Parts used : The trunk bark, collected from April to July. After the periderm has been scraped off, the bark is dried in the sun or in ovens.

Chemical composition : The trunk bark contains 0.6% berberine, palmatine, obakunone, obakulactone and sterols.

Therapeutic uses : The trunk bark, which possesses antibacterial properties, is used in treating jaundice following cholecystitis, boils on the chin, urinary duct inflammation, chyluria, dysentery, diarrhoea, dyspepsia, haemorrhoids, ophthalmia, otitis, spermatorrhoea, leucorrhoea, fever and night sweats. The usual daily dose is 6 to 12g in the form of a decoction, powder or purified berberine. A poultice is prescribed for furunculosis and wounds.

143 Phyllanthus urinaria L. **Euphorbiaceae**

Local names : Chó đẻ, chó đẻ răng cưa, cam kiềm, rút đất, diệp hạ châu, khao ham (Tày).

Description : Diffuse annual or perennial herb, 20 - 30cm. high. Stems glabrous, usually purplish. Leaves alternate, very short-petioled, prominently arranged in two rows, resembling a pinnate leaf. Flowers minute, yellowish, unisexual, solitary in the axils ; both sexes on the same plant. Capsule without stalk, globose, slightly compressed, echinate.

Flowering period : April - August.

Distribution : Common weed everywhere.

Parts used : The whole plant, harvested the whole year round but especially in summer, is commonly used fresh, occasionally dried.

Chemical composition : The whole plant contains bitter substances, alkaloids.

Therapeutic uses : The whole plant, which possesses antibacterial and demulcent properties, is useful in the treatment of sore throat, boils, especially on the chin, impetigo, infantile cheek eczema, tongue thrush, arthralgia, snake and centipede bites, post-partum haematometra, fever, ophthalmia and hepato-biliary diseases. The usual daily dose is 8 to 16g of dried plant in the form of a decoction, or 20 to 40g of fresh plant in the form of a salted juice administered by mouth ; the residue is applied topically. The species *Phyllanthus niruri* is also useful.

Local names : Trầu không, trầu cay, trầu lương, thổ lâu đằng, mjầu (Tày), lau (Dao).

English names : Betel leaf vine, betel leaf pepper, betel pepper.

Description : A slender creeper with adventitious roots. Stems glabrous, sulcate, thickened at the nodes. Leaves alternate, heart-shaped, palmately nerved, glabrous and shining on both sides. Inflorescence in drooping, dense axillary spike, consisting of male and female flowers. Berry globose, hairy at the apex (rarely produced). All parts of the plant have a special aroma.

Flowering period : May - August.

Distribution : Cultivated in many areas, especially in the South, for its leaves, which are chewed.

Parts used : Leaves and roots, collected throughout the year, are used fresh.

Chemical composition : The whole plant yields an essential oil containing eugenol, carvacrol, chavicol, allyl catechol, chavibetol, cineol, estragole, methyl eugenol, p-cymene, caryophyllene and cadinene ; tannins ; sugars ; carotene, thiamine, riboflavine, nicotinic acid, vitamin C and amino acids.

Therapeutic uses : The leaves possess antibacterial properties and are beneficial in the treatment of purulent parodontosis in the form of a collutory made of the juice or extract. A poultice of the leaves and a wash with the decoction are used in treating wounds, burns, impetigo, furunculosis, eczema and lymphangitis. The leaves if topically applied to the chest cure cough and asthma, and if applied to the breast arrest lactation. Friction of the spinal column with the leaves is recommended for treating colds. The roots (8 to 12g) are used in treating rheumatism.

145 Piper lolot C. DC. **Piperaceae**

Local names : Lá lốt, tất bát, bẩu pát, phjăc pát (Tày).

English name : Lolot pepper.

Description : Perennial creeper. Stems swollen at the nodes, downy while young, 30 - 40cm. high. Leaves alternate, broadly cordate, amplexicaully petioled, glabrous above, downy on the nerves beneath ; margins wavy. Inflorescence in erect axillary spike of unisexual flowers. Berry single-seeded.

Flowering period : August - October.

Distribution : Found wild in damp forests, along stream banks.

Parts used : The whole plant, preferably in flower, can be harvested in summer and autumn, washed and then dried in the sun or in dryers.

Chemical composition : The whole plant contains an essential oil.

Therapeutic uses : The entire plant possesses anti- inflammatory and anodyne properties. It is utilized in the treatment of rheumatism, ostealgia, lumbago, headache, paresis, hyperhidrosis of the extremities, dyspepsia, vomiting, flatulence, colic, diarrhoea, toothache, chronic catarrhal rhinitis and oedema. It is used in combination with other plants for treating mushroom poisoning and snake-bite. The daily dose is 8 to 12g of dried or 20 to 30g of fresh plant, in the form of a decoction. It is administered perlingually for toothache.

146 Piper nigrum L. **Piperaceae**

Local names : Hồ tiêu, hạt tiêu, mạy lòi (Tày).

English names : Black pepper, common pepper, white pepper.

Description : Climbing perennial plant. Stems glabrous, rooting at the nodes. Leaves alternate, coriaceous, rounded at the base ; apex pointed ; recurved nerves prominent beneath. Inflorescence in drooping spike of dioecious flowers, opposite to and shorter than the leaf. Berry globular, red when ripe, turning black after drying, 3 - 4 mm. in diameter, strongly scented and bitter to the taste.

Flowering period : May - August.

Distribution : Extensively cultivated in the southern part of Viet Nam.

Parts used : The fruit, picked when fully ripe, is dried in the sun or in ovens. After drying, the pericarp may be removed (hạt tiêu sọ).

Chemical composition : The seeds contain alkaloids : piperine, piperetine, chavicine and an essential oil, consisting of terpene, phellandrene, caryophyllene, piperonal-dihydrocarveol and caryophyllene oxide.

Therapeutic uses : The berries, well known for their stomachic, anodyne and antibacterial properties, are prescribed for treating dyspepsia, vomiting, diarrhoea and colic resulting from cold, The average daily dose is 1 to 3g in the form of a decoction, powder or pills. The powdered berries, applied topically, cure toothache. They can also be used as an insecticide against clothes moths.

147 Plantago major L. **Plantaginaceae**

Local names : Mã đề, xa tiền, su ma (Tày), nhả én dứt (Thái), nằng chấy mía (Dao).

English names : Broad-leaved plantain, ripple grass, cart-track plant, greater plantain.

Description : Perennial herb with rootstock wholly underground. Leaves radical, spoon-shaped, 3-nerved, entire or distantly toothed ; petioles long, tightly clasping each other at the base. Flowers small, in long, slender and axillary spike. Capsule ovoid. Seeds numerous, dull-brown.

Flowering period : May - August.

Distribution : Grows wild in wet places and is also found under cultivation.

Parts used : The whole plant, except for the roots ; it can be harvested all the year round, especially in July and August. The well-washed plant can be used fresh or dried.

Chemical composition : The leaves contain aucubin, oleanolic acid, mucilage, tannin, saponins, essential oil, vitamins A, C and K, citric acid, planteose and potassium salts.

Therapeutic uses : The whole plant and seeds, well known for their diuretic activity, produce a salutary effect in the treatment of oedema, dysuria, haematuria, urinary lithiasis, persistent cough, bronchitis and ophthalmia in a daily dose of 8 to 16g in the form of a decoction or extract. A poultice of the fresh leaves and a plaster made of an extract of the whole plant are useful for treating burns and furunculosis. The seeds are useful for treating diarrhoea and dysentery.

148 Platycodon grandiflorum (Jacq.) A. DC. Campanulaceae

Local names : Cát cánh, kết cánh.

English names : Chinese bellflower, Japanese bellflower.

Description : An erect perennial herbaceous plant, 50 - 90cm. in height, with tuberous roots. Leaves opposite or 3-verticillate, the upper alternate ; margins toothed. Flowers blue, lilac or white, solitary or in a terminal cluster. Capsule ovoid ; seeds numerous, minute, blackish-brown.

Flowering period : June - September.

Distribution : An introduced species, naturalized in the mountains and in the plains.

Parts used : The roots, dug up in autumn, winter or spring, after the periderm has been scraped off are well washed, wrapped up for 12 hours, then cut up into thin slices and dried in the sun or in ovens.

Chemical composition : The roots contain triterpenoid saponins of the olean group : kikyosaponin (yields kikyosapogenin and galactose on hydrolysis), platycodigenic acid, platycodigenin, polygalasic acid, phytosterols and inulin.

Therapeutic uses : The roots, well known for their antitussive and expectorant properties, are used for the relief of cough with fetid phlegm, sore throat, hoarseness, chest pain, asthma, haemoptysis and dysentery. The usual daily dose is 4 to 8g in the form of a decoction, liquid extract or syrup, used on their own or in combination with *Glycyrrhiza*. A powdered mixture with *Illicium verum* is topically applied for periodontosis and halitosis.

149 Pluchea indica (L.) Less. **Compositae**

Local names : Cúc tần, cây lức, từ bi, phật phà (Tày).

Description : Slender shrub, 1 - 2m. tall. Branches pubescent and then glabrous. Leaves alternate, subsessile, glaucous-green on both sides ; margins serrate. Inflorescence in terminal corymb of many heads ; flowers lilac. Fruit small, angular. All parts of the plant are softly pubescent and scented.

Flowering period : February - April.

Distribution : Grows wild in marshes or swamps but is usually cultivated for quickset hedges.

Parts used : Roots and leaves, collected all the year round, are well washed and used fresh or dried.

Chemical composition : The leaves contain proteins 2.9%. The whole plant contains chlorogenic acid and an essential oil.

Therapeutic uses : The roots, which possess antifebrile, demulcent and anodyne properties, are recommended for treating adiaphoretic fever, headache, rheumatism, lumbago, osteodynia, sprain, dysentery and dyspepsia. The average daily dose is 8 to 16g in the form of a decoction. A decoction of the fresh leaves is used in an inhalation for cold and a wash for scabies, while a mixture with alcohol is applied topically as an anodyne. The powdered leaves mixed with beeswax and castor oil are used in bandaging closed fractures.

150 Plumeria rubra L. var. acutifolia (Poir.) Bailey **Apocynaceae**

Local names : Đại, bông sứ, sứ cùi, hoa Chăm pa, miến chi tử.

English names : Temple tree, pagoda tree, frangipani plant.

Description : Medium-sized tree, 5 - 6m. high. Branches fleshy, brittle. Leaves alternate, usually crowded in thick terminal cluster, entire and attenuate at both ends. Inflorescence in terminal cyme ; flowers white with a yellow centre, or reddish-pink, fragrant. Follicles divaricate, with numerous winged seeds. All parts of the plant yield a milky latex.

Flowering period : May - August.

Distribution : Cultivated for ornament, particularly in the vicinity of religious shrines and burial grounds.

Parts used : Bark, latex and flowers. The bark and latex are collected all the year round. Flowers are picked at the beginning of the flowering period. Bark and flowers are used fresh or dried.

Chemical composition : The stem-bark contains plumierides and fulvoplumierin.

Therapeutic uses : The flowers are used in treating cough, constipation, acute enteritis, dysentery and haemophilia, in a daily dose of 6 to 12g in the form of a decoction. A decoction of the stem-bark is administered by mouth in a daily dose of 4 to 8g for hydropsia, and 8 to 16g as a purgative ; an alcoholic maceration in a dose of 12 to 20g is used as a gargle to cure paradontosis. The latex is used in the same way as the stem-bark, but in lower doses. The plant is proscribed for pregnant women.

151 Pogostemon cablin (Blanco) Bentham **Labiatae**

Local name : Hoắc hương.

English names : Patchouli, patchouli oil plant.

Description : Perennial herb, 30-60 cm. high. Stems quadrangular, woody at the base, violet-brown. Leaves opposite, coarsely double-toothed. Inflorescence in axillary or terminal spike of contiguous whorls ; flowers pale purple (rarely produced). Fruit of 4 hard nutlets. The whole plant is clothed with soft hairs and is strongly scented.

Flowering period : May - June.

Distribution : Cultivated in gardens as a medicinal plant.

Parts used : The whole plant, except for the roots. Plants are harvested before flowering, washed and dried in the sun or in ovens at a low temperature.

Chemical composition : The whole plant yields an essential oil consisting of benzaldehyde, eugenol, cinnamic anhydride β - patchoulene, α – guaiene, α - bulnesene, α - terpinene, cadinene, patchouli alcohol.

Therapeutic uses : Except for the roots, the entire plant has antibacterial and demulcent properties. It is used in treating colic, diarrhoea, coryza, vomiting, eructation, halitosis, body pains, influenza, fever, headache, cough and dyspepsia. It is used in a daily dose of 6 to 12g in the form of a powder, infusion or decoction.

152 Polygonatum kingianum Coll. et Hemsl. Liliaceae

Local names : Hoàng tinh hoa đỏ, hoàng tinh lá mọc vòng, củ cơm nếp.

Description : Perennial herbaceous plant, 1 - 1.2m. high. Rootstock horizontal, stout, whitish, strangled at the nodes. Leaves stalkless, narrow, 5-10-verticillate with a long, sharp and curling tip. Flowers red, in pairs, drooping in the axils. Berry oval, violet-blue when ripe.

Flowering period : March - May.

Distribution : Found wild in the highlands above 1200m.

Parts used : The rhizomes, collected in autumn, are well washed, steam-cooked, then dried in the sun or in ovens. Before use, they are boiled with molasses then dried. This process is repeated 9 times.

Chemical composition : The rhizomes contain mucilage, starch and sugars.

Therapeutic uses : The rhizome is considered as a tonic and has a beneficial effect in the treatment of pulmonary diseases, dry cough and heamoptysis. It relieves general debility, lumbago and rheumatic pains. It is available in the form of a powder, decoction or alcoholic maceration. The usual dose is 12 to 20g per day.

153 Polygonum chinense L. — Polygonaceae

Local names : Thổm lổm, lá lổm, đuôi tôm, mía bẹm, xốm cúng (Thái), nú mí (Tày), cờ đô(K'ho).

English name : Chinese knotweed.

Description : Undershrub about 1m. high. Stems cylindrical, glabrous, much-branched. Leaves alternate, ovoid, entire, with a tubular ocrea and sometimes a black marking like a "V" on the upper face. Inflorescence in terminal panicled cyme ; flowers small, white or pink. Nutlet trigonous, pulpy, dull-black when ripe.

Flowering period : August - November.

Distribution : Grows wild everywhere.

Parts used : The leaves, harvested all the year round and used fresh.

Chemical composition : The whole plant contains rubin, rheum-emodin, oxy-methyl-anthraquinone, anthraquinone, glucosides, myricyl alcohol.

Therapeutic uses : The leaves have antibacterial properties and are effective in the treatment of furunculosis, impetigo, ulceration of the helix, scalp scabs, cold sore, eczema, and streptococcal skin infections. Poultices made of pounded fresh leaves, their juice or their concentrated extract are topically applied. A decoction of dried leaves is indicated for boils and dysentery. Snake-bite is treated by oral administration of the juice of fresh leaves (20 - 30g), the residue being applied to the bite as a plaster.

154 Polygonum multiflorum Thunb. **Polygonaceae**

Local names : Hà thủ ô đỏ, dạ giao đằng, má ỏn, khua lình (Thái), mằn năng ón (Tày), xạ ú sí (Dao).

English name : Many-flowered knotweed.

Description : Perennial climber. Stems twining, branchlets and petioles violet-purple. Roots tuberous, brownish-red. Leaves alternate, ovate-cordate ; apex pointed ; ocrea thin, membranous. Inflorescence in axillary panicle ; flowers small, white. Nutlet 3-angled, winged.

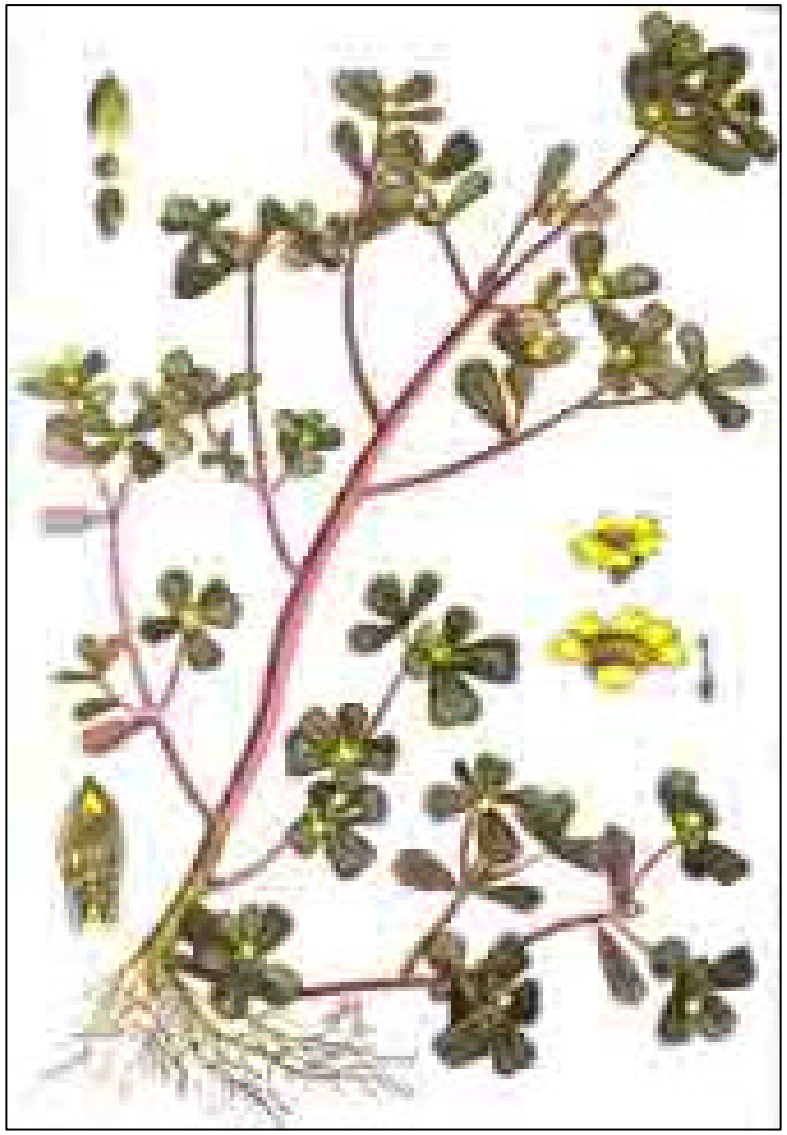
Flowering period : September - November.

Distribution : Grows wild in the highlands ; occasionally cultivated.

Parts used : The tuberous roots, collected in autumn, are well washed, cut into pieces, steam-cooked and dried in the sun or in ovens. Before use, they are boiled with a decoction of *Vigna cylindrica* until they go black, then cut into slices and dried in the sun or in ovens.

Chemical composition : The tuberous roots contain rhaponticin (rhapontin, ponticin), chrysophanic acid, emodin, physcion, rhein and polygonic acid.

Therapeutic uses : The root is a blood tonic and anti-inflammatory. It is effective in the therapy of renal and hepatic hypofunction, neurasthenia, dyspepsia, insomnia, hypogalactia, rheumatism, lumbago, spermatorrhoea, leucorrhoea, haematuria, bloody stools, prurigo and anaemia. Long-term administration has a rejuvenating effect and makes white hair grow black again. The daily dose is 12 to 20g in the form of a decoction or elixir.



155 Portulaca oleracea L. **Portulacaceae**

Local names : Rau sam, mã xỉ hiện, phjăc bỉa, slỏm cà (Tày).

English names : Garden purslane, common purslane, purple-flowered purslane, kitchen-garden purslane.

Description : Prostrate annual herb. Stems succulent, green or reddish. Leaves alternate, fleshy, shining glabrous ; base attenuate, apex truncate ; nerves inconspicuous. Flowers bright yellow in terminal cluster, without stalks. Capsule globose or ovoid, opening transversely ; seeds numerous, shining black.

Flowering period : June - August.

Distribution : Commonly found wild in wet places.

Parts used : The whole plant, except for the roots, is gathered in summer and autumn and used fresh.

Chemical composition : The whole plant contains carotene, vitamins C, B_1, B_2, PP ; Ca, Mg, Na, K salts ; organic acids : nicotinic and oxalic ; noradrenalin, and the biflavonoid liquiritin.

Therapeutic uses : Except for the roots, the entire plant is used as an antibacterial, anti-inflammatory and anthelminthic. It is used in treating bacillary dysentery and dysuria, in a dose of 250g of fresh plant in the form of a decoction. A combination with equal parts of *Euphorbia thymifolia* is also used. The juice extracted from 100g of pounded fresh plant and diluted with water serves as an anthelminthic against oxyuriasis and ascariasis. It is administered in the morning, for 3 -5 days. Poultices of fresh leaves are used to treat mastitis, boils and impetigo.

156 Premna integrifolia Roxb. **Verbenaceae**

Local names : Vọng cách, cây cách, cách núi.

English name : Headache tree.

Description : Medium-sized tree, 5 - 7m. high. Young twigs quadrangular, large branches sometimes thorny. Leaves opposite, entire or minutely dentate in the upper part, shining glabrous above, pale beneath. Inflorescence in terminal corymb ; flowers greenish-white. Drupe globose or ovoid, black.

Flowering period : May - August.

Distribution : Cultivated as an ornamental and shade tree.

Parts used : The leaves and roots, gathered all the year round, are well washed and dried in the sun or in ovens.

Chemical composition : The stem-bark contains the alkaloids premnine and graniarine. The roots yield an essential oil.

Therapeutic uses : The leaves and the roots are used in treating fever, colic, diarrhoea, dysentery, urine retention, flatulence, dyspepsia and rheumatism and also as a galactagogue and diuretic. The usual daily dose is 30 to 50g of fresh leaves in the form of a juice extract or 10 to 15g of dried leaves or roots in the form of a decoction.

157 Prunella vulgaris L. **Labiatae**

Local name : Hạ khô thảo.

English names : Sicklewort, black man, carpenter's herb, all-heal, pimpernel, brunel, common self-heal, carpenter grass, sickle-heal.

Description : Biennial or perennial herb 20 - 30cm. high. Stems quadrangular, pubescent, reddish-violet. Leaves opposite, entire or slightly toothed. Inflorescence in terminal spike of numerous whorls ; flowers of two kinds, the small female, the bigger bisexual, pale violet. Fruit of 4 hard nutlets.

Flowering period : April - June.

Distribution : Grows wild in wet soil near small streams in the mountains.

Parts used : The whole plant, except for the roots, is gathered during the flowering period, washed and lightly dried in the sun or in ovens at a low temperature.

Chemical composition : The whole plant yields D. fenchone and ursolic acid.

Therapeutic uses : The aerial parts have antibacterial properties and are beneficial in the treatment of mastitis, scrofula, goitre, ophthalmalgia, metritis, hypertension, neurodermatitis, hepatitis, furunculosis, impetigo, eczema, oliguria and leucorrhoea. The average dose is 8 to 16g per day in the form of a decoction. Poultices of the pounded fresh plant are used to help wounds to heal.

158 Prunus persica (L.) Batsch **Rosaceae**

Local names : Đào, mạy phăng (Tày), co tào, kén ma cai (Thái), phiếu kiào (Dao).

English name : Peach tree.

Description : Small to medium-sized tree, 3 - 4m. high. Bark brown, branches glabrous. Leaves alternate, attenuate at both ends ; margins serrate. Flowers pink, solitary in the axil of the leaves. Drupe subglobose, downy, with a lateral furrow and whitish-yellow skin overlaid with red ; stone ridged, brown.

Flowering period : January - March.

Distribution : Widely cultivated in the highlands for its edible fruit.

Parts used : Kernels of stones, leaves. The fruit is picked in autumn. The stones are taken out of the fruit and cracked to obtain the kernels, which are dried in the sun or in ovens. The leaves are gathered all the year round and used fresh.

Chemical composition : The fruit contains ascorbic, citric and oxalic acids, vitamin A and thiamine. The seeds are rich in fatty oil, amygdalin. The leaves contain quercitrin, kaempferol, caffeic acid and p-coumaric acid.

Therapeutic uses : The seed kernels have a salutary effect in the relief of cough, menstrual haematometra, ecchymosis, contusions and post-partum haemorrhage, in a daily dose of 6 to 12g in decoction form. A poultice made of pounded fresh leaves and a leaf decoction used as a wash are prescribed for the healing of scabies, prurigo and impetigo. The flowers are diuretic and laxative in a daily dose of 3 to 5g in the form of a decoction or infusion. The drug must not be given to pregnant women. Caution must be exercised in the use of the leaves, which are highly toxic.

159 Pueraria thomsonii Benth. Leguminosae

Local names : Sắn dây, bạch cát, khau cát (Tày), bằn mắm kéo (Thái).

English names : Kudzu vine, kudzu bean.

Description : Perennial twiner, reaching a length of 10m. Roots tuberous, thick and long. Leaves alternate, trifoliate ; leaflets entire or lobed, the terminal larger. Inflorescence in lax axillary raceme ; flowers violet-blue, fragrant. Pod flat, constricted between the seeds and densely clothed with silky hairs.

Flowering period : September - October.

Distribution : Widely cultivated in many parts of Viet Nam.

Parts used : The tuberous roots, dug up in winter and spring, are well washed, sliced, subjected to sulfur fumigation and dried in the sun or in ovens. A flour can be made from the tubers.

Chemical composition : The tuberous roots contain isoflavones : puerarin, daidzein, daidzin ; and starch. The leaves are rich in amino acids ; asparagine ; adenine.

Therapeutic uses : The tuberous roots have marked antipyretic properties and are useful in treating fever, influenza, headache and also furunculosis. They are usually prescribed in the form of a decoction in doses of 5 to 10g per day. An aqueous sugared solution of the root flour is used orally as a refresher. In case of snake-bite the juice of crushed fresh leaves is administered orally and the residue is applied topically to the bite.

Local names : Lựu, an thạch lựu, mác lĩu (Tày).

English name : Pomegranate.

Description : Small plant, 2 - 3m. high. Bark smooth, greyish. Leaves oblong, opposite or alternate, occasionally in tuft, short-petioled. Flowers bright red at the end of branches. Fruit globose, 5 - 8cm. in diameter, crowned by persistent calyx, with yellow rind spotted with brownish-red. Seeds numerous, covered by edible pulp.

Flowering period : April - May.

Distribution : Cultivated for its fruit, for ornament and as a medicinal plant.

Parts used : Root-bark (collected in autumn), fruit rind (collected in May and June). The root-bark is dried before use. Fruit rind may be employed fresh or dried.

Chemical composition : The root-bark and stem-bark contain the alkaloids pelletierine, isopelletierine, pseudopelletierine and methyl-pelletierine. The pericarp yields tannins. The juice of fruit is rich in citric and malic acids, glucose, fructose and maltose.

Therapeutic uses : The root-bark and stem-bark are employed in the therapy of taeniasis, in a daily dose of 20 to 50g of dried root-bark or stem-bark in the form of a decoction, or 0.30g of pelletierine combined with 0.40g of tannin, divided into 3 subdoses. The fruit rind is effective for dysentery and diarrhoea, in a dose of 15 to 20g per day, in decoction form. The drug is highly toxic and so must be used with extreme caution. It must not be administered to pregnant women or children.

161 Quisqualis indica L. **Combretaceae**

Local names : Sử quân, quả giun, dây giun, quả nấc, mác giáo giun, mạy lăng cường (Tày).

English names : Rangoon creeper, Chinese honeysuckle.

Description : Scandent woody shrub, much-branched, spreading. Leaves opposite, papyraceous, round or ovate at the base ; apex pointed. Inflorescence in dense axillary and terminal spike ; flowers with long corolla-tube, white, turning red later on, fragrant. Fruit rhomboidal, 5-angled, dark brown.

Flowering period : March - June.

Distribution : Grows wild in the mountains and is cultivated as an ornamental plant.

Parts used : Kernels. The ripe fruit can be picked in August and September, dried and crushed to free the kernels.

Chemical composition : The kernels contain a fatty oil consisting of myristic, palmitic, stearic, oleic and linoleic acids ; potassium salt of quisqualic acid ; trigonelline, and phytosterols. The flowers yield cyanidin monoglucoside.

Therapeutic uses : The fruit kernel is used as an anthelminthic, especially for ascariasis. It is stripped of its envelope to eliminate its vomitive properties and prescribed in a dose of 10 to 20g per day for adults and 4 to 8g a day for children, depending on their age, in powder form. Three hours later, a salt purgative is given. The root is effective in treating rheumatism, in a daily dose of 12 to 20g in decoction form. A concentrated decoction of crushed fruit used as a gargle is active against toothache.

162 Rauvolfia cambodiana Pierre ex Pitard — Apocynaceae

Local names : Ba gạc, ba gạc lá to, hơ rác, ka day (Ba Na).

English name : Cambodian rauvolfia.

Description : Erect evergreen undershrub, 0.5 - 1.5m. high. Stems erect, lenticellate. Leaves in whorl of three, attenuate at both ends ; dark green above, pale below ; margins entire. Inflorescence in axillary or terminal cyme with long stalk ; flowers white, pinkish outside. Drupe obliquely ovoid, blackish-violet when ripe. All parts of the plant yield a milky juice.

Flowering period : Almost the whole year round.

Distribution : Grows wild ; endemic in the mountains of the southern region.

Parts used : The roòt-bark, collected all the year round, especially in autumn and winter. The roots are well washed and the bark stripped off and dried in the sun or in ovens. Care is taken to keep the periderm of the bark intact when the roots are being dug up.

Chemical composition : The root-bark contains 2.64% alkaloids, mostly reserpine and ajmaline. In addition serpentine, reserpinine, ajmalicine and rauvomitine are found in *R.vomitoria* and canescine in *R. canescens*.

Therapeutic uses : The root-bark, which possesses hypotensive and sedative properties, is widely used for the treatment of hypertension and psychoses. It is prescribed in the form of a 1.5% tincture or tablets containing 2mg total alkaloid. The oral dose is ten to twenty drops of tincture or 1 tablet, 2 to 3 times per day for 2 to 4 weeks. A new course of treatment is instituted after a pause of 2 to 4 weeks. It serves also as raw material for the extraction of reserpine and ajmaline.

163 Rehmannia glutinosa (Gaertner) Libosch. **Scrophulariaceae**

Local names : Sinh địa, địa hoàng.

Description : Perennial herb with tuberous roots, 20 - 30cm. high, usually withered in the dry season. Leaves oval, base oblong, apex round, irregularly crenate-toothed, radiating in rosette ; nerves reticulately veined. Flowers tubular, reddish-violet in long raceme. Capsule many-seeded. The whole plant is covered with soft hairs.

Flowering period : April - July.

Distribution : An introduced species in many parts of the country.

Parts used : The tuberous roots, collected when the plants are 7 - 8 months old, are well washed and dried in the sun or in ovens. They are used as they are or processed into "Thục địa".

Chemical composition : The tuberous roots contain glucose, mannite, the glucoside rehmanin and carotene.

Therapeutic uses : The tuberous root possesses reconstituent, antianaemic and diuretic properties. It is used in treating general debility, anaemia, epistaxis, polymenorrhoea, threatened abortion, internal haemorrhage, chronic nephritis, sore throat, erythema and dysentery. It is also prescribed as a depurative, cardiac tonic and soporific. The daily dose is 8 to 16g in the form of a decoction or extract.

164 Rhodomyrtus tomentosa (Ait.) Hassk. Myrtaceae

Local names : Sim, hồng sim, dương lê, đào kim nương, co nim (Thái), mác nim (Tày).

English names : Tomentose rose myrtle, downy rose myrtle, hill gooseberry, hill guava.

Description : Small shrub, 1 - 3m. in height, much-branched. Young shoots angular, tomentose. Branches cylindrical, glabrous. Leaves opposite, oblong-ovate, thick, base 3-nerved, villous beneath. Flowers axillary, rose-pink, solitary or fascicled. Berry dark-violet when ripe, edible. Seeds numerous, small.

Flowering period : April - June.

Distribution : Grows wild on the lower slopes of hills.

Parts used : Young shoots, leaves, flower-buds, ripe fruit. The leaves are harvested all the year round. The shoots are collected in spring, the flowers and fruit in summer. They are all dried before use.

Chemical composition : The whole plant contains tannin. The fruit yields proteins, fatty substances, hydrocarbons, vitamin A, thiamine, riboflavin and nicotinic acid.

Therapeutic uses : The buds and young leaves have a beneficial effect in colic, diarrhoea, dysentery, abscesses, furunculosis and haemorrhage. The daily dose is 10 to 30g of fresh buds or young leaves in the form of an extracted juice or dried for use as a powder or in a decoction. The concentrated decoction of leaves is used as an antiseptic wash for wounds, impetigo and abscesses. A combination of the ripe fruit and *Caesalpinia sappan* is also prescribed.

165 Ricinus communis L. **Euphorbiaceae**

Local names : Thầu dầu, tỳ ma, đu đủ tía, co húng hom (Thái), slùng đeng (Tày), mạ puông sí (Dao).

English names : Castor oil plant, castor-bean tree, palma christi.

Description : Glabrous plant, 1 - 5m. in height. Stems hollow. Leaves alternate, long-petioled, palmately lobed, serrate, green or reddish. Twigs and young leaves clothed with white dust. Inflorescence in terminal cymose raceme ; flowers small, monoecious, the male below, the female above. Capsule covered with soft spines, tri-valved ; seeds ovoid, slightly compressed, shining brown with dark coloured spots.

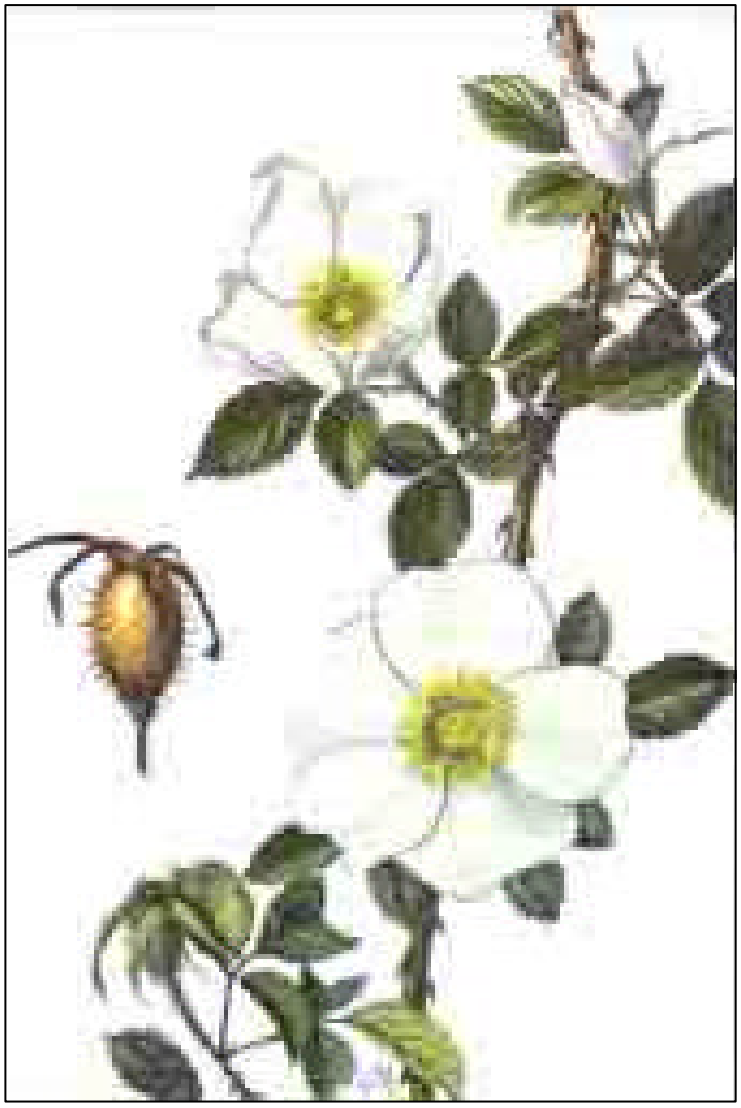
Flowering period : May - August.

Distribution : Cultivated, mainly on sandy soils.

Parts used : Seeds. The ripe fruit is picked in April and May.

Chemical composition : The seeds are rich in fatty oil, consisting of glycerides, especially ricinolein, which yields ricinoleic acid on hydrolysis , the toxalbumin, ricin, and the alkaloid, ricinine.

Therapeutic uses : The seed oil is effective as a laxative in a dose of 2 to 5ml, and as a purgative in a dose of 20 to 30ml. The pounded seeds applied as a poultice to the paretic part have a salutary effect in facial paresis. The crushed seeds (15 seeds) or leaves of purple *Ricinus* are locally applied to the plantar surface of the feet for the induction of labour at term and placenta delivery in cases of dystocia and placenta retention. After the delivery of the foetus and placenta, the parturient's feet are thoroughly washed.



166 Rosa laevigata Michaux — Rosaceae

Local names : Kim anh, thích lê tử, mác nam coi (Tày).

English name : Cherokee rose.

Description : Small vigorous shrub with thick hooked prickles. Leaves trifoliate, toothed ; stipule at the base of petiole. Flowers large, white, solitary and terminal, odourless. Fruit ovoid, clothed with thin, sharp spines and crowned by the persistent calyx, brownish-yellow when ripe. Seeds numerous, compressed.

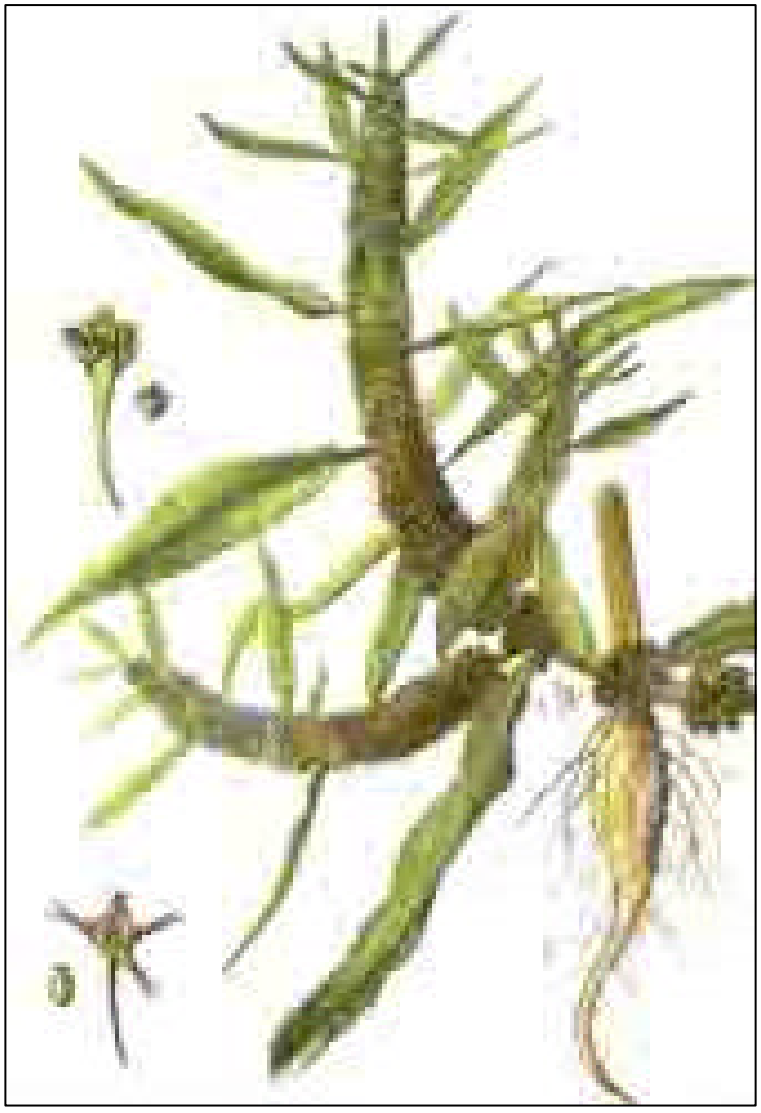
Flowering period : March - June.

Distribution : Wild species, indigenous to Cao Bằng and Lạng Sơn provinces ; also cultivated as a hedge-plant.

Parts used : Fruit, picked in autumn. After all the thorns have been scraped off, the fruit is halved and stripped of all the seeds and white inside hairs, then dried in the sun or in dryers.

Chemical composition : The fruit contains citric and malic acids, tannin, vitamin C, glucosides, saponins.

Therapeutic uses : The fruit is regarded as a general tonic and is successfully employed in spermatorrhoea, leucorrhoea, enteritis, pollakiuria and neurasthenia. It is also used as a haemostatic. It is prescribed in the form of a decoction, extract, powder or candied fruit in an oral dose of 4 to 12g per day.



167 Rumex chinensis Campd. Polygonaceae

Local names : Chút chít, lưỡi bò, dương đề, thổ địa hoàng, mác sây (Tày), phắc cát ngàn (Thái).

English name : Chinese dock.

Description : Erect herb, 30 - 50cm. high, with brown tuberous roots. Stems deeply grooved. Leaves alternate, margins wavy, the lower broad and long-stalked, the upper narrow, subsessile. Inflorescence in terminal whorled cyme ; flowers greenish-yellow. Small nut acutely trigonous, enclosed in persistent and thickened calyx.

Flowering period : March - April.

Distribution : Grows wild in abandoned fields and on river banks.

Parts used : Roots and leaves. The roots are collected all the year round, but preferably in autumn and winter. After the radicles have been stripped off, the roots are well washed, sliced and dried in the sun or in ovens. The leaves are harvested in spring and summer. They are used fresh externally and dried internally.

Chemical composition : The roots and leaves contain anthraglucosides 3 - 3.4%, of which the free form 0.47%, the combined form 2.54% ; tannin ; resins.

Therapeutic uses : The roots are prescribed as a laxative to cure constipation in a dose of 1 to 3g per day in the form of a powder or decoction, and as a purgative in a dose of 4 to 10g. External application is effective for contusions, inflammation, acne, eczema, prurigo, scalp scabies and vulvitis : a maceration in vinegar or alcohol of fresh roots or leaves is prescribed for external use.

168 Sauropus androgynus (L.) Merr. Euphorbiaceae

Local names : Rau ngót, bồ ngót, chùm ngọt, hắc diện thần, phéc bón (Tày), phắc ót (Thái).

Description : Evergreen plant, 0.8 - 1.5m. high, much-branched. Stems cylindrical, entirely glabrous. Leaves alternate, ovate, base round, apex pointed ; petiole very short. Stipule small. Flowers greenish-yellow, male and female on the same plant. Capsule globose, white, dehiscent into 3 valves when ripe.

Flowering period : September - November.

Distribution : Cultivated everywhere as a vegetable.

Parts used : The leaves and roots from plants over 2 years old. The roots are dried before use ; the leaves are used fresh.

Chemical composition : The leaves contain amino acids : lysine, methionine, tryptophane, phenylalanine, threonine, valine, leucine, isoleucine ; nicotinic acid, vitamin C and carotene.

Therapeutic uses : The fresh leaves or roots possess uterotonic activity and are used for the treatment of retained placenta in a dose of 40g, in the form of an extracted juice administered in 2 subdoses at 10 minutes interval. A mouth-wash made of the juice of fresh leaves and honey and applied to the tongue and gums cures thrush of the tongue in infants. The leaves are effective for erythema, measles and dysuria. The roots serve as a diuretic and relieve congestion.

169 Schefflera octophylla (Lour.) Harms — Araliaceae

Local names : Ngũ gia bì chân chim, cây đáng, lá lằng, mạy tảng (Tày), co tan (Thái), xi tờ rốt (K'ho), loong veng vuông (Ba Na).

English name : Octophyllous aralia.

Description : Tree 10m. high. Leaves palmate with 6 -8 leaflets, alternate, lower part of long petiole surrounding the stem. Trunk bark and leaves smell sweet when crushed. Inflorescence in axillary or terminal raceme of umbels ; flowers small, greenish or white. Berry globose, dark-violet when ripe.

Flowering period : February - March.

Distribution : Grows wild in secondary forest in mountainous regions.

Parts used : Root-bark and stem-bark, collected in autumn. The bark is wrapped up for 24 - 48 hours to develop the aroma, then dried in the shade.

Chemical composition : The root-bark and stem-bark contain triterpenoid saponins that yield oleanolic acid on hydrolysis.

Therapeutic uses : The root-bark and stem-bark possess tonic, anti-inflammatory and diuretic properties and are used in treating rheumatism, lumbago, osteodynia, paresis, amnesia, vulval pruritis, impotence, dyspepsia, infantile rickets, oedema, dysuria and impetigo. The usual daily dose is 10 to 20g of stem-bark or 6 to 12g of root-bark in the form of a decoction or elixir.

Local names : Cam thảo đất, cam thảo nam, dã cam thảo, dạ kham (Tày), t'rôm lạy (K'ho).

English names : Sweet broom, toothbrush.

Description : Annual herbaceous plant, 40 - 70cm. high. Stems woody at the base, much-branched, quadrangular when young. Leaves small, 3-verticillate or opposite, coarsely toothed-serrate. Flowers white, crowded in the axil of the leaves. Capsule small, globose, many-seeded.

Flowering period : May - July.

Distribution : Common as a wild plant in abandoned fields, on roadsides and on river banks.

Parts used : The whole plant, including the roots, can be harvested all the year round, but preferably in spring and summer. It is used fresh or dried.

Chemical composition : The roots contain alkaloids and a bitter substance, amellin.

Therapeutic uses : The entire plant, including the roots, possesses anti-inflammatory, antifebrile and diuretic properties. It is used in treating coryza, hyperthermia, sore throat, cough, erythema, measles, boils, impetigo, manioc and other poisoning and menorrhagia. The usual dose is 8 to 12g of dried or 20 to 40g of fresh plant per day, in the form of a decoction. The fresh plant is especially active against dry cough.

Local names : Hy thiêm, cỏ đĩ, cỏ bà a, chó đẻ hoa vàng, cứt lợn, nhả khỉ cáy (Tày), co boóng bo (Thái).

English name : Common St. Paul's wort.

Description : Annual herbaceous plant, 30 - 60cm. high. Stems and twigs hairy. Leaves opposite, rhombiform or triangular-ovate, 3-nerved at the base, coarsely denticulate. Flowers in yellow head, axillary or terminal bracts with viscous glandular hairs. Achene ovoid, glabrous, black.

Flowering period : March - October.

Distribution : Grows wild in mountainous regions, usually in wet and shady places.

Parts used : The whole plant, except the roots, collected before flowering, is lightly dried in the sun or in dryers at low temperature.

Chemical composition : The whole plant contains bitter substances, an essential oil, darutin, diterpene.

Therapeutic uses : The entire plant, except for the roots, possesses anti-inflammatory properties. It has a beneficial effect in rheumatism. hemiparesis, arthralgia, ostealgia, lumbago, furunculosis, impetigo, menstrual disorders and snake-bite. It is administered in a dose of 10 to 15g daily in the form of a decoction, liquid extract, powder or pills. The external application of pounded fresh leaves in a poultice is effective in treating furunculosis, impetigo, bee-sting and snake-bite.

173 Smilax glabra Roxb. Liliaceae

Local names : Thổ phục linh, khúc khắc, khau đâu (Tày), d'rạng lò (Châu mạ), tơ pớt (K'ho), lái (K'dong), mọt hoi đòi (Dao).

Description : Unarmed climbing plant, 4 -5m. long. Tuberous roots nodose. Leaves alternate, oval, apex pointed, 3-nerved ; tendrils present on the petiole. Inflorescence in axillary single umbel ; flowers small, greenish-yellow ; flower-stalk longer than the umbel-stalk. Berry globose, nearly trigonal, black when ripe.

Flowering period : May - July.

Distribution : Grows wild in the mountains and midlands.

Parts used : Tuberous roots, dug up all the year round, but preferably in summer. They are dried before use.

Chemical composition : The tuberous roots contain β-sitosterol, stigmasterol and saponins.

Therapeutic uses : The root is demulcent, antiallergic, diuretic, diaphoretic and depurative. It is used in treating impetigo, furunculosis, phlegmon, psoriasis, dyshidrosis, mercurialism, rheumatism and osteodynia. The daily dose is 15 to 30g in the form of a decoction, liquid extract, powder or pills.

174 Solanum hainanense Hance **Solanaceae**

Local names : Cà gai leo, cà gai dây, cà quạnh, cà vạnh, chẻ nan (Tày), b'rongoon (Ba Na).

Description : Procumbent prickly shrub. Leaves alternate, irregularly lobed, prickly on the upper face and covered with minute stellate hairs on the lower. Inflorescence in axillary cyme of 2 - 5 flowers, pale violet. Berry globose, red when ripe ; seeds numerous, kidney-shaped, yellow.

Flowering period : April - June.

Distribution : Grows wild, mainly on waste land.

Parts used : The whole plant, collected the whole year round. After being well washed, the roots are sliced and dried in the sun or in ovens. The stems and branches are cut into fragments 2cm. long, then dried in the sun or in dryers. They are roasted before use.

Chemical composition : The whole plant, especially the roots contain cholan saponins that on hydrolysis yield diosgenin, solasodinone, solasodine and flavonoids.

Therapeutic uses : The entire plant, and especially the roots, possesses anti-inflammatory, antiallergic and antisclerotic properties. It is used in treating coryza, influenza, allergic diseases, lumbago, benign rheumatoid polyarthritis, osteodynia and snake-bite. The dose of roots is 16 to 20g per day and of stems and leaves 30 to 40g per day, in the form of a decoction or elixir. A liquid extract is used as gargle for gingivitis and parodontosis.

175 Solanum verbascifolium L. **Solanaceae**

Local names : Ngoi, cà hôi, cà lông, la rừng, phô hức (Tày), co sà lang (Thái).

Description : Small plant, 1 - 3m. high. Stems and twigs covered with a dense yellowish tomentum. Leaves alternate, entire, velvety-pubescent on both sides. Inflorescence in axillary or terminal cyme ; flowers white. Berry globose, many-seeded, yellow when ripe.

Flowering period : March - June.

Distribution : Grows wild ; common in the mountains and midlands.

Parts used : Leaves, collected the whole year round and used fresh.

Chemical composition : The leaves contain an essential oil, saponins and alkaloids : solanine, solasodine.

Therapeutic uses : A locally applied poultice of pounded and heated fresh leaves is indicated for the relief of haemorrhoids and scrofula. It is better to apply poultices during the night. A plaster made of concentrated fresh leaf juice cures dermatomycosis and impetigo. An internally applied decoction of the leaves is used as a taeniafuge in buffaloes and oxen.

176 Sophora japonica L. **Leguminosae**

Local names : Hòe, hòe hoa, hòe mễ, lài luồng (Tày).

English names : Japanese pagoda tree, Chinese scholar tree.

Description : Medium-sized evergreen tree, 5-7m. or more high. Stems and branches glabrous. Leaves odd-pinnate, alternate ; leaflets 13-17, slightly pubescent beneath. Inflorescence in terminal raceme ; flowers greenish-yellow. Pod glabrous, distinctly constricted between the seeds, sharply pointed. Seeds yellowish-brown.

Flowering period : May - August.

Distribution : Cultivated in many places.

Parts used : Flower-buds and fruit. The flower-buds are picked from May to August. The fruit is picked from September to November.

Chemical composition : The buds and fruit contain rutin 8-30% (in buds), sophoraflavonoloside, sophoricoside, sophorabioside, D-maackiain glucoside, and DL-maackiain. The leaves contain the alkaloid cytisine. The seeds yield fatty oil, linolenic acid, proteins and mucilage.

Therapeutic uses : The buds reduce blood pressure and increase capillary resistance. They are a reputed remedy for the prevention of cerebral haemorrhage and are also useful for the treatment of hypertension, epistaxis, haemoptysis, metrorrhagia and haemorrhagic haemorrhoids. They are prescribed in the form of a powder, decoction or infusion ; the average dose is 8 to 16g daily.

177 Stemona tuberosa Lour. **Stemonaceae**

Local names : Bách bộ, dây ba mươi, sam síp lạc (Tày), bẳn sam síp (Thái), pê chầu chàng (H'mông), mùi sấy dòi (Dao), hơ linh (K'ho).

Description : Perennial climbing shrub, reaching a length of 5-6m., with tuberous roots, fascicled. Leaves opposite or alternate, oblong heart-shaped ; main nerves curved, secondary nerves very close. Flowers in the axil of leaves, greenish-yellow externally, reddish-purple within, fetid. Capsule ovoid-oblong, many-seeded.

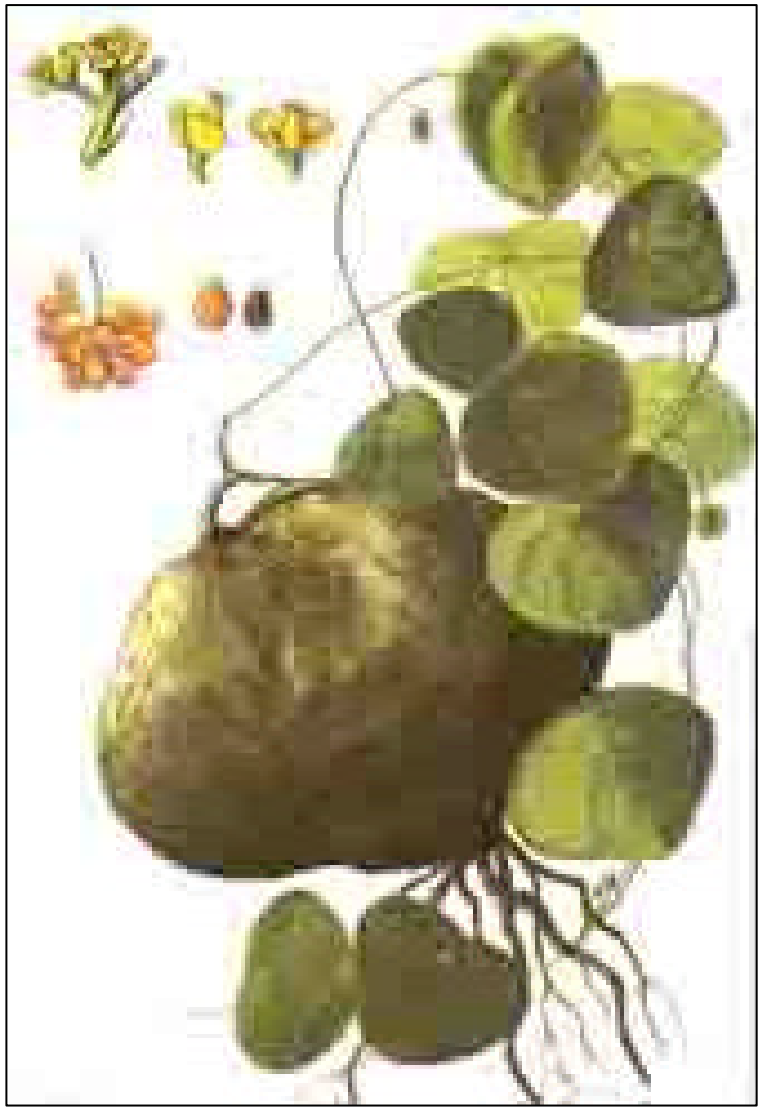
Flowering period : March - May.

Distribution : Grows wild in the hills and mountains.

Parts used : Tuberous roots cropped all the year round, especially in autumn. After being well washed and docked at each end, the roots are steam-cooked, then dried in the sun or in ovens at 50-60^{0}C.

Chemical composition : The tuberous roots contain alkaloids : stemonine, tuberostemonine, isotuberostemonine, stemonidine, sinostemonine ; glucides 2.3%, lipids 0.83%, proteins 9%, organic acids (citric, formic, malic, succinic ...)

Therapeutic uses : The tuberous roots are well known for their antibacterial, antiparasitic and expectorant properties. They are prescribed in the therapy of cough, ascariasis and oxyuriasis in a dose of 4 to 12g per day, in the form of a decoction, extract, powder or pills, for 4 to 6 days. The decoction or extract is applied externally against impetigo and scabies. Can also be used as an insecticide against mosquito larvae, fleas and bugs.



178 Stephania sp. **Menispermaceae**

Local names : Bình vôi, củ một, dây mối trơn, cà tòm (Tày), co cáy khẩu (Thái), tở lùng dòi (Dao).

English name : Moonseed.

Description : Scandent shrub, 2-6m. long. Tuber stout, attaining 50kg. in weight. Leaves alternate, long-petioled, suborbicular, herbaceous-membranous, rounded at the base. Inflorescence in axillary compound umbel of orange flowers, the male and female on different plants. Drupe globose, compressed, red when ripe ; seeds hippocrepiform with transverse ribs.

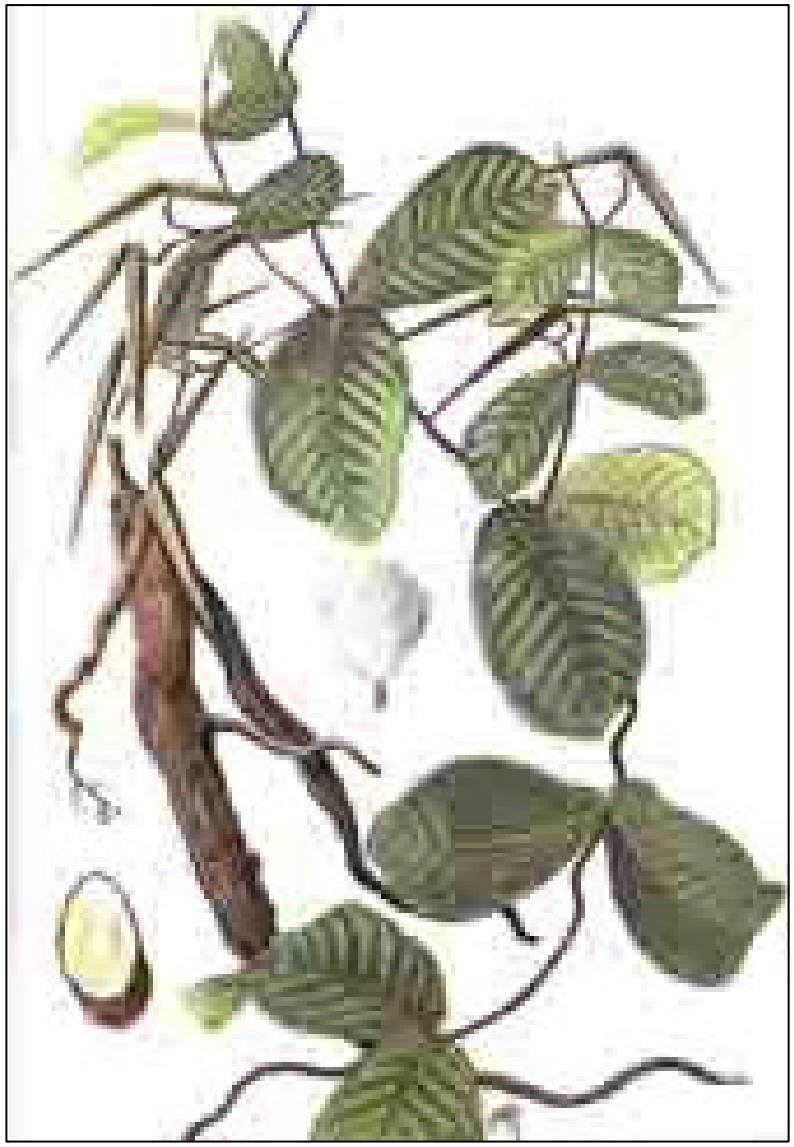
Flowering period : February - June.

Distribution : Grows wild among limestone rocks.

Parts used : The tuberous roots, dug up all the year round. The black periderm is removed and the tubers are sliced, then dried in the sun or in ovens.

Chemical composition : The tubers contain alkaloids (trace to 2.5%) : L-tetrahydropalmatine, stepharine, roemerine, cycleanine.

Therapeutic uses : The tubers have a marked sedative effect. They are successfully used in the treatment of insomnia, stomach-ache, headache, asthma and fever. They are administered in the form of a decoction or tincture, the usual dose being 3 to 6g of dried material. The chief alkaloid L-tetrahydropalmatine is prescribed for neurasthenia and psychoses. It is available in 0.05g tablets and is given in doses of 0.05g to 0.15g per day.



179 Streptocaulon juventas (Lour.) Merr. Asclepiadaceae

Local names : Hà thủ ô trắng, dây sữa bò, sừng bò, khau cần cà (Tày), chừa ma sìn (Thái), xạ ú pẹ (Dao).

Description : Branching perennial twiner, with long, fleshy roots. Stems twining, brown. Leaves opposite, obovate, rounded or cordate at the base. Inflorescence in axillary cyme ; flowers small, brownish-yellow. Double follicle, divergent. Seeds with a tuft of hairs at one end. All parts of the plant have a milky latex and a silky tomentum.

Flowering period : July - December.

Distribution : Grows wild in the mountains and midlands.

Parts used : The tuberous roots, harvested the whole year round but preferably in autumn, are well washed, cut into pieces, boiled with a decoction of *Vigna cylindrica*, then sliced and dried in the sun or in ovens.

Chemical composition : The roots contain starch and alkaloids.

Therapeutic uses : The roots are reconstituent and effective for anaemia, renal and hepatic hypofunction, dyspepsia, insomnia, neurasthenia, hypogalactia, chronic malaria, rheumatism, ostealgia, menstrual disorders, leucorrhoea, bloody stools, prurigo and snake-bite. Long-term administration has a rejuvenating effect and white hair grows black again. The usual dose is 12 to 20g per day in the form of a decoction, extract or elixir. For snake-bite, the root juice is swallowed and the residue used as a poultice.

180 Strobilanthes cusia (Nees) Imlay — Acanthaceae

Local names : Chàm mèo, chàm nhuộm, chàm lá to, thanh đại, mạy ốt (Tày), co sơm (Thái), tần gàm (Dao).

English name : Assam indigo.

Description : Shrubby herbaceous plant, 50-70cm. high. Stems glabrous, swollen at the nodes. Leaves opposite, oblong-oval, with margins serrate. Inflorescence in axillary interrupted spike ; flowers violet-blue or pink, corolla slightly curved. Capsule glabrous, narrow and long.

Flowering period : December - February.

Distribution : Grows wild and is cultivated in damp valleys in the highlands.

Parts used : The leaves are collected in autumn, before the plant flowers and dried in the shade.

Chemical composition : The leaves contain the glucoside indican, which yields glucose and indoxyl on hydrolysis. Indoxyl yields indigotin upon oxidation.

Therapeutic uses : The leaves possess antibacterial, antifebrile, antioestrogenic, antiprogestogenic and uterostimulant properties. They are used in treating menorrhagia, metrorrhagia, sore throat, gingivitis and fever, in a daily dose of 4 to 6g in the form of a decoction. In high doses, they are abortifacient in the early stage of gestation. A plaster of condensed extract helps to cure eczema and impetigo.

181 Strophanthus divaricatus (Lour.) Hook. et Arn. Apocynaceae

Local names : Sừng dê, sừng bò, dây vòi voi, coóc bẻ (Tày).

Description : Shrub with milky juice. Stems and twigs spreading, 3-4m. long, marked with lenticels. Leaves opposite, oblong ; apex pointed, short-petioled. Inflorescence in terminal cyme ; flowers yellow ; petals prolonged into long narrow filaments veined with reddish-brown. Fruit of 2 follicles. Seeds numerous, brown, crowned with a tuft of long hairs at one end.

Flowering period : June - July.

Distribution : Grows wild on the lower hills and in coastal shrubland.

Parts used : Seeds of ripe fruit, collected in November and December. The tuft of hairs at the end is removed and the seeds are dried in the sun or in ovens.

Chemical composition : The seeds yield the glucoside, divaricoside, which yields sarmentogenin and L-oleandrose on hydrolysis, as well as divostroside, caudoside and sinoside.

Therapeutic uses : D-Strophantin is the purified glucosidal mixture extracted from the seeds. The drug enjoys a good reputation in the treatment of acute and chronic heart failure. It is also destined for patients who are intolerant of digitalis preparations. The drug is available in 0.25 mg/2 ml ampoules for intravenous injection and is given in doses ranging from 0.25mg to 0.50mg per day. It is preferable to dilute the preparation in glucose solution and to make the injection slowly.

182 Strychnos nux-vomica L. Loganiaceae

Local names : Mã tiền, củ chi, mác chèn sứ (Tày), co bên kho (Thái).

English names : Nux-vomica tree, strychnine tree, vomiting nut, poison nut tree.

Description : Evergreen tree, 10m. high. Young twigs spinous. Leaves opposite, ovoid, 5-nerved, shining dark-green on the upper face. Inflorescence in terminal corymb ; flowers small, tubular, yellowish. Fruit globose, 3-5cm. in diameter, orange-red when ripe. Seeds discoid, compressed, concave on one side and convex on the other, clothed with grey silky hairs.

Flowering period : March - April.

Distribution : Wild species, indigenous in the southern part of the country.

Parts used : Seeds of ripe fruit, picked in autumn. The seeds are separated from the fruit and soaked in rice swill for 24 hours. The outside silky hairs and sprouts are removed. The seeds are sliced, impregnated with sesame oil, then lightly roasted until they turn yellow.

Chemical composition : The seeds contain alkaloids : strychnine, brucine, vomicine, β-colubrine, pseudo-strychnine, N-methyl sec-pseudobrucine, strucine and the glucoside loganin.

Therapeutic uses : The seeds have a beneficial effect in the relief of rheumatism, pain in the extremities, neuralgia, paralysis, myasthenia, enteric hypotonia, enuresis and anaemia. The usual dose for adults is 0.05g of processed seeds 1 to 3 times daily, in the form of a decoction or powder. Injections of purified strychnine and massage with a tincture of the seeds are likewise prescribed. Care must be taken because of the very high toxicity of the preparations.

183 Strychnos wallichiana Steud. ex DC. **Loganiaceae**

Local names : Hoàng nàn, mã tiền lá quế, vỏ doãn.

Description : Woody climber with hooked tendrils, circinate, thickened upwards. Leaves opposite, strongly 3-nerved. Inflorescence in terminal corymbiferous panicle ; flowers pale-yellow. Berry globose, 4-7cm. in diameter ; seeds discoid, very compressed, covered on both sides with yellow silky hairs.

Flowering period : June - August.

Distribution : Grows wild in mountainous regions.

Parts used : Stem-bark and branch-bark, collected all the year round and dried before use.

Chemical composition : The stem-bark contains alkaloids 5.23%, strychnine 2.37-2.43%, brucine 2.8%.

Therapeutic uses : The stem-bark and branch-bark are effective in treating rheumatism, ostealgia, paralytic cramp of the extremities, lumbago, sciatica, colic and diarrhoea. They are also used as an aphrodisiac. The maximum one-time dose is 0.10g and for 24 hours 0.40g, in powder form. External application is indicated for treating scabies, leprosy and certain persistent dermatoses. Caution must be exercised because of the preparation's high toxicity.

Local names : Râu hùm, cẩm địa la, phá lủa (Tày), pinh đỏ (K'dong), cu dòm (Ba Na).

English name : Devil flower.

Description : Perennial herb. Root-stock many-noded, horizontally creeping. Leaves radical, long-petioled, entire ; margins wavy. Flowers dark-violet in umbel on an erect or curved scape ; involucre of 4 bracts, 2 small and 2 larger ; bracteoles filiform, concolorous. Capsule long. Seeds 3-angled, violet-purple.

Flowering period : July - August.

Distribution : Grows wild in damp forests.

Parts used : The rhizomes, dug up all the year round, are well washed and dried in the sun or in ovens.

Chemical composition : The rhizomes contain cholan saponins that yield diosgenin on hydrolysis, taccaoside and β-sitosterol.

Therapeutic uses : An alcoholic maceration of the rhizome is used externally as a liniment in rheumatism. Oral administration is prohibited. The rhizome is also used as raw material for the extraction of diosgenin.

185 Tacca plantaginea (Hance) Drenth — Taccaceae

Local names : Hồi đầu, cỏ vùi đầu, mằn tảo láy (Tày), bơ pỉa mến (Thái).

Description : Stemless herb, 20-30cm. high. Root-stock round, curved upwards. Leaves radical, entire, attenuate at the base ; apex pointed ; margins wavy. Inflorescence in umbel of 6-10 flowers on a curved scape, bracts dark-violet ; flowers violet. Fruit capsular.

Flowering period : September - December.

Distribution : Grows wild in wet places in mountainous regions.

Parts used : The tuberous roots, collected in summer, are well washed, sliced, impregnated with ginger juice, then lightly roasted on a low fire to obtain a good flavour.

Chemical composition : The tuberous roots contain cholan saponins that yield diosgenin on hydrolysis.

Therapeutic uses : The roots are utilized for the relief of dyspepsia, colic, diarrhoea, jaundice following viral hepatitis, menstrual disorders, hypertension, neurasthenia, sciatica, rheumatism and infantile poliomyelitis. The usual daily dose is 2 to 4g in the form of pills or powder, and up to 20g in the form of a decoction.

186 Talinum patens (L.) Willd. **Portulacaceae**

Local names : Thổ cao ly sâm, thổ nhân sâm, đông dương sâm, mần sâm đăm (Tày), cừa ly sinh (Thái).

Description : Succulent perennial herb, 30-50cm. high. Stems greenish, occasionally purplish. Leaves ovoid, thick, entire ; the lower alternate, the upper nearly opposite ; nerves inconspicuous. Inflorescence in terminal compound raceme ; flowers small, pink. Capsule brownish-purple ; seeds compressed, shining black.

Flowering period : June - August.

Distribution : Grows wild in the mountains ; is also cultivated for ornamental and medicinal purposes.

Parts used : The roots, collected in autumn, are well washed, sliced, impregnated with ginger juice and sugar solution, then steam-cooked before use.

Therapeutic uses : The roots possess tonic properties and are used in treating neurasthenia, cough, gastralgia and pulmonary tuberculosis. The barked roots are used in a dose of 20 to 30g, grilled or in the form of a decoction. They are also used to treat dehydrating diarrhoea. A bouillon made from the fresh leaves is used as a stomachic.

187 Terminalia nigrovenulosa Pierre ex Laness. **Combretaceae**

Local names : Chiêu liêu, chiêu liêu gân đen.

Description : Big tree, reaching 10-30m. in height. Young twigs downy. Leaves opposite, coriaceous with small white spots above and a pair of glands at the top of the petiole. Inflorescence in terminal compound panicle ; flowers white, without petals. Fruit samaroid, largely 3-winged, purple, one-seeded.

Flowering period : March-April.

Distribution : Grows wild in deciduous forests. Endemic in the southern part of the country.

Parts used : Stem-bark (collected all the year round, but preferably in spring and summer) and fruit (picked in autumn). The periderm is removed and the bark is sliced, then dried in the sun or in ovens. After all the seeds have been taken out, the fruit is dried and lightly roasted before use.

Chemical composition : The stem-bark contains tannin. The fruit yields 20-40% tannin consisting of ellagic, gallic and luteolic acids and fatty oil 36.7%.

Therapeutic uses : The trunk-bark is used as an antidiarrhoeic. The fruit and bark are used in treating chronic dysentery, sore throat, laryngitis and haemorrhoids, in a daily dose of 10 to 20g of dried trunk-bark, or 3 to 6g of dried fruit, in the form of a decoction, pills or a tincture with 20% plant material.

188 Thevetia peruviana (Pers.) K. Schum. Apocynaceae

Local names : Thông thiên, cây đầu tây.

English names : Yellow oleander, bastard oleander, lucky nut-tree, exile tree, exile oil plant.

Description : Small evergreen plant, 2-3m. in height with milky juice. Stems scaled with scars of fallen leaves. Leaves alternate, linear-oblong, entire, only main nerve conspicuous. Inflorescence in axillary cyme of 2-3 flowers, bright yellow. Drupe angular, smooth ; seeds brown.

Flowering period : April - June.

Distribution : Cultivated for its elegant foliage and handsome flowers.

Parts used : Seeds of ripe fruit. After picking, the fruit is dried in the sun or in ovens. The dried fruit is broken up to obtain the seeds.

Chemical composition : The seeds contain cardiotonic glucosides : thevetin (A, B), 2'-O-acetyl cerberoside, neriifolin, cerberin, peruvoside, thevenerïin, and peruvosidic acid.

Therapeutic uses : The purified glucoside thevetin, extracted from the seeds, is prescribed as a cardiotonic drug in a 0.1% solution for oral use in a dose of 1 to 2 ml daily, or in 2 ml ampoules for parenteral use, each ampoule containing 1 mg ; 1 to 2 ampoules are given per day. The crushed seeds can be used as an insecticide. Caution is needed because of their high toxicity.

189 Thunbergia grandiflora (Roxb. ex Rottle) Roxb. **Acanthaceae**

Local names : Dây bông xanh, bông báo, madia (H'mông).

Description : Climbing plant. Stems twining, pubescent. Leaves opposite, long-petioled ; base cordate, irregularly lobed. Inflorescence in terminal drooping leafy raceme, rarely axillary ; flowers large, bright blue or violet-blue. Capsule glabrous, apiculate.

Flowering period : March - September.

Distribution : Grows wild in sunny places, but is also cultivated as an ornamental plant.

Parts used : The leaves, harvested throughout the year, are used fresh or dried.

Chemical composition : The leaves are rich in potassium salts. The flowers contain amino acids : aspartic acid, serine, glycine, alanine, valine ; flavonoids : apigenin 7-glucuronide, luteolin, anthocyanin, malvidin ; saccharose, glucose and fructose.

Therapeutic uses : The leaves are commonly used against snake-bite. The petioles are removed and the juice of 30 to 50g of pounded fresh leaves is used to massage the site of the snake-bite, from the top downwards ; the residue is applied topically. The leaves are used on their own or in combination with *Abelmoschus moschatus* leaves and *Clausena lansium* seeds. Poulticing with a moistened fine powder of dried leaves is also prescribed.

190 Tieghemopanax fruticosus Vig. **Araliaceae**

Local names : Đinh lăng, cây gỏi cá, nam dương lâm.

Description : Small plant, 0.5 - 1.5m. high with handsome foliage. Leaves alternate, tripinnate, the lower part surrounding the stem ; margins toothed. Inflorescence in terminal raceme of umbels ; flowers small, greyish-white. Fruit globose, flat. All parts of the plant, especially the leaves, are sweetly scented.

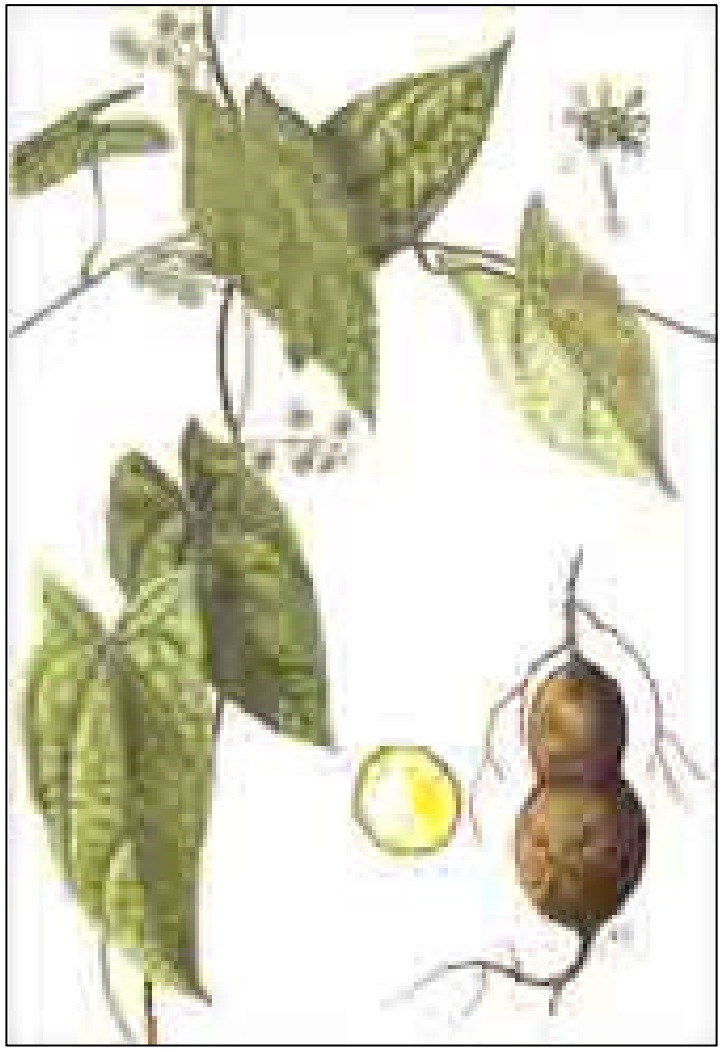
Flowering period : April - July.

Distribution : Cultivated as an ornamental plant.

Parts used : The roots (taken in autumn from plants over 3 years old), and the leaves (collected all the year round). The washed roots are dried in the sun or in ovens. The leaves are used fresh.

Chemical composition : The roots contain triterpenoid saponins.

Therapeutic uses : The roots are well known for their reconstituent properties and are used for treating general debility, fatigue, dyspepsia, fever, headache, mastitis, hypogalactia, cough, haemoptysis, oliguria, rheumatism and lumbago. They improve the resistance of the body to various noxious agents. The daily dose is from 1 to 6g of roots or 30 to 50g of stems and branches in the form of a decoction or elixir. A gruel made with 50 to 100g of fresh leaves is galactagogic. A poultice of pounded fresh leaves is effective for wounds, furunculosis, phlegmon and mastitis.



191 Tinospora capillipes Gagnep. **Menispermaceae**

Local names : Củ gió, kim quả lăm, kim nguru đởm, sơn tử cô.

Description : Slender evergreen perennial climber. Young shoots slightly pubescent. Roots tuberous, long, thickened here and there, brownish-yellow outside, whitish inside. Leaves alternate, long-petioled ; base sagittate ; apex pointed ; nerves palmate and downy. Inflorescence in axillary raceme ; flowers yellowish-green. Drupe oblong. Seeds round, compressed.

Flowering period : March - May.

Distribution : Occurs in wet and shady places.

Parts used : The roots, collected all the year round but preferably in autumn and winter, are well washed, sliced and then dried in the sun or in ovens.

Chemical composition : The roots contain columbin.

Therapeutic uses : The roots have a beneficial effect for the relief of sore throat, laryngitis, hoarseness, colic and diarrhoea. The daily dose is 6 to 12g in the form of a decoction, an alcoholic maceration or a powder. A poultice of pounded roots is effective in treating abscess and phlegmon.

192 Typhonium trilobatum Schott — Araceae

Local names : Củ chóc, bán hạ nam, nam tinh, phặc hẻo (Tày), co thả lủa (Thái), năng pía hẩu (Dao).

Description : Annual herb, 20 - 30cm. high. Rootstock thick and round. Leaves trifoliate, base sagittate ; petiole long with lax sheath. Inflorescence in spadix enclosed by a spathe, greenish overlaid with purple, bearing male flowers above, female below, foul-smelling. Berries numerous, red when ripe.

The species *Typhonium divaricatum* Decne is also used medicinally.

Flowering period : May - July.

Distribution : Grows wild in wet soils.

Parts used : The rhizomes, dug up in summer, are well washed, then dried in the sun or in ovens. Before use, they are soaked in a solution of alum and a maceration of ginger, then sliced, impregnated with a decoction of liquorice and lightly roasted on a low fire.

Chemical composition : The rootstocks contain proteins and inorganic substances Ca, P, I, F, Fe, Na, K ; thiamine, niacin, carotene, folic acid, sterols and β-sitosterol.

Therapeutic uses : The rhizome is used with effect for treating vomiting, cough, asthma, excessive expectoration, pyogenic sore throat, headache, gastric ulcer, abscess and snake-bite. The usual dose is 6 to 12g of processed rhizome in decoction form. A poultice of crushed fresh rhizome is active on abscesses and snake-bite. Must be used very cautiously in treating pregnant women.

Local names : Mạn kinh, đẹn ba lá, quan âm, từ bi biển, mác nịm (Tày).

English name : Indian wild pepper.

Description : Small tree. Bark smooth, pale grey. Young twigs quadrangular, pubescent. Leaves opposite, trifoliate, with a dense white tomentum beneath and a strong smell when crushed. Inflorescence in terminal cyme ; flowers pale violet. Drupe globose, embraced by the persistent calyx.

Flowering period : April - July.

Distribution : Grows well on the sea-coast.

Parts used : The fruit, picked from September to November, is dried in the sun or in ovens, then lightly roasted before use.

Chemical composition : The fruit contains the alkaloid vitricine. The leaves yield an essential oil consisting of L- α-pinene, camphene, terpinyl acetate, diterpene alcohol ; flavonoids : aucubin, agnusid, casticin, orientin, isoorientin, luteolin 7-glucoside.

Therapeutic uses : The fruit is used in treating coryza, fever, headache, photopsia, vertigo, ophthalmalgia, glaucoma, rheumatism and neuralgia. The daily dose is 6 to 12 g per day in the form of a decoction or 2 to 3 g in powdered form.

194 Wedelia calendulacea Less. **Compositae**

Local names : Sài đất, húng trám, cúc nháp, ngổ núi, ngổ đất, lỗ địa cúc.

Description : Prostrate perennial herb with erect stems, 20 - 40 cm. high. Leaves opposite, subsessile, coarsely toothed, with coarse hairs on both sides. Inflorescence in axillary and terminal solitary head on long stalk ; flowers yellow, the outer linear and the inner tubular. The fruit is an achene. All parts of the herb have an almond - oil odour when crushed.

Flowering period : March - May.

Distribution : Grows wild in wet places and is cultivated.

Parts used : The whole plant, except for the roots, harvested all the year round, can be used fresh or dried.

Chemical composition : The whole plant contains tannin, saponins, carotene, isoflavonoids and wedelolactone.

Therapeutic uses : The whole plant, except for the roots, is well known for its antibacterial, demulcent and antifebrile properties. It is indicated in the treatment of phlegmon, boils, impetigo, mastitis, abscesses, cystitis, cold and eruptive fever, in a daily dose of 50 to 100g of fresh leaves in the form of an expressed juice or 20 to 40g of dried plant in the form of a decoction or extract. A decoction of the fresh plant is used for bathing babies to prevent lichen tropicus.

195 Wikstroemia indica (L.) C. A. Mey. **Thymelaeaceae**

Local names : Niệt gió, gió niết, gió cánh, nam cam toại.

English name : Small-leaf salago.

Description : Bushy shrub. Stems and branches at first downy, then glabrous, bearing scars of fallen leaves. Leaves subsessile, alternate or opposite, coriaceous, glabrous, dark green above, pale beneath. Inflorescence in terminal fascicle ; flowers greenish-yellow. Drupe ovoid, scarlet when ripe.

Flowering period : June - July.

Distribution : Grows wild in mountainous regions.

Parts used : The leaves, harvested all the year round, are used fresh.

Therapeutic uses : The leaves are particularly suitable for external use in poultices against furunculosis and phlegmon. They are crushed and mixed with peanut oil to alleviate their irritant action. They can be also used as an insecticide in agriculture.

196 Xanthium strumarium L. Compositae

Local names : Ké đầu ngựa, thương nhĩ, phắt ma, mác nháng (Tày).

English names : Ditch-bur, louse-bur, broad cocklebur.

Description : Annual herbaceous plant, 40 - 70 cm. high. Stems striate, greenish, occasionally with violet-brown spots. Leaves alternate, irregularly lobed and toothed, clothed with rough hairs. Inflorescence in axillary flower-head ; the male and female on the same plant. Achene ovate, covered with strong hooked bristles.

Flowering period : May - August.

Distribution : Grows wild on waste land, along roadsides and in dry rice-fields.

Parts used : The fruit, which can be picked all the year round when it is just ripe but still has a green skin, is dried before use.

Chemical composition : The fruit contains alkaloids, sesquiterpenoid lactones (xanthinin, xanthumin, xanthatin) and a fatty oil. The leaves and fruit yield iodine (200 micrograms per g of leaves, 220 - 230 micrograms per g of fruit).

Therapeutic uses : The fruit possesses antiallergic and anti-inflammatory properties. It has a beneficial effect in furunculosis, impetigo, ulcer, urticaria, scrofula, goitre, rheumatism, arthralgia, cramp of the extremities, headache, chronic catarrhal rhinitis, sore throat and dysentery. The usual dose is 6 to 12g per day in the form of a decoction, extract or pills. A decoction of the fruit is also used as a gargle for toothache and as unguent for tinea capitis and dermatomycosis.

197 Zanthoxylum nitidum (Roxb.) DC. Rutaceae

Local names : Xuyên tiêu, cây sâng, hạt sẻn, hoàng lực, sơn tiêu, lưỡng diện trâm, mác khen (Tày), chứ xá (H'mông).

Description : Climbing shrub, prickly. Branches spreading, with pale brown bark and scattered lenticels. Leaves alternate, imparipinnate ; leaflets 5, entire, prickly on main nerve and petiole. Inflorescence in axillary raceme ; flowers small, white, unisexual. Fruit of 1 - 5 carpels. Seeds shining black.

Flowering period : February - May.

Distribution : Found wild in mountainous regions.

Parts used : Roots and ripe fruit. Both are dried before use.

Chemical composition : The stem-bark and root-bark contain the unstable alkaloid nitidine, which changes readily into dihydronitidine and oxynitidine. The root-bark yields the flavone glycoside diosmin. The seeds contain an essential oil consisting of linalool.

Therapeutic uses : The fruit is used for treating dyspepsia, cough, colic, vomiting, diarrhoea, toothache, paresis, rheumatism and ascariasis. The daily dose is 3 to 5g in the form of a decoction or powder. The roots are used for treating fever, paresis and rheumatism in a dose of 6 to 12g per day in the form of a decoction or alcoholic maceration. The fruit is also used as a spice. Topical application of an alcoholic maceration of the fruit is effective against toothache. A powder made from the fruit is used to treat snake-bite.

198 Zea mays L. Gramineae

Local names : Ngô, bắp, má khẩu lí (Thái), hờ bo (Ba Na).

English names : Maize, Indian corn.

Description : Robust annual herbaceous plant, 1-2m. tall. Leaves strap-shaped, distichous ; margins ciliate, wavy. Flowers unisexual, both sexes on the same plant ; the male in a terminal spike, the female closely crowded in the axil of the leaves, enclosed in numerous large foliaceous bracts ; style silky, elongate. The fruit is a caryopsis.

Flowering period : April - June.

Distribution : Cultivated everywhere.

Parts used : Styles with stigmas, collected from the ripe corncob. They are lightly dried in the sun or in ovens at a low temperature.

Chemical composition : The styles contain potassium salts. The grains contain starch, glucose, fructose, sucrose, raffinose, fatty compounds, vitamins E, C, K, β-carotene.

Therapeutic uses : Maize silk (styles with stigmas), is used as a diuretic in the treatment of heart disease, hypertension, cystitis, urethritis, urinary lithiasis, cholecystitis, hepatitis, rheumatism and diabetes mellitus. It is also used in combination with vitamin K as a haemostatic. The usual dosage is 20 to 30g per day in the form of a decoction, infusion or liquid extract.

199 Zingiber officinale Rosc. **Zingiberaceae**

Local names : Gừng, sinh khương, can khương, co khinh (Thái), sung (Dao).

English name : Ginger.

Description : Perennial herbaceous plant. Root-stock horizontal, tuberous, aromatic, pale yellowish. Aerial parts growing annually in wet season, 0.5 - 1m. high. Leaves alternate, strap-shaped, subsessile, distichous. Inflorescence in radical spike ; flowers yellow, spotted with violet-blue (rarely produced). Fruit : capsule.

Flowering period : May - August.

Distribution : Cultivated for its root-stock as spice and as medicinal plant.

Parts used : Rhizomes, dug up in winter. After uprooting, they are put in a vessel and covered with dry sand for preservation. They are used fresh or dried.

Chemical composition : The rhizome contains essential oil consisting of D-camphene, β-phellandrene, zingiberene, sesquiterpene alcohol, citral, borneol, geraniol ; resin, gingerone, shogaol, gingerol.

Therapeutic uses : The rhizome is characterized by antibacterial and stomachic properties. It is active on colic, flatulence, dyspepsia, anorexia, vomiting, diarrhoea, haemorrhagic dysentery, headache, coryza, influenza, coldness of the extremities, weak pulse, laryngitis, hoarseness, dyspnoeic cough, rheumatism, allergic prurigo and metrorrhagia. It is prescribed in a dose of 3 to 6g daily in decoction, powder, pills or elixir.

200 Zizyphus mauritiana Lam. Rhamnaceae

Local names : Táo, táo chua, mác tảo (Tày).

English name : Indian jujube.

Description : Medium-sized tree, 5 - 10m. high, with dense spreading crown. Young shoots pubescent. Branches glabrous, blackish-brown, armed with spines. Leaves alternate, ovate or nearly round, prominently 3-nerved, minutely serrulate, densely tomentose beneath. Flowers greenish-yellow, in axillary cyme. Drupe globose or ovoid, pulpy, pale yellow when ripe.

Flowering period : June - October.

Distribution : Cultivated for its edible fruit.

Parts used : The leaves and seed kernels. The leaves are used fresh or dried. The kernels, removed from the ripe fruit, are used as they are or roasted.

Chemical composition : The fruit contains vitamin C, betulinic acid and betulin. The kernels yield saponins, phytosterols. The leaves contain rutin and quercetin.

Therapeutic uses : The seed kernel is sedative and is used to treat palpitations, insomnia, amnesia, general debility and hyperhidrosis. It is also used as sialagogue in cases of reduced salivation. The daily dose is 1 to 2g of raw kernel, or 6 to 12g of thoroughly roasted kernel, in the form of a powder, pills or decoction. The roasted leaves are effective against cough and asthma, in a dose of 20 to 40g per day in decoction form. A poultice of pounded fresh leaves is active against boils and impetigo.

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