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# MEDICINAL PLANTS IN THE REPUBLIC OF KOREA

**Information on  
150 commonly used  
medicinal plants**

Compiled by  
Natural Products Research Institute  
Seoul National University



World Health Organization  
Regional Office for the Western Pacific  
MANILA

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## Preface

For thousands of years, mankind has survived without the knowledge of modern medicine. This can be partly attributed to the simple yet highly effective forms of traditional medicine. Like many people, the Koreans have developed unique ways to combat numerous ailments. Before the arrival of modern medicine, plants with therapeutic properties were used by the Korean people as the only available medicine. Plants were also widely used to protect against disease and to promote health. Knowledge of medicinal plants is a part of the Korean national heritage. To facilitate the use of medicinal plants in ancient Korea, small booklets entitled *Hwang Yak* (local or countryside medicines) were prepared to introduce locally available and commonly used medicinal plants.

These traditions are now being challenged. Increasingly effective modern medicines, which can be mass-produced, offer an alternative to the time-honoured traditional system of medicine. However, herbal medicine will not just disappear. Many people in the Republic of Korea regard medicinal plants as a more effective means of prevention and treatment for selected diseases than modern medicine. Medicinal plants still play a very important role in Korean society, and will continue to do so for many years to come. Moreover, medicinal plants in the Republic of Korea have recently attracted international interest. One example is Korean ginseng which has become a well-known medicinal plant worldwide.

The World Health Organization recognizes that medicinal plants have an important role to play in our technologically advanced world. The Regional Office for the Western Pacific has therefore published a series of three books on medicinal plants. These are the *Medicinal Plants in China*, *Medicinal Plants in Viet Nam* and *Medicinal Plants in the South Pacific*. The purpose of publishing these books is to provide a documented reference on the identification, distribution, chemical composition and usage of medicinal plants.

This fourth book in the series focuses on medicinal plants used in the Republic of Korea. It covers 150 plants employed for medicinal purposes. It includes colour pictures of selected plants to provide a visual reference to supplement the written text. I hope that this new publication will raise international awareness of the value of medicinal plants in the Republic of Korea and hence makes a contribution towards promoting the proper use of medicinal plants and their conservation.

S. T. Han, MD, Ph.D.  
Regional Director

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## Introduction

There are over 1,000 species of medicinal plants that have been important as a means of treating and preventing disease traditionally in the Republic of Korea. Traditional Oriental medicine is still practised throughout the country. The theories governing the prescription of medicinal plants are taken from traditional Korean pharmacology, which probably originated from old traditional Chinese pharmacology based on many centuries of clinical observation and practice. However, Koreans have made a substantial effort to develop their own pharmacological system.

This volume includes 150 species of the medicinal plants most commonly used in the Republic of Korea. Its purpose is to help readers to recognize the species of medicinal plants and crude drugs in Korea, using the botanical descriptions and illustrations of plants. The photographs were taken from the spring of 1994 to the autumn of 1996 in various regions in the Republic of Korea. Pictures were taken under natural conditions during the flowering or fruiting seasons, so that the plants could be correctly identified. The species were identified by the authors of this work, and the specimens are kept in the herbarium of the Natural Products Research Institute (NPRI), Seoul National University, Seoul, Republic of Korea.

The medicinal plants included in this book are listed in alphabetical order of their scientific names, and each species is explained in the following order: scientific name; Korean plant name; English common name; parts used; traditional uses; botanical description; habitat; distribution; biological activities and chemical components with bibliographical references. Finally indexes are provided for the scientific names, the English common names, and the Korean plant names. Readers should be advised that the information regarding the traditional uses is taken solely from the traditional medicinal literature, and their effectiveness has not been established by modern scientific means.



## **Notice**

The information on traditional uses of the medicinal plants compiled in this book has been taken from traditional medicinal texts. It is presented here only for reference and educational purposes. Self-treatment would never be recommended and could be dangerous. The advice of qualified health care practitioners is always advisable.



*Achyranthes japonica* (Miq.) Nakai

***Achyranthes japonica* (Miq.) Nakai**

**Amaranthaceae**

Korean Name: Soe-moo-reup

English Name: Japanese chaff flower

*Parts used.* Root.

*Traditional uses.* Oedema, rheumatism, contraceptive, emmenagogue, abortifacient.

*Description.* Perennial herb, 50-100 cm tall, with thickened roots. Stems slightly pubescent, quadrangular, branched, nodes dilated. Leaves opposite, oblong or elliptic, slightly pubescent, 10-20 cm long, 4-10 cm wide, petiolate. Inflorescence spikes in axils and at terminals, elongate; bracts membranous, ovate-deltoid, with a green long-protruded midrib. Flowers horizontal, deflexed in fruit; bracteoles 3, subulate; perianth 5-parted; the segments linear-lanceolate, acuminate, 4-5 mm long, the inner ones slightly shorter; stamens 5, united at base; carpel 1; style 1, slender, erect, persistent in fruit. Fruit utricles oblong, about 2 mm long, 1 mm across, 1-seeded. Aug. - Sep.

*Habitat.* Woody areas in lowlands and hills.

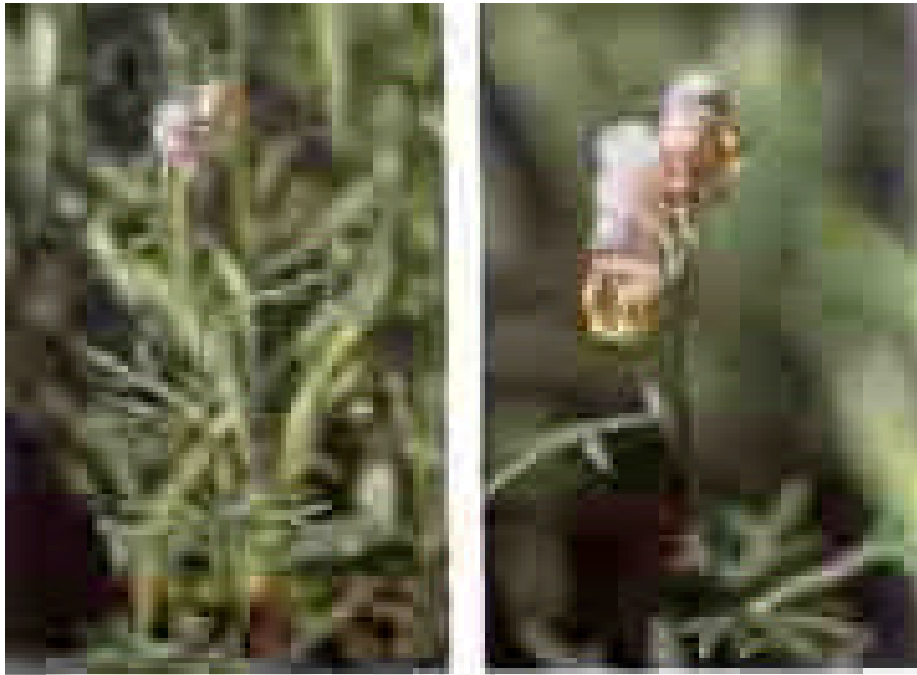
*Distribution.* Korea, Japan.

*Bio-Activities.* Analgesic, antispasmodic, uterine stimulating, diuretic, hypotensive, antiallergic (1), antioxidant (protocatechuic acid) (2), anti-inflammatory (3), platelet aggregation inhibition (4).

*Chemical components.* Seed: insect moulting hormones like rubrosterone, ecdysterone, inokosterone (5,6,7). Root: triterpenoid, saponin (8).

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***Aconitum koreanum* R.Raymond****Ranunculaceae**

Korean Name: Bag-boo-ja

English Name: Korean monk's hood

*Parts used.* Rhizome.*Traditional uses.* Chills in legs and arms, articular pain.

*Description.* Erect, glabrous, perennial herb with thickened roots, to 1 m tall. Leaves alternate, palmately 3-5 cleft, long-petioled, petioles of upper leaves shorter, almost sessile; leaflets deeply divided again to lanceolate, sharply acuminate. Flowers racemose at terminal, zygomorphic, pale yellow, sometimes purplish tint; pedicels short, densely pubescent; sepals 5, petal-like, the upper one clearly hooded, the others flat, the lower 2 narrower than the others; petals 2, small, hidden under the hood; stamens many; ovary 3-celled, glabrous. Fruit of 3 follicles, sharp at tip. Jul. - Aug.

*Habitat.* Grassy areas in mountain valleys or on slopes.*Distribution.* Korea.

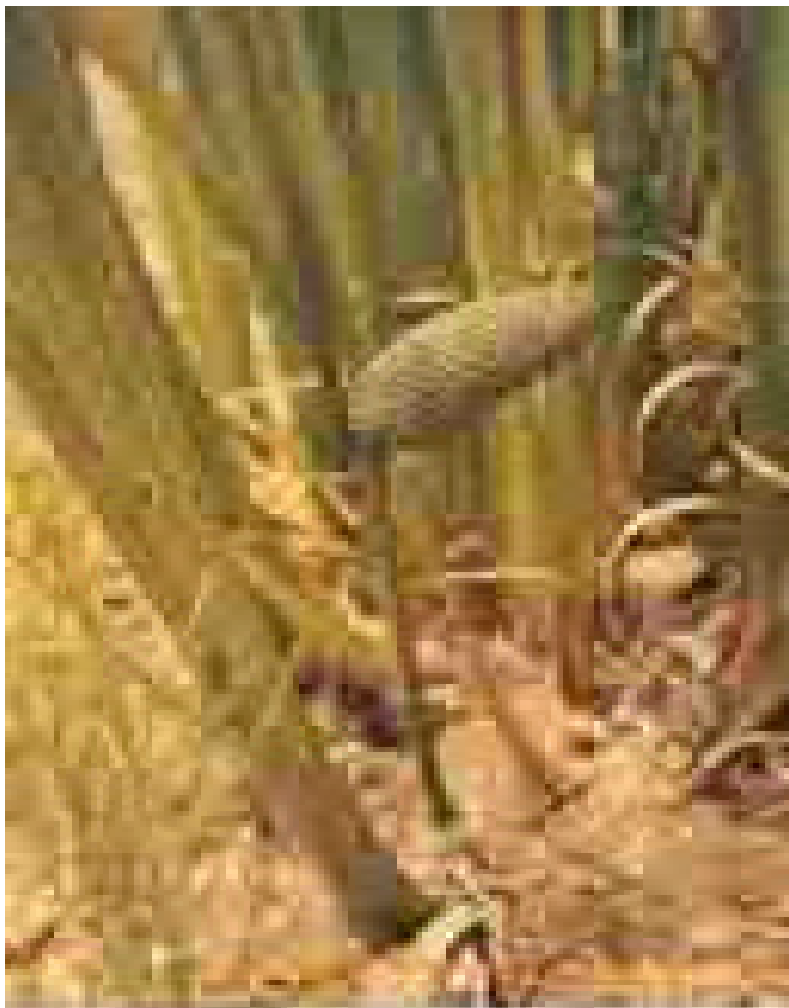
*Bio-Activities.* Analgesic (aconitine alkaloids) (1,2), cardiotoxic (hygenamine, coryneine) (3,4), uterine stimulant (5). Side effects; cardiotoxic, causing arrhythmia and hypotension if not processed to degrade ester-type alkaloids like aconitine (6,7,8).

*Chemical components.* Alkaloids: hypaconitines A, B, C, D, E, aconitine (1,2), mesaconitine, atisine, higenamine, coryneine (3,4), isoatisine, 19-epi-isoatisine (9).

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*Aconitum koreanum* R.Raymond



*Acorus calamus* var. *angustatus* Besser

***Acorus calamus* var. *angustatus* Besser**

**Araceae**

Korean Name: Chang-po

English Name: Sweet flag, myrtle flag, calamus, flagroot

*Parts used.* Rhizome.

*Traditional uses.* Stomachic, gastric disease, neuralgia, tympanitis.

*Description.* Perennial herb of marshy places, with thickened rhizomes. Rhizomes horizontal, frequently nodose, fibrous roots at nodes. Leaves tufted, 70 cm long, 1-2 cm wide, equitant, acuminate, ensiform, with a prominent midrib. Peduncle and spathe a continuous leaflike unit bearing a green spadix above the middle, spathe 20-40 cm long, 5-8 mm wide. Spadix sessile, terete, densely flowered, 5 cm long. Flowers bisexual; perianth 6-parted; the segments lanceolate, 3 mm long; stamens 6, carpels 1. Fruit berry, red, ellipsoid. Jun. - Jul.

*Habitat.* Ponds, shallow water along streams.

*Distribution.* Korea, east Asia, Siberia, North America.

*Bio-Activities.* Antibacterial (1), sedative (2), spasmolytic (3), hypocholesterolaemic (3), insecticide (4), antiulcer (5).

*Chemical components.* Essential oils (6): cineol, asarone (3), caramol, camphor, borneol. Sesquiterpenes (7): shyobunone, epishyobunone, isoshyobunone, calacone, acolamones, acoragermacrone (8), epoxyisoacoragermacrone (9), acoramone (3).

*References.*

- (1) Chopra, I.C. *et al.* (1957) *Antibiot. Chemother.* **7**, 378.
- (2) Baxter, R.M. *et al.* (1960) *Nature* **185**, 466.
- (3) Patra, A. and Mitra, A.K. (1981) *J. Nat. Prod.* **44**, 668.
- (4) Saxena, B.P. and Srivastava, J.B. (1972) *Indian J. Exp. Biol.* **10**, 391.
- (5) Muto, Y. *et al.* (1994) *Yakugaku Zasshi* **114**, 980.
- (6) Chaudhury, S.S. *et al.* (1957) *Indian J. Pharm.* **19**, 183.
- (7) Minato, H. *et al.* (1971) *Chem. Pharm. Bull.* **19**, 638.
- (8) Iguchi, M. *et al.* (1973) *Tetrahedron Lett.* **29**, 2759.
- (9) Ueda, H. and Katayama, C. (1980) *Bull. Chem. Soc. Japan*

**53**, 1263.



*Acorus gramineus* Sol.

***Acorus gramineus* Sol.**

**Araceae**

Korean Name: Seok-chang-po

English Name: Grassy-leaved sweet flag

*Parts used.* Rhizome.

*Traditional uses.* Stomach ache, hysteria, neurasthenia.

*Description.* Perennial herb of marshy places with horizontal, branching rhizomes. Leaves tufted, overlapping in two ranks, sheathing and surrounding the neck of the rhizome at base, linear-ensiform, 30-50 cm long, 2-8 mm wide, without a midrib, smooth. Peduncle leaf-like, 10-30 cm long, 3-5 mm wide, triangular; spathe leaf-like, continuous with peduncle, 7-15 cm long, 2-5 mm wide, erect. Spadix ascending to nearly erect, cylindrical, slender, 5-10 cm long, 3-4 mm in diameter, densely yellow-flowered. Flowers bisexual; perianth 6-parted, 2-ranked, small, thick; stamens 6; carpels 1. Jun.-Jul.

*Habitat.* Common along streams and around ponds.

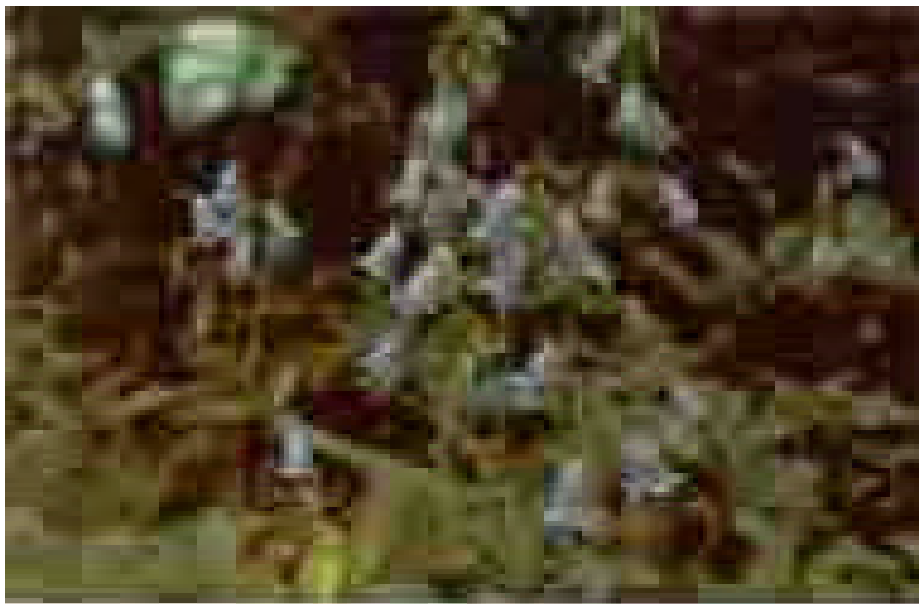
*Distribution.* Korea, China, Japan, India.

*Bio-Activities.* Spasmolytic, sedative, hypocholesterolaemic and cholerytiatic (essential oil and asarones) (1), antiulcer (2), chromosome aberration (asarones) (3,4), anti-platelet aggregation (isoeugenol) (5), antihyperglycaemic (6).

*Chemical components.* Essential oils, asarones, 1-allyl-2,4,5 trimethoxybenzene (1). Lignans (7).

*References.*

- (1) Patra, A. *et al.* (1981) *J. Nat. Prod.* **44**, 668.
- (2) Muto, Y. *et al.* (1994) *Yakugaku Zasshi* **114**, 980.
- (3) Goggelman, W. *et al.* (1983) *Mutation Res.* **121**, 191.
- (4) Abel, G. (1987) *Planta Med.* **53**, 251.
- (5) Totte, J. *et al.* (1984) *Planta Med.* **50**, 222.
- (6) Hsu, F.L. and Cheng, J.T. (1992) *Phytother. Res.* **6**, 108.
- (7) Yuan, Y.H. *et al.* (1982) *Zhongcaoyao* **13**, 387.

***Adenophora triphylla* var. *japonica* Hara****Campanulaceae**

Korean Name: Jan-dae

English Name: Three-leaf ladybell

*Parts used.* Root.*Traditional uses.* Sputum, cough, bronchial catarrh.

*Description.* Erect perennial herb, to 1 m tall. Roots white, thickened. Stems glabrous or white-pilose. Basal leaves long-petiolate, almost round; stem leaves usually in whorls of 4, or alternate, short-petiolate or sessile, oblong or oblong-elliptic or linear, to 10 cm long, serrate. Flowers lower in whorls on very slender pedicels, more paniculate above; corolla pale bluish-violet, narrowly urceolate-campanulate, slightly constricted above, about 13-22 mm long; style long-exserted. Jul. - Nov.

*Habitat.* Grassy areas in lowlands and mountains.*Distribution.* Korea, Japan, China.*Bio-Activities.* Antifungal, expectorant, cardi tonic (1).*Chemical components.* Saponins (1). Triterpenes (2).*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Mat. Med.*, p. 578, Oriental Healing Art Inst., Long Beach, CA.
- (2) Konno, C. *et al.* (1981) *Planta Med.* **42**, 268.

*Adenophora triphylla* var. *japonica* Hara



*Agastache rugosa* (Fisch. et Mey.) Kuntze

***Agastache rugosa* (Fisch. et Mey.) Kuntze**

**Labiatae**

Korean Name: Bae-cho-hyang

English Name: Wrinkled giant hyssop

*Parts used.* Herb.

*Traditional uses.* Acute gastritis, vomiting, diarrhoea.

*Description.* Coarse, robust, tall, fragrant, perennial herb, to 1.5 m tall. Stems square in cross section, erect, branched at the top, white-puberulent. Leaves opposite, ovate-cordate, 5-10 cm long, 2.5-7 cm wide, acuminate at tip, cordate to rounded at base, serrate, nearly glabrous above, whitish pubescent beneath, long-petioled. Inflorescence a dense spike at terminal, spikes 5-15 cm long, 2 cm in diameter. Flowers purple; calyx 0.5 cm long, 5-toothed, teeth triangular; corolla tube 8-10 mm long, bilabiate, the upper lip erect, bilobate, the lower lip expanded, 3-lobed; stamens 4, style bifid. Fruit smooth nutlet. Aug. - Oct.

*Habitat.* Grassy areas in mountains (near streams) and valleys.

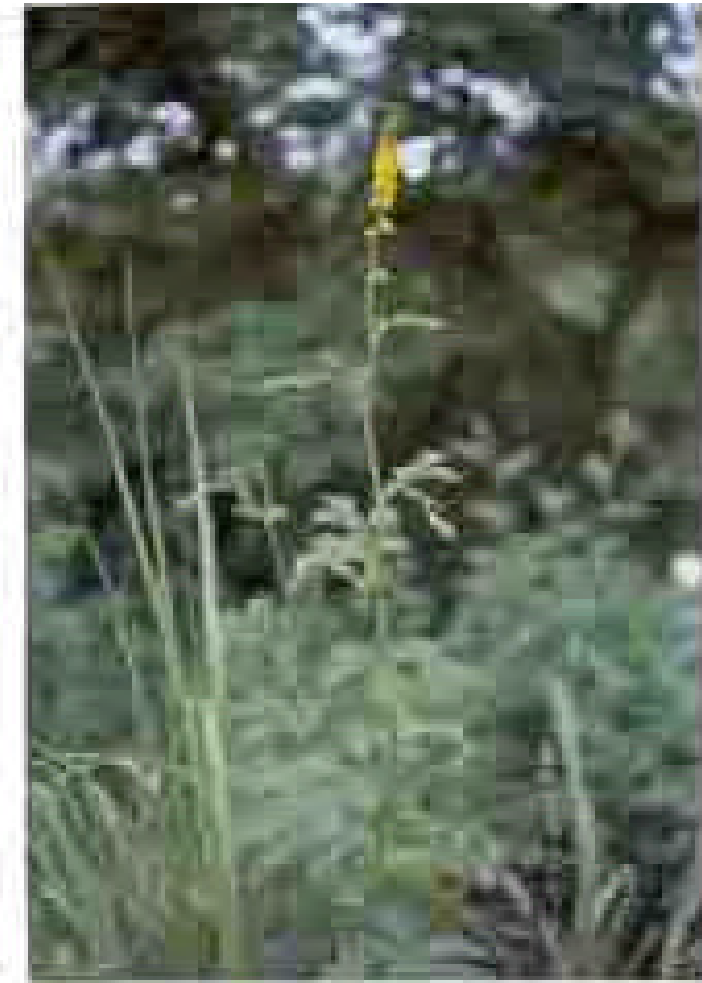
*Distribution.* Korea, Japan, northern China, east Siberia.

*Bio-Activities.* Antifungal, antiprotozoic (1), anticomplementary (in vitro) (2).

*Chemical components.* Essential oil: anethole, anisaldehyde, limonene, patchoulic alcohol, methylchavicol, l-caryophyllene, other minor sesquiterpenes. Flavonoids: agastachosides, acacetin and tilianin (1). Phenylpropanoids: estragole, rosmarinic acid, rosmarinic acid methyl ester (2). Triterpenes: erythrodiol-3-O-acetate, 3-O-acetyl oleanolic aldehyde (3). Agastanol (4).

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 142, World Sci. Pub. Co., Singapore.
- (2) Oh, S.R. *et al.* (1996) Kor. J. Pharmacog. **27**, 20.
- (3) Han, D.S. (1987) Kor. J. Pharmacog. **18**, 50.
- (4) Lee, H.-K. *et al.* (1994) Kor. J. Pharmacog. **25**, 319.

***Agrimonia pilosa* Ledeb.****Rosaceae**

Korean Name: Jip-shin-na-mul

English Name: Hairy agrimony

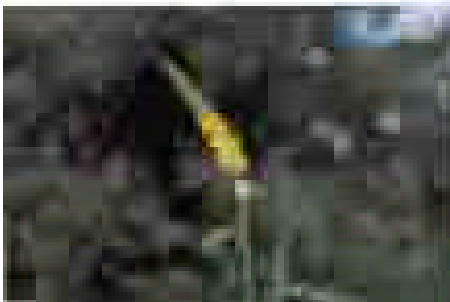
*Parts used.* Herb.*Traditional uses.* Taenia, boils, eczema.

*Description.* Hirsute perennial herb with erect stem, 30-100 cm tall. Leaves alternate, odd-pinnate, 5-7 foliolate; leaflets cuneate at base, pubescent beneath on veins only, gradually smaller in the lower ones, alternate with much smaller ones; the large leaflets oblong, elliptic or obovate, coarsely dentate, hairy on both sides, 3-6 cm long, 1.5-3.5 cm wide. Inflorescence elongated raceme at terminal, 10-20 cm long. Flowers small, pale yellow, short-pedicellate, small bracts leaflike; calyx persistent, calyx tube, deeply grooved, 5-toothed, with spines around edge, to 5 mm in diameter; petals 5, narrowly obovate, rounded at tip; stamens 5-10 (12), carpels 2. Fruit a bristly burr, bristles incurved, connivent apically. Jun. - Aug.

*Habitat.* Roadsides, grassy areas in lowlands and mountains.*Distribution.* Korea, Japan, China, Siberia, eastern Europe.*Bio-Activities.* Antitumour, bacteriostatic, immunostimulating, antidysentery action (1), antiyeast (2).*Chemical components.* Agrimonolides, tannins, phenylpropanoids, coumarins, flavonoids, triterpenes (1).*References.*

(1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part-I, 1996, p. 49, World Sci. Pub. Co., Singapore.

(2) Peter, H.M. (1969) *Pharmazie* **24**, 632.

*Agrimonia pilosa* Ledeb.





*Ailanthus altissima* Swingle

***Ailanthus altissima* Swingle**

**Simaroubaceae**

Korean Name: Ka-joog-na-moo

English Name: Tree-of-heaven, copal tree, varnish tree

*Parts used.* Bark.

*Traditional uses.* Granulating eruptions, haemorrhoids, mastitis.

*Description.* Deciduous, polygamodioecious, rapidly growing tree, to 20 m or more. Leaves alternate, odd-pinnate, mostly 60-80 cm long; leaflets 13-25, 8-10 cm long, oblong to lanceolate or ovate, divided unequally by the midrib, entire except for 1-3 pairs of large gland-bearing or callus teeth at the base, glabrous beneath, ill-scented when bruised. Flowers small, 7-8 mm in diameter, greenish, in terminal panicles, 5-6 merous; petals woolly tomentose inside; stamens 10-12, but 5-6 in bisexual flowers; female flowers with deeply 2-5 parted ovary, style 1, stigmas 5-6, plumose. Fruit a 2-winged samara, 3.5-5 cm long, twisted, reddish-orange at maturity. Jun.

*Habitat.* Widespread urban weed, sometimes cultivated.

*Distribution.* China, naturalized in Korea.

*Bio-Activities.* Antimalarial, amoebicidal (1,2).

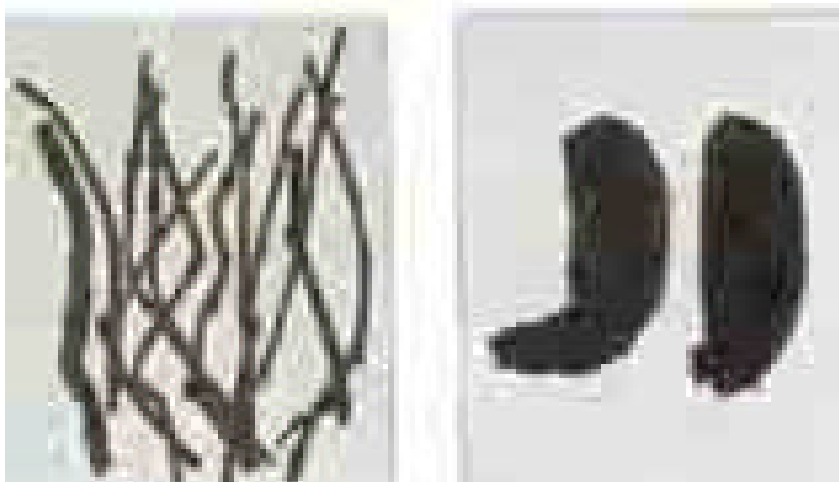
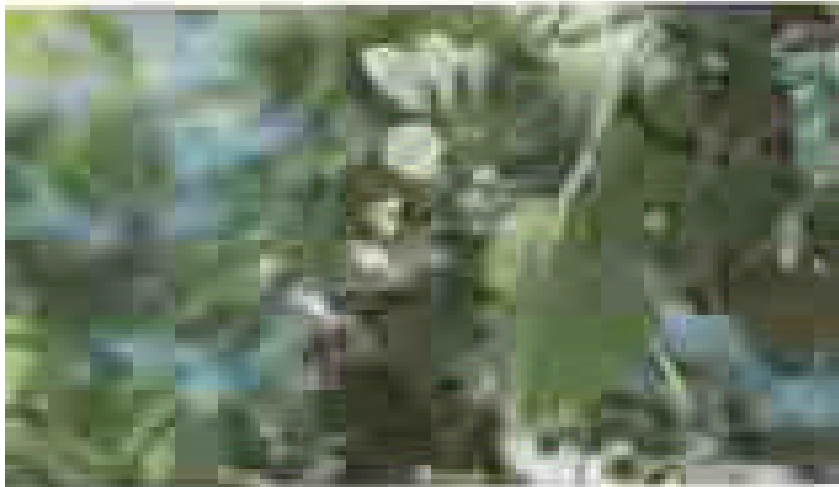
*Chemical components.* Quercetin-3-glucoside, canthin-6-one and its derivatives, ailanthone, many other quassinoids, tannins, triterpene, saponins (3).

*References.*

(1) Trager, W. *et al.* (1981) *Am. J. Trop. Med. Hyg.* **30**, 531.

(2) Bray, D.H. *et al.* (1987) *Phytother. Res.* **1**, 22.

(3) Tang, W. (1992) *Chinese Drugs of Plant Origin*, p. 51, Springer Verlag.

***Akebia quinata* Decne.****Lardizabalaceae**

Korean Name: Eu-reum

English Name: Five-leaf akebia, chocolate vine

*Parts used.* Stem, fruit.*Traditional uses.* Oedema, nephritis, dysuria, neuralgia.

*Description.* Monoecious, woody, glabrous climber to 5 m tall. Leaves half-evergreen, alternate, palmately compound; leaflets 5, oblong, 3-5 cm long, 1-2 cm wide, entire, stalked, cuniate at the base, emarginate at the tip. Flowers purplish, in axillary racemes, fragrant, sepals 3; male flowers towards apex of the raceme, 12-16 mm across, the pedicels slender, sepals 7-8 mm long, stamens 6; female flowers below, much larger, 2-3 cm across, long-pedicellate, sepals broadly elliptic, 15-20 mm long. Fruit an ovoid-oblong, bluish or purple berry, 6-10 cm long, 2.5-3 cm in diameter, dehiscent along 1 side, seeds many, black. Apr. - Jun.

*Habitat.* Thickets in hills and mountains.*Distribution.* Korea, Japan, China.

*Bio-Activities.* Diuretic, anti-inflammatory, lowers serum cholesterol level (1), antiulcer (2), antioxidant (3).

*Chemical components.* Many saponins of hederagenin and oleanolic acid glycosides (4,5,6,7). Flavonoids.

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 35, World Sci. Pub. Co., Singapore.
- (2) Yamahara, J. *et al.* (1975) *Yakugaku Zasshi* **95**, 1179.
- (3) Kim, S.Y. *et al.* (1994) *J. Amer. Oil Chem. Soc.* **71**, 633.
- (4) Higuchi, R. *et al.* (1972) *Chem. Pharm. Bull.* **20**, 1935.
- (5) Higuchi, R. *et al.* (1972) *Chem. Pharm. Bull.* **20**, 2143.
- (6) Higuchi, R. *et al.* (1976) *Chem. Pharm. Bull.* **24**, 1021, 1314.
- (7) Kumegawa, Y. *et al.* (1974) *Chem. Pharm. Bull.* **22**, 2294.

*Akebia quinata* Decne.



*Albizia julibrissin* Durazz.

***Albizia julibrissin* Durazz.**

**Leguminosae**

Korean Name: Ja-gui-na-moo

English Name: Silk tree, mimosa, mimosa tree

*Parts used.* Flower, bark.

*Traditional uses.* Neuralgia, headache.

*Description.* Deciduous tree, with spreading crown, to 15 m tall. Bark dark grey, branches nearly glabrous. Leaves alternate, petioled, even bipinnate, 25-30 cm long or more including the petiole; the petioles with a cup-shaped gland on the upper side, the rachis and rachilla puberulent on upper side; leaflets herbaceous, 10-30 pairs, 6-15 mm long, 2.5-4 mm wide, curved-oblong, short-pubescent beneath and on margin, dark-green above, whitish beneath. Flowers pink, in heads crowded towards ends of branches, in fascicles of 2-3 arranged in a short terminal raceme; panicles pubescent when young, the axis 2-4 cm long with more than 10 spreading branches, heads about 20-flowered; calyx 3 mm, tubular, pubescent, 5-toothed, pale green; corolla 6 mm long, pubescent, 5-toothed, greenish. Stamens many, exserted, the upper half pink, the lower white, united into a tube enclosing ovary, staminal tube as long as the corolla tube. Fruit legume, thin, to 15 cm long, 2 cm wide, glabrous, 5-6 seeds in the pod. Jun. - Jul.

*Habitat.* Woods in lowlands, often planted for ornamental purposes.

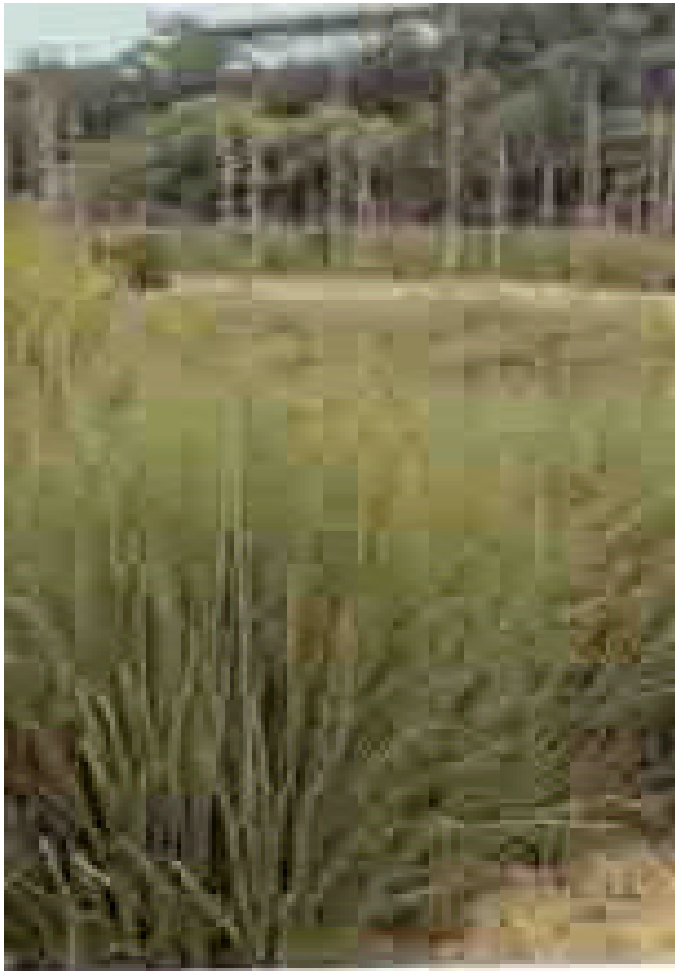
*Distribution.* Korea, Japan, China, south Asia to Iran.

*Bio-Activities.* Oxytocic, sedative, hypotensive, hepatoprotective, diuretic, antiarrhythmic (1,2), antitumour (3), antiyeast, antifungal.

*Chemical components.* Saponins: glycosides of albigenic acid, echinocystic acid, acacic acid lactone, machaerinic acid lactone, spinasterol (4,5). Flavonoids, monoterpenes, alkaloids, lignans.

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 58, World Sci. Pub. Co., Singapore.
- (2) Higuchi, H. *et al.* (1992) Chem. Pharm. Bull. **40**, 829.
- (3) Moon, C.K. *et al.* (1985) Arch. Pharm. Res. **8**, 277.
- (4) Applewhite, P.B. (1973) Phytochemistry **12**, 191.
- (5) Kinjo, J. *et al.* (1992) Chem. Pharm. Bull. **40**, 3269.



*Anemarrhena asphodeloides* Bunge

***Anemarrhena asphodeloides* Bunge**

**Liliaceae**

Korean Name: Ji-mo

English Name: Anemarrhena

*Parts used.* Rhizome.

*Traditional uses.* Fever, dire thirst, cough, diabetes.

*Description.* Rhizomatous, perennial herb, with thickened, horizontal rhizomes, to 1 m tall. Leaves basal, grasslike, to 60 cm long, 2 cm wide, long-tapering. Scape simple, erect, 60-90 cm tall, bracts ovate, acuminate with elongated tip. Flowers in an elongated raceme, dull rose-purple, opening and fragrant at night; perianth separate, in 6 divisions in 2 rows, linear, about 0.5 cm long; stamens 3, anthers versatile, ovary 3-celled. Fruit a loculicidal capsule with 3 wings, 12 mm long. Jun. - Jul.

*Habitat.* Open areas on mountain slopes, often cultivated in Korea.

*Distribution.* Korea, China.

*Bio-Activities.* Hypoglycaemic (1), anti-pyretic (1,2), antiplatelet aggregation (1), inhibits stress ulcer (1), sedative (3), inhibits cAMP phosphodiesterase and Na/K-ATPase (3), haemolytic (4), antitumour (5).

*Chemical components.* Timosaponins: glycosides of sarasapogenin, markogenin, neogitogenin. Xanthone glycosides: glycosides of mangiferin, isomangiferin (6). Polysaccharides: anemaran A, B, C, D (7), hinokiresinol (3). Lignans (8).

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 184, World Sci. Pub. Co., Singapore.
- (2) Yamazaki, M. *et al.* (1967) Shoyakugaku Zasshi **21**, 17.
- (3) Nikaido, T. *et al.* (1981) Planta Med. **43**, 18.
- (4) Niwa, A. *et al.* (1988) Yakugaku Zasshi **108**, 555.
- (5) Lee, S.-H. *et al.* (1995) Kor. J. Pharmacog. **26**, 47.
- (6) Kawasaki, T. *et al.* (1963) Chem. Pharm. Bull. **11**, 1121.
- (7) Takahashi, M. *et al.* (1985) Planta Med. 100.
- (8) Nikaido, T. *et al.* (1981) Planta Med. **43**, 18.



*Angelica dahurica* (Fisch.) Benth. et Hook.f.

***Angelica dahurica* (Fisch.) Benth. et Hook.f.**

**Umbelliferae**

Korean Name: Goo-rit-dae

English Name: Dahurian angelica

*Parts used.* Root.

*Traditional uses.* Headache, toothache, pain.

*Description.* Biennial or perennial herb, 1-2 m tall. Stems stout, 7-8 cm across at base, short puberulent on upper part, branched above. Basal and lower leaves long-petiolate, 2-3 times ternately pinnate, terminal leaflets deeply 3-lobed, segments long-elliptic or narrow ovate, 5-10 cm long, 2-5 cm wide, acuminate, sharply serrate, often scabrous on veins above, whitish beneath, puberulent on margins and veins; upper leaves small, sheath of upper leaves obovate or long-elliptic; petiole broadly dilated at the base. Inflorescence a large compound umbel, few, rays 20-40, 4-6 cm long; peduncles, rays, and pedicels papillate-puberulent; bracts 1-2, broadly lanceolate, dilated as a sheath; bracteoles small, often as long as the pedicels; pedicels 10 or more in each ray. Fruit elliptic, flat, emarginate at base, glabrous, 8-9 mm long, dorsal ribs slender, lateral ribs winged. Jun. - Aug.

*Habitat.* Wet places near mountain streams.

*Distribution.* Korea, Japan, northern China, east Siberia.

*Bio-Activities.* Some furocoumarins activate adrenalin or ACTH- induced lipolysis and others inhibit insulin-induced lipogenesis (1,2). Antithrombotic (3). Modulation of hepatic drug-metabolizing enzyme activities (4). Aldose reductase inhibition (5).

*Chemical components.* Coumarins: scopoletin, angelicin, demethylsuberosin, cedrelapsin, 6-methoxy-7-isopentenyl-oxy-coumarin. Furocoumarins: bergapten, psoralen, imperatorin, isoimperatorin, phellopterin, oxypeucedanin, byakangelicins, marmesin, xanthotoxin (1).

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 117, World Sci. Pub. Co., Singapore.
- (2) Komura, Y. *et al.* (1982) *Planta Med.* **45**, 183.
- (3) Kim, C.M. *et al.* (1995) *Kor. J. Pharmacog.* **26**, 74.
- (4) Shin, K.H. *et al.* (1988) *Kor. J. Pharmacog.* **19**, 19.
- (5) Shin, K.H. *et al.* (1994) *Arch. Pharm. Res.* **17**, 331.



*Angelica gigas* Nakai

***Angelica gigas* Nakai**

**Umbelliferae**

Korean Name: Cham-dang-gui

English Name: Giant angelica

*Parts used.* Root.

*Traditional uses.* Anaemia, hemiplegia, women's diseases.

*Description.* Purplish, glabrous, perennial herb, 1-2 m tall, with thickened rhizomes. Basal and lower leaves long-petiolated, odd 2-3 pinnate; leaflets deeply 3-lobed, sometimes 2-3 clefted again, segments long-elliptic or ovate, sharply double-serrate, terminal segment rhombic; upper leaves reduced to elliptic, dilated purplish sheaths. Inflorescence compound umbels at terminals, pubescent with purplish brown hairs, rays 15-20, umbellets consisting of 20-40 flowers; bracts 1-2, enlarged like leaf sheath; bracteoles 5-7, linear-lanceolate. Flowers rather large, dark purple; ovary minutely punctate. Fruit elliptic, 8 mm long, 5 mm wide, with large wings. Aug. - Sep.

*Habitat.* Along mountain streams, often cultivated in Korea.

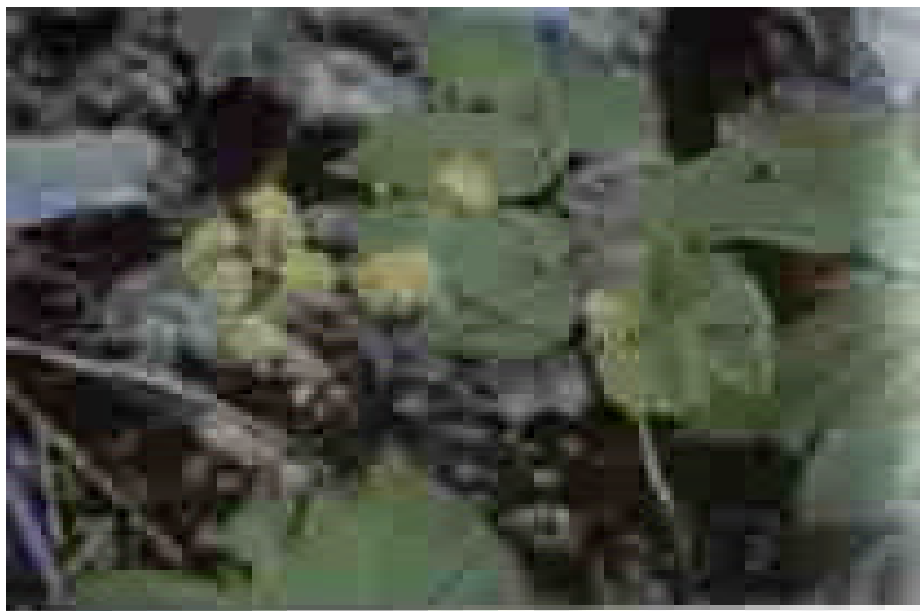
*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Increase duodenum motility (1). Anti-platelet aggregation (nodakenin) (2).

*Chemical components.* Decursin (3,4), decursinol, nodakenin (5), angelinol, gigasol (6).

*References.*

- (1) Chi, H. J. *et al.* (1970) *Kor. J. Pharmacog.* **1**, 25.
- (2) Ko, S. H. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 225.
- (3) Hata, K. *et al.* (1966) *Tetrahedron Lett.* 1461.
- (4) Ryu, K.S. *et al.* (1990) *Kor. J. Pharmacog.* **21**, 64.
- (5) Okuyama, T. *et al.* (1986) *Planta Med.* **32**, 1986.
- (6) Jung, A. D. J. *et al.* (1991) *Phytochemistry* **30**, 710.



*Aralia cordata* Thunb.

***Aralia cordata* Thunb.**

**Araliaceae**

Korean Name: Dok-whal

English Name: Japanese spikenard

*Parts used.* Root.

*Traditional uses.* Common cold, migraine.

*Description.* Spineless perennial herb, to 2 m tall, loosely short-pilose throughout except the flowers. Leaves alternate, deltoid in outline, long-petiolate, 2-3 pinnate; leaflets of each pinna 5-7, ovate, acuminate at tip, 5-30 cm long, 3-20 cm wide, unequally serrate, sessile or short-petiolate. Inflorescence loosely branched raceme, arranged in large panicles, terminal or axillary on upper part of stems. Flowers small, pale green, 3 mm across; petals 5, more or less imbricate; stamens 5; ovary 2-5 celled; styles 2-5, separate. Fruit a drupe, pyrenes 2-5. Young branched shoots are eaten in Korea and Japan. Aug. Fruit matured in Sep.-Oct.

*Habitat.* Thickets and woody areas, especially along streams. Sometimes cultivated in Korea.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Anti-inflammatory activities (continentalic acid, kaurenolic acid) (1). Analgesic (2). Antioedema (3). Antianaphylactic (4).

*Chemical components.* Essential oils (5). Various diterpene acids of pimarane and kaurane series (1,6). Methyl esters of udosaponins A, B, C, D, E (7). Sesquiterpenes.

*References.*

- (1) Han, B. H. *et al.* (1983) Arch. Pharm. Res. **6**, 17.
- (2) Okuyama, E. *et al.* (1991) Chem. Pharm. Bull. **39**, 405.
- (3) Yasukawa, K. *et al.* (1993) Phytother. Res. **7**, 185.
- (4) Kataoka, M. and Takagaki, Y. (1995) Nat. Med. **49**, 346.
- (5) Yoshihara, K. *et al.* (1973) Phytochemistry **12**, 468.
- (6) Mihashi, S. (1969) Tetrahedron Lett. 1683.
- (7) Kawai, H. *et al.* (1989) Chem. Pharm. Bull. **37**, 2318.



***Arisaema amurense* Maxim.**

**Araceae**

Korean Name: Doong-geun-nip-chun-nam-sung

English Name: Jack-in-the-pulpit

*Parts used.* Tuber.

*Traditional uses.* Headache, expectorant, sputum remedy, inflammation of the lymphatic gland in the groin, dry pleurisy.

*Description.* Stemless, perennial herb, with well developed tuber. Tuber depressed globose, 2-4 cm in diameter, bearing 23 small tubers; fibrous roots spreading from the top of tuber. Leaves pedate, segments 5, 10-20 cm long, middle one obovate, lateral ones oblong-lanceolate, petioles 15-30 cm long. Peduncle stout, shorter than petioles; spathe 10 cm long, tube pale green, margined with purple, blade erect, 5-6 cm long, greenish and sometimes purple-striped, or violet. Spadix with terminal appendage cylindrical, 4 cm long. May-Jul.

*Habitat.* Wet and shady areas in mountains.

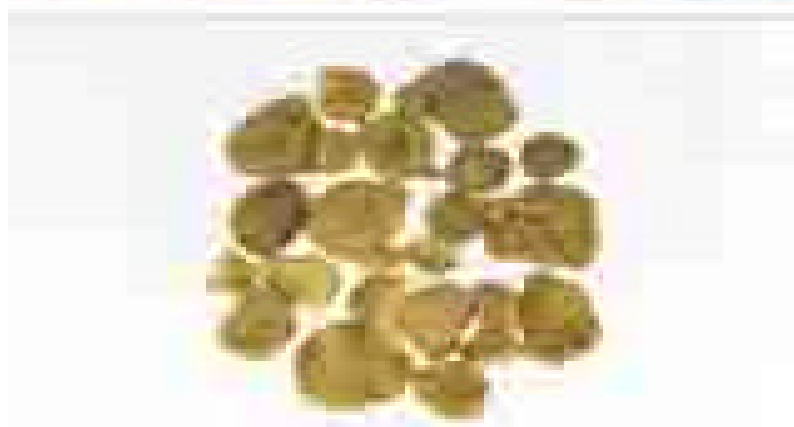
*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Anticonvulsant (1). Platelet aggregation inhibition (2).

*Chemical components.* Saponins (3), diacylglycerylgalactosides (4).

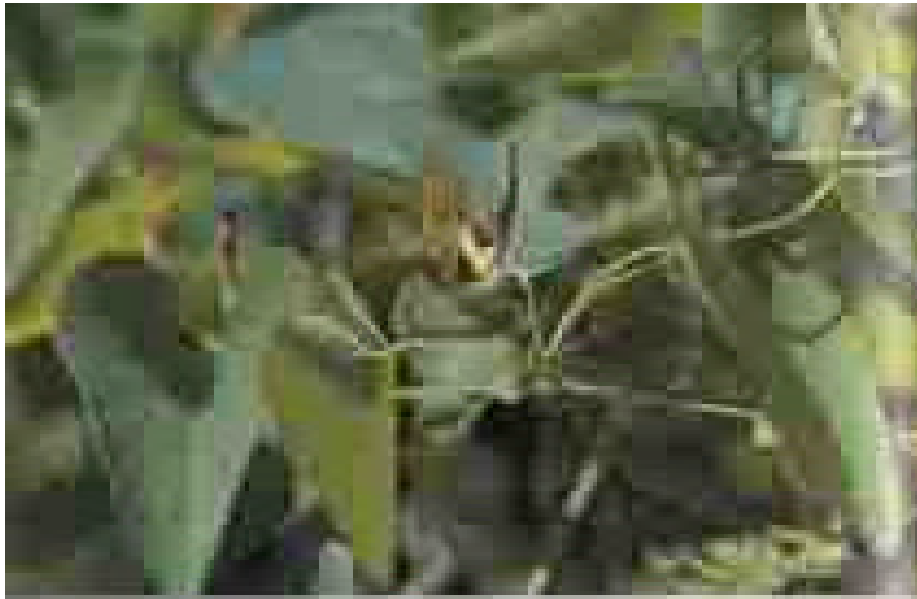
*References.*

- (1) Bensky, D. and Gamble, A., Chin. Herb. Med. (Materia Medica), 1986, p. 191, Eastland Press, Seattle. WA.
- (2) Yun-Choi, H.S. *et al.* (1986) Kor. J. Pharmacog. **17**, 19.
- (3) Lu, C. and Li, P. (1984) Zhongcaoyao **15**, 254.
- (4) Jung, J.H. *et al.* (1996) Phytochemistry **42**, 447.



*Aralia cordata* Thunb.





***Aristolochia contorta* Bunge**

**Aristolochiaceae**

Korean Name: Jui-bang-wool-deong-gool

English Name: Birthwort

*Parts used.* Fruit, root.

*Traditional uses.* Cough, sputum.

*Description.* Climbing perennial shrub, with stout elongated rhizomes. Stem slender, glabrous. Leaves alternate, cordate or broadly ovate-cordate, 4-10 cm long, 3.5-8 cm wide, acute or obtuse at tip, cordate at base, entire, petioles 1-7 cm long. Peduncles axillary, 1-4 cm long, with prominent bracts at base. Flowers few in axils, fascicled, the pedicels 1-4 cm long; the calyx tubular, inflated and globose at base, loosely pilose inside; the limb dilated, obliquely truncate, narrowly deltoid, long-acuminate to a filiform point; stamens 6, ovary inferior. Fruit a capsule, globose, 3 cm in diameter, 6 valved. Jul.-Aug.

*Habitat.* Edges of mountain woods.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Antimicrobial, hallucinogen, immunostimulating, antitumour, carcinogen (aristolochic acid and derivatives) (1). Hypotensive (magnoflorine) (4,5).

*Chemical components.* Aristolactam derivatives and their N-glycosides: 8-desmethoxyaristolactam, 6-hydroxy-8-desmethoxyaristolactam N-b-d-glucopyranoside (2). Oxoaporphines: 4,5-dioxodehydroasimilobine, lysicamine (3).

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 42, World Sci. Pub. Co., Singapore.
- (2) Lee, H.S. *et al.* (1993) Kor. J. Pharmacog. **24**, 32.
- (3) Lee, H.S. *et al.* (1990) Kor. J. Pharmacog. **21**, 52.
- (4) Tomita, M. *et al.* (1957) Yakugaku Zasshi **77**, 812.
- (5) Chang, C.C. *et al.* (1964) Yaoxue Xuebao **11**, 42.

*Aristolochia contorta* Bunge



*Artemisia annua* L.

***Artemisia annua* L.**

**Compositae**

Korean Name: Gae-tong-sook

English Name: Sweet wormwood

*Parts used.* Herb.

*Traditional uses.* Fever, stomachic.

*Description.* Annual herb, to 1 m tall, sweetly aromatic. Stems furrowed, glabrous, much branched. Leaves radical and cauline; radical leaves withering early; median cauline leaves long-petiolate, to 10 cm long, bi- or tri-pinnatifid, ovate in outline, the pinnae oblong, the ultimate segments linear or lanceolate, acute, short-toothed, 0.3 mm wide, powdery-puberulent above, glandular-dotted; upper leaves gradually smaller. Heads globose, about 2 mm across, often nodding, in a loose panicle; involucre globose, glabrous; phyllaries 2-3 seriate, the outer ones narrowly oblong, green, the inner elliptic or obovate, margin hyaline. Flowers yellow; ray flowers female, corolla 0.8 mm long; disc flowers bisexual, corolla 1 mm long, tube 0.5 mm long. Achenes ellipsoid, faintly nerved, 0.7 mm long, glabrous. Jun. - Aug.

*Habitat.* Roadsides, fields, wasteland.

*Distribution.* Korea, Japan, China, Siberia, to eastern Europe.

*Bio-Activities.* Antimalarial (artemisinin) (1), antischistosomal, immunoregulatory, antirheumatic, antibacterial (2).

*Chemical components.* Essential oil, flavonoids, coumarins (2). Artemisinin (1), arteannuin B, C (3), artemisinic acid (4), dihydroartemisinin (5).

*References.*

- (1) Blanko, G. (1988) J. Nat. Prod. **51**, 441, 1273.
- (2) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 164, World Sci. Pub. Co., Singapore.
- (3) Jeremic, D. *et al.* (1981) Tetrahedron **30**, 976.
- (4) El-Peraly, D.S. *et al.* (1986) J. Nat. Prod. **52**, 196.
- (5) Luo, X. *et al.* (1984) Helv. Chim. Acta **67**, 1515.



*Artemisia gmelini* Weber ex Stechm.

***Artemisia gmelini* Weber ex Stechm.**

**Compositae**

Korean Name: Deo-we-je-gee

English Name: Russian wormwood

*Parts used.* Leaf, stem.

*Traditional uses.* Hepatitis, hyperlipaemia, infected cholecystitis.

*Description.* Perennial herb from woody rhizomes to 50-100 cm tall. Stems tufted, slightly woody at base, branched. Leaves cauline; median leaves bi-pinnate, ovate, acute, base truncate, upper surface short pubescent, lower surface glandular dotted, petioles 2-3 cm long, segments 6-10 pairs, oblong, obtuse, the ultimate segment pinnately lobed, 1.5-4.5 mm wide; upper leaves gradually smaller. Heads 3-3.5 mm across, in panicles; involucre globose, 3-3.5 mm high; phyllaries in 3 series, nearly glabrous. Ray flowers female, corolla narrowly tubular, 1.3 mm long, densely glandular dotted; disc flowers bisexual, corolla 1.8 mm long, tube 0.8 mm long. Achenes 1.5 mm long. Sep.-Oct.

*Habitat.* Rocky slopes from coast to mountains.

*Distribution.* Korea, Japan, China, southern Russia to Siberia.

*Bio-Activities.* None recorded.

*Chemical components.* Flavonoids, phenylpropanoids, scopoletin (1).  
Monoterpenes, sesquiterpenes (2).

*References.*

(1) Chemesova, I.I. *et al.* (1987) *Chem. Nat. Comp.* **19**, 364.

(2) Greger, H. *et al.* (1986) *Phytochemistry* **25**, 891.



*Asarum sieboldii* Miq.

***Asarum sieboldii* Miq.**

**Aristolochiaceae**

Korean Name: Jok-do-ri

English Name: Wild ginger

*Parts used.* Root.

*Traditional uses.* Fever, headache, cough.

*Description.* Perennial, rhizomatous stemless herb. Rhizomes with short internodes. Leaves in pairs, cordate or reniform-cordate, to 8 cm wide, abruptly acute, petioles to 10 cm long. Flowers solitary on short pedicels, purplish, borne singly near surface of ground; perianth corolla-like, campanulate, the perianth tube depressed globose, the lobes 3-parted, deltoid-ovate, recurved on margin; corolla vestigial or none; stamens 12; styles 6. Fruit a fleshy, globose capsule. Mar. - Apr.

*Habitat.* Shaded areas in mountain woods.

*Distribution.* Korea, Japan.

*Bio-Activities.* Antipyretic (1,2), analgesic, tranquilizing, antibacterial, antitussive (2).

*Chemical components.* Essential oil (2): methyleugenol, eucarvone, l-asarinin (3), limonene, sesamine, l-pinene, safrole, sishinone, kakuol, borneol (4). Flavonoids. Phenylpropanoids (5).

*References.*

- (1) Qu, S. Y. *et al.* (1982) Yaoxue Xuebao **17**, 12.
- (2) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 43, World Sci. Pub. Co., Singapore.
- (3) Villegus, M. *et al.* (1988) Planta Med. **54**, 36.
- (4) Yamaguchi, S. *et al.* (1977) Tetrahedron Lett. 89.
- (5) Hashimoto, K. *et al.* (1994) Planta Med. **60**, 124.



*Asparagus cochinchinensis* (Lour.) Merr.

***Asparagus cochinchinensis* (Lour.) Merr.**

**Liliaceae**

Korean Name: Cheon-moon-dong

English Name: Cochinchinese asparagus, shiny asparagus

*Parts used.* Tuber.

*Traditional uses.* Nourishing, cough, expectorant.

*Description.* Subscandent perennial herb, with short rhizomes and fusiform adventitious roots. Stems slender, much branched, smooth, 1-2 m tall. True leaves scalelike, subtending narrow, green leaflike branchlets. Cladodes 1-3 in a fascicle, linear, flat, 1-2 cm long, 1-1.2 mm wide, slightly falcate, acuminate at apex, lustrous. Flowers bisexual, yellowish, 6-7 mm long, 1-3, nodding in axils of cladodes; pedicels 7-8 mm long, jointed in the middle or above; perianth segments 6, separate; stamens 6, filaments arising from base of perianth segments, anthers versatile. Fruit globose berry, whitish, ripening to red, 6 mm in diameter. May - Jun.

*Habitat.* Near seashores.

*Distribution.* Korea, Japan, China, Laos, Viet Nam.

*Bio-Activities.* Antibacterial, anthelmintic, antitumour (1).

*Chemical components.* Furostanol oligoside (2), pseudoprotodioscin (3), methylprotogracilin (4).

*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 3850, Shanghai Sci. Tech., Japanese Transl.
- (2) Konishi, T. *et al.* (1979) Chem. Pharm. Bull. **27**, 3086.
- (3) Liang, Z.Z. *et al.* (1988) Planta Med. **54**, 344.
- (4) Hirai, Y. *et al.* (1984) Chem. Pharm. Bull. **32**, 295.



*Aster tataricus* L.f.

***Aster tataricus* L.f.**

**Compositae**

Korean Name: Gae-me-chui

English Name: Tartarian aster

*Parts used.* Root.

*Traditional uses.* Antitussive, asthma.

*Description.* Rhizomatous perennial herb, to 1.5 m tall, loosely situlose. Basal leaves spatulate-oblong, to 60 cm long including the long winged petiole, 6-10 cm wide, withering early; stem leaves long-petiolate, lanceolate, elliptic, or ovate-lanceolate, to 30 cm long including petiole; uppermost leaves nearly sessile, linear, gradually smaller. Heads 2.5- 3.3 cm across, in large corymbs; pedicels 1.5-5 cm long, dense short-pilose; involucre hemispherical, 7 mm long, 13-15 mm across; phyllaries imbricate in three rows, lanceolate, acuminate, short-pilose, margin hyaline. Ray flowers blue-purple, 16-17mm long, 3-3.5 mm wide; disc flowers bisexual, yellow. Achenes 3 mm long, hairy, pappus 6 mm. Jul. - Oct.

*Habitat.* Marshy areas in mountains.

*Distribution.* Korea, Japan, China, Siberia.

*Bio-Activities.* Antitussive, antimicrobial, anticancer (epifriedelinol).

*Chemical components.* Triterpenes (1,2): shinone, friedelin, epifriedelinol. Monoterpenes: shinoside A, B (3). Triterpene saponins: aster saponins A, B, C, D (4), E, F (5), Ha, Hb, Hc, Hd, foetidissimoside (6).

*References.*

- (1) Nakaoki, T. (1929) Yakugaku Zasshi **49**, 1169.
- (2) Takahashi, T. *et al.* (1959) Yakugaku Zasshi **79**, 1281.
- (3) Nagao, T. *et al.* (1988) Chem. Pharm. Bull. **36**, 571.
- (4) Nagao, T. *et al.* (1989) Chem. Pharm. Bull. **37**, 1977.
- (5) Nagao, T. *et al.* (1990) Chem. Pharm. Bull. **38**, 783.
- (6) Tanaka, R. *et al.* (1990) Chem. Pharm. Bull. **38**, 1153.



*Astragalus membranaceus* Bunge

***Astragalus membranaceus* Bunge**

**Leguminosae**

Korean Name: Whang-gi

English Name: Milk vetch

*Parts used.* Root.

*Traditional uses.* Tonic, energy-giving and haematic, night sweats.

*Description.* Short-pubescent perennial herb, to 1 m tall. Stems tufted, woody at the base, sparsely branched. Leaves alternate, odd-pinnate, petiolate, stipules broadly lanceolate to linear, 5-10 mm long; leaflets 6-11 pairs, ovate-elliptic, 15-20 mm long, 5-8 mm wide, entire, obtuse, glabrous above, pubescent beneath. Inflorescence racemes in axils, pedicels 3 mm long. Flowers pea-like, yellowish white, 15-18 mm long; calyx tubulose, 5 mm long, 4 mm across, 5-toothed, the teeth 1 mm long; stamens 10, 9 united and 1 separate. Fruit a 1-2 celled legume, pendulous, inflated, 2-3 cm long, with scattered, minute hairs. Jul. - Aug.

*Habitat.* Mountain thickets, often cultivated in Korea.

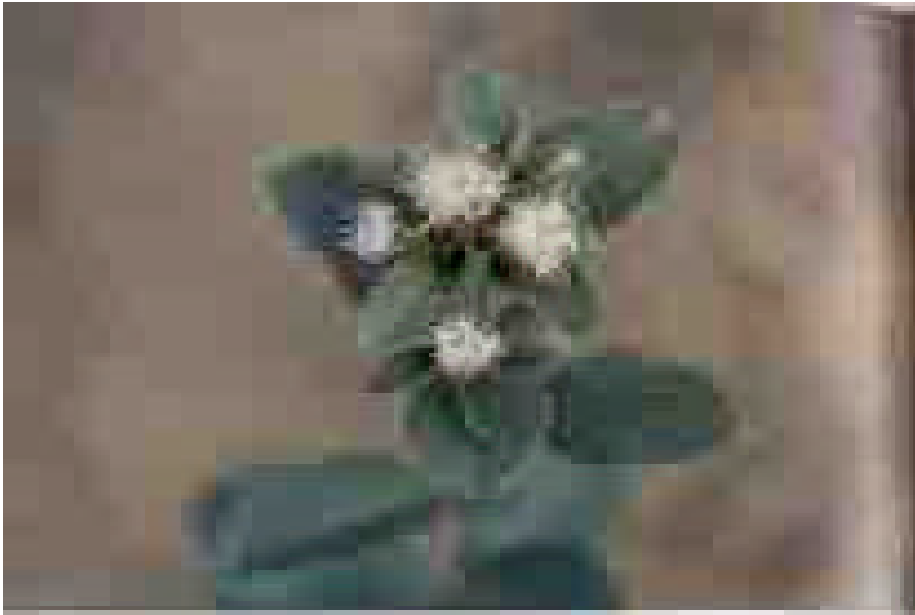
*Distribution.* Korea, northern China.

*Bio-Activities.* Antihypertensive (1), diuretic, macrophage stimulation (2), immunostimulation (3), antiulcer (4), uterine stimulant (5), interferon induction (6), platelet aggregation (7).

*Chemical components.* Isoflavonoids (8): astraisoflavan, astrapterocarpan. Saponins (9): astragaloside IV. -Amino butyric acid (1). Lipids.

*References.*

- (1) Hikino, H. *et al.* (1976) *Planta Med.* **30**, 297.
- (2) Lau, B.H.S. *et al.* (1989) *Phytother. Res.* **3**, 148.
- (3) Zhao, K.S. *et al.* (1990) *Immunopharmacology* **20**, 225.
- (4) Muto, Y. *et al.* (1994) *Yakugaku Zasshi* **114**, 980.
- (5) Woo, W.S. and Lee, E.B. (1979) *Kor. J. Pharmacol.* **10**, 27.
- (6) Hou, Y. *et al.* (1981) *Chin. Med. J.* **94**, 35.
- (7) Itokawa, H. *et al.* (1983) *Shoyakugaku Zasshi* **37**, 223.
- (8) Yu, J. *et al.* (1986) *Zhongyao Tongbao* **11**, 550.
- (9) Kitagawa, I. *et al.* (1983) *Chem. Pharm. Bull.* **31**, 689, 698, 709, 716.



***Atractylodes japonica* Koidz. ex Kitam.**

**Compositae**

Korean Name: Sab-joo

English Name: Japanese atractylodes

*Parts used.* Rhizome.

*Traditional uses.* Gastrointestinal disorder, oedema, mastitis.

*Description.* Perennial herb, 30-100 cm tall, with knotty rhizomes. Leaves radical and cauline; radical leaves withering before flowering; cauline leaves obovate, pinnately 35 segmented, 8-11 cm long, 1.5-2 mm wide, short-spinulose on margin, long-petioled; petioles 3-8 cm; segments elliptic or obovate-oblong; terminal ones larger, glabrous and lustrous above, prominent veins beneath; the upper leaves small and simple, subsessile. Heads terminal, 15-20 mm across, bracteal leaves 2-seriate, as long as head, bipinnate, segments bristle-like; involucre campanulate, 17 mm high, 10-14 mm across; phyllaries in 7-8 rows, obtuse or rounded at tip. Female flowers narrowly tubular, corolla white, 9-11 mm long; bisexual flowers tubular, corolla white, 10-12 mm long. Achenes cylindric, with dense hairs; pappus brownish, 8-9 mm long. Sep. - Oct.

*Habitat.* Woods in hills and mountains.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Stomachic (1,2), diuretic, diaphoretic, tranquilizing, hypoglycaemic, tonic activity (3), liver-protective activity against CCl<sub>4</sub>-induced hepatotoxicity (4), glutamate-pyruvate transaminase inhibition (5), platelet aggregation inhibition (6), ATP-ase inhibition (7), tumour promotion inhibition (8).

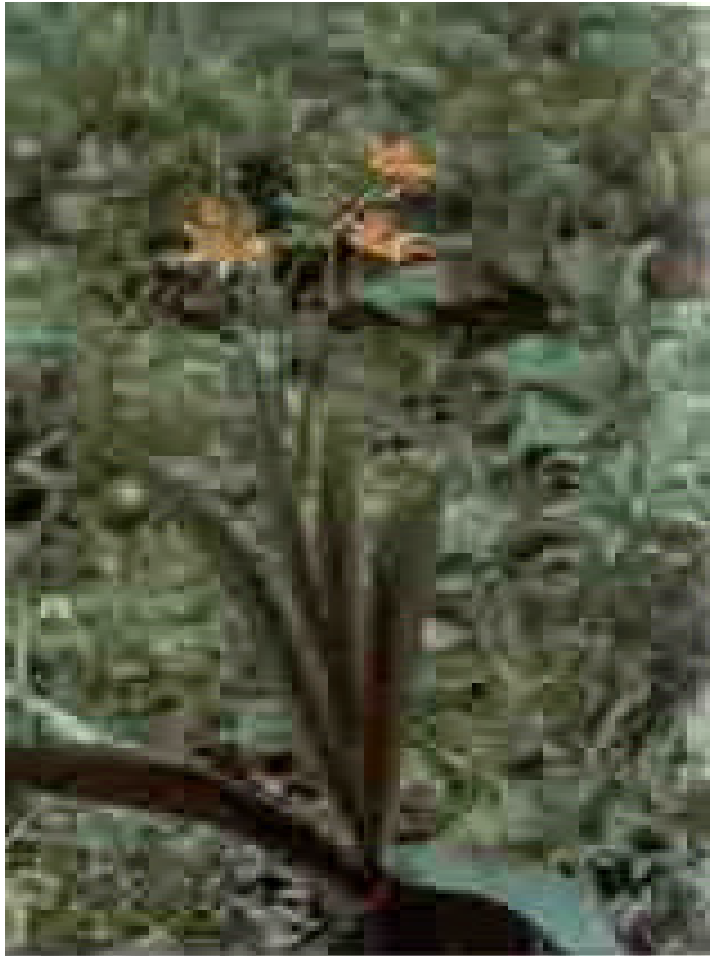
*Chemical components.* Essential oil: hinesol, beta-eudesmol, elemol, atractylodin, acetoxy-atractylon, 3-hydroxyatractylon (9), carotenoid, sesquiterpenes. Polyacetylene: 1,4-diacetoxytetradeca-6,12-diene-8,10-diyne (10).

*References.*

- (1) Kubo, M. *et al.* (1983) *Yakugaku Zasshi* **103**, 442.
- (2) Chen, Z. L. (1987) *Planta Med.* **53**, 493.
- (3) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 390, Oriental Healing Art Institute, Long Beach, CA.
- (4) Chang, I.-M. *et al.* (1989) *Kor. J. Pharmacog.* **20**, 96.
- (5) Kiso, Y. *et al.* (1983) *J. Nat. Prod.* **46**, 651.
- (6) Yun-Choi, H.S. *et al.* (1985) *J. Nat. Prod.* **48**, 363.
- (7) Satoh, K. *et al.* (1991) *Yakugaku Zasshi* **111**, 138.
- (8) Yu, S. *et al.* (1994) *Phytomedicine* **1**, 55.
- (9) Nishikawa, Y. *et al.* (1976) *Shoyakugaku Zasshi* **30**, 132.
- (10) Yim, D.S. *et al.* (1988) *Kor. J. Pharmacog.* **19**, 228.

*Atractylodes japonica* Koidz. ex Kitam.





*Belamcanda chinensis* (L.) DC

***Belamcanda chinensis* (L.) DC.**

**Iridaceae**

Korean Name: Bum-boo-cha

English Name: Blackberry lily, leopard flower

*Parts used.* Rhizome.

*Traditional uses.* Sore throat, pharyngitis, tonsillitis.

*Description.* Hardy perennial herb with stout rhizome. Stems erect, 50-100 cm tall, leafy towards the base. Leaves mostly basal and lower cauline, laterally flattened, ensiform, equitant, 30-50 cm long 2-4 cm wide, glaucous. Inflorescence loosely corymose at terminals, 1-2 branched; the bracts 45 at the apex, narrowly ovate, 1 cm long, the pedicels 4-5 cm long. Flowers deep orange with red dots, to 5 cm across, starlike, twisting spirally as they fade; perianth segments acute, 6, not united, about equal; filaments reddish-purple; style branches 3, flattened and emarginate at apex. Fruit a capsule, valves reflexing and exposing column covered with glossy black seeds resembling a blackberry. Jul. - Aug.

*Habitat.* Mountain woods, often cultivated for ornamental purposes.

*Distribution.* Korea, Japan, China, northern India.

*Bio-Activities.* Antifungal, antibacterial (1), anti-inflammatory (2), antiallergy, 5-lipoxygenase inhibition (3), antiviral (4), plaque formation suppressant (5).

*Chemical components.* Flavonoids: iridin, tectoridin (1). Isoflavonoids: dimethyltectorigenin, irisfloreutin, muningin, iristectorigenin A and B (6).

*References.*

- (1) Lee, S.O. *et al.* (1989) *Kor. J. Pharmacog.* **20**, 219.
- (2) Hu, X. L. (1982) *Chung Yao Tung Pao* **7**, 29.
- (3) Fukuyama, Y. *et al.* (1991) *Chem. Pharm. Bull.* **39**, 1877.
- (4) Kurokawa, M. *et al.* (1993) *Antiviral Res.* **22**, 175.
- (5) Namba, T. *et al.* (1984) *Shoyakugaku Zasshi* **38**, 253.
- (6) Eu, G.H. *et al.* (1991) *Kor. J. Pharmacog.* **22**, 13.



***Betula platyphylla* var. *japonica* Hara**

**Betulaceae**

Korean Name: Ja-jag-na-moo

English Name: Japanese white birch

*Parts used.* Bark.

*Traditional uses.* Tonic, haematic, internal disease, inflammation.

*Description.* Deciduous, monoecious tree to 20 m tall, with white bark. Branchlets dark purple-brown, glandular. Leaves alternate, ovate to triangular-ovate, 5-7 cm long, 4-6 cm wide, acuminate, mostly broadly cuneate at base, unequally serrate, glabrous or sparsely short-pilose beneath, with brownish axillary hairs, petioles 1.5-2 cm long. Flowers unisexual, borne in catkins, male catkins forming in autumn, remaining naked during the winter, and opening in spring, female catkins becoming conelike, with 3-lobed scales. Nuts narrowly obovate to ovate, 1.2-2.2 mm long, puberulous, wings 1.5-2 times wider than the nuts, ripening in Sep. Apr. - May.

*Habitat.* High mountain elevations.

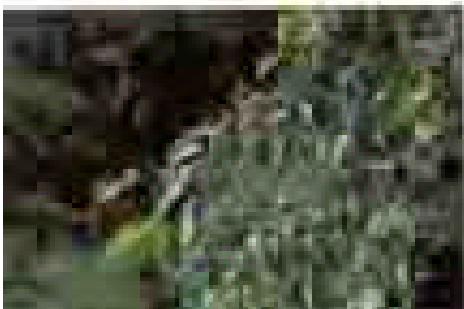
*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Antifungal activity (1).

*Chemical components.* Triterpenoids; lupeol, betulin, betulafoliatediol, betulafolienetriol, oleanolic acid, platyphyllin, platyphyllonol, betuloside, betuligenol, paeonol, betulafolienetetraol (2), betulafolienepentaol (3). Flavonoids; myricetin, myricitrin, hemiphloin, hyperoside (4).

*References.*

- (1) Yokota, M. *et al.* (1978) *Yakugaku Zasshi* **98**, 1607.
- (2) Chi, H.J. and Han, B. H. (1975) *J. Pharm. Soc. Korea* **19**, 159.
- (3) Han, B. H. and Song, B. J. (1977) *Phytochemistry* **16**, 1075.
- (4) Lee, M. W. (1994) *Kor. J. Pharmacog.* **25**, 199.



*Betula platyphylla* var. *japonica* Hara

***Bistorta manshuriensis* Kom.****Polygonaceae**

Korean Name: Bum-ko-ri

English Name: Asian bistort

*Parts used.* Rhizome.*Traditional uses.* Diarrhoea.

*Description.* Erect perennial herb with short thick rather large rhizome. Basal leaves long-petiolate, broadly ovate, acuminate, 5-10 cm long, 3-7 cm wide, cordate at base, whitish beneath; lower stem leaves similar as basal leaves, upper ones almost sessile, lanceolate. Spike solitary, terminal on peduncle 30-80 cm long, densely flowered, cylindrical, 3-8 cm long. Flowers pale pink or white, calyx 3 mm long, 5-lobed, stamens 8, styles 3. Fruit achene, 3 mm long, enclosed in persistent perianth. Jun. - Jul.

*Habitat.* Sunny areas in mountain valleys and lowlands.*Distribution.* Korea, northern China.

*Bio-Activities.* Related species, *B. officinalis*, shows haemostatic activity (1).

*Chemical components.* Tannins. Flavonoids.*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 1331, Shanghai Sci. Tech., Japanese Transl.

*Bistorta manshuriensis* Kom.



*Bupleurum falcatum* L.

***Bupleurum falcatum* L.**

**Umbelliferae**

Korean Name: See-ho

English Name: Hare's-ear

*Parts used.* Root.

*Traditional uses.* Fever, hepatitis, apoplexy.

*Description.* Glabrous perennial herb, 40-70 cm tall. Stems erect, slender, branched above. Radical leaves simple, linear to oblong- spatulate, to 20 cm long, the base narrowed to petiole-like; stem leaves rather thick and firm, broadly linear to lanceolate, narrowed at base, entire, 410 cm long, 5-15 mm wide, acuminate, with prominent parallel nerves. Flowers yellow, in compound umbels; umbels numerous, 2-7 rays, involucre 0-15 mm long, with linear-lanceolate bracts shorter than rays; umbellets 5-10 flowered, involucels with broadly linear to oblong bractlets, bractlets 2.5-4 mm long. Fruit 5 mm long, compressed. Aug. - Sep.

*Habitat.* Grassy areas on hills and mountain slopes.

*Distribution.* Korea, Japan, China, Siberia, to Europe.

*Bio-Activities.* Antipyretic, sedative, analgesic, hepatotonic (1), anti-inflammatory (2), anaesthetic (3), cAMP phosphodiesterase inhibition (4), antiallergenic (5).

*Chemical components.* Saiko-saponins (2,6,7), saikogenins A, C, D, E, G, P (8), saikodiyne A, B, C (9).

*References.*

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 121, World Sci. Pub. Co., Singapore.
- (2) Ishii, H. *et al.* (1987) Chem. Pharm. Bull. **28**, 2367.
- (3) Sugaya, A. *et al.* (1979) Planta Med. **37**, 274.
- (4) Nikaido, T. *et al.* (1981) Planta Med. **43**, 18.
- (5) Koda, A. *et al.* (1982) Nippon Yakurigaku Zasshi **80**, 31.
- (6) Shibata, S. *et al.* (1968) Chem. Pharm. Bull. **16**, 641.
- (7) Yamazaki, K. *et al.* (1977) Tetrahedron Lett. 1231.
- (8) Kobayashi, M. *et al.* (1990) Chem. Pharm. Bull. **38**, 3169.
- (9) Morita, M. *et al.* (1991) Phytochemistry **30**, 1543.



***Caragana sinica* (Buc'hoz) Rehder**

**Leguminosae**

Korean Name: Gol-dam-cho

English Name: Chinese pea shrub

*Parts used.* Root.

*Traditional uses.* Arthritis, neuralgia, diarrhoea, bone weakness.

*Description.* Hardy shrub, to 2 m tall. Leaves alternate, even-pinnate; rachis turned into bristle at tip; leaflets in 2 pairs, remote from one another, obovate or elliptic, 1-3 cm long, slightly retuse or rounded at tip, dark green, glossy, small, entire; stipules 4-8 mm long spines. Flowers reddish-yellow, solitary at axils, 2.5-3 cm long, papilionaceous, long-clawed; pedicels 1 cm long, ring-like node in the middle; stamens 10, 9 united and 1 separate. Fruit linear, straight, glabrous, cylindrical legume. May. Fruit ripened in Sep.

*Habitat.* Open slopes on mountains.

*Distribution.* Korea, northern China.

*Bio-Activities.* Anti-inflammatory (1,2), protein kinase C inhibition (3).

*Chemical components.* Stilbenes (3). Saponins: caraganosides (4).

*References.*

- (1) Kwak, J.H. and Kim, I.H. (1974) Kor. J. Pharmacog. **5**, 179.
- (2) Kitanaka, S. *et al.* (1990) Chem. Pharm. Bull. **38**, 432.
- (3) Kulanthaivel, P. (1995) Planta Med. **61**, 41.
- (4) Lee, Y. B. *et al.* (1992) Arch. Pharm. Res. **15**, 62.

*Caragana sinica* (Buc'hoz) Rehder



*Carthamus tinctorius* L.

***Carthamus tinctorius* L.**

**Compositae**

Korean Name: lk-kot

English Name: False saffron, bastard saffron, safflower

*Parts used.* Flower.

*Traditional uses.* Amenorrhoea, abdominal pain, lochioschisis, contraceptive.

*Description.* Glabrous, stiff biennial, to 1 m tall. Stems branching above. Leaves alternate, sessile, broadly oblanceolate to ovate, minutely spiny-toothed. Inflorescence broad corymb, 3-5 head borne on leafy peduncles. Heads terminal, 2.5-4 cm across, 2 cm long; involucre bracts green, constricted above a papery base, spreading, leafy, receptacle scaly. Flowers all tubular, orange-yellow; corolla 5-lobed, linear. Achenes white, 6 mm long, pappus lacking, glabrous, 4-ribbed. Jul. - Aug.

*Habitat.* Commonly cultivated.

*Distribution.* Mediterranean region to central Asia, much cultivated in the Old World.

*Bio-Activities.* Uterine stimulating, coronary dilating, hypotensive (1,2), cytotoxic (3), antigenic (4), platelet aggregation inhibition (5).

*Chemical components.* Pigment: carthamin, Safflor yellow (6). Arctigenin (7), tacheloside (8), N-feruloyl tryptamine, N-feruloylserotonin (9). Steroids, flavonoids, polyacetylenes.

*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 1360, Shanghai Sci. Tech., Japanese Transl.
- (2) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 442, Oriental Healing Art Institute, Long Beach, CA.
- (3) Kosuge, T. *et al.* (1985) Yakugaku Zasshi **105**, 791.
- (4) Wang, X.M. *et al.* (1983) Vox Sang. **45**, 320.
- (5) Yun-Choi, H.S. *et al.* (1985) J. Nat. Prod. **48**, 363.
- (6) Takahashi, Y. *et al.* (1982) Tetrahedron Lett. **23**, 5163.
- (7) Kitagawa, S. *et al.* (1984) Phytochemistry **23**, 1635.
- (8) Nishibe, S. *et al.* (1972) Phytochemistry **11**, 2629A.
- (9) Saito, H. *et al.* (1985) Agr. Biol. Chem. **49**, 2969.



*Cassia tora* L.

***Cassia tora* L.**

**Leguminosae**

Korean Name: Gin-gang-nam-cha

English Name: Sicklepod

*Parts used.* Seed.

*Traditional uses.* Constipation, oedema, glaucoma, nyctalopia, liver protection.

*Description.* Erect annual, to 1 m. Leaves alternate, even-pinnate, 8-12 cm long; leaflets in 24 pairs, oblong-ovate to obovate, 3-4 cm long, obtuse, attenuate at base; stipules linear lanceolate, falling early. Flowers grouped 1-2 in leaf axils, showy, nearly regular, 5-merous, yellow; stamens 10, with 7 fertile and 3 abortive anthers. Fruit linear pod, 4-angled, to 20 cm long, with thick margins. Oct.

*Habitat.* Widely cultivated.

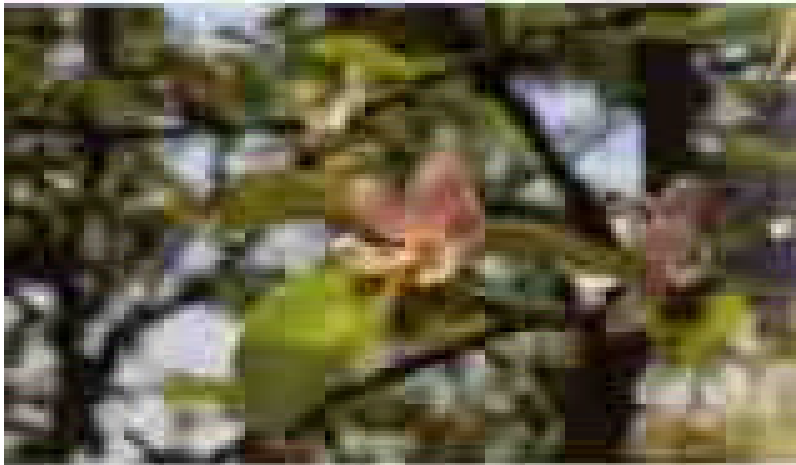
*Distribution.* Korea, China, Japan, Philippines, Viet Nam, India, Indonesia, North America.

*Bio-Activities.* Antibacterial (1,2), anti-platelet aggregation (3), hepatoprotective (4,5), cAMP-phosphodiesterase inhibitory activities (6), antifungal, antiyeast (7).

*Chemical components.* Anthraquinones (3); chrysophanol, emodin, obtusifolin, obtusin, chryso-obtusin, aurantio-obtusin, and their glycosides. Naphthopyrones (1); rubrofusarin, nor-rubrofusarin, rubrofusarin-gentiobioside. Toralactone, torachryson.

*References.*

- (1) Kitanaka, S. *et al.* (1986) *Yakugaku Zasshi* **106**, 302.
- (2) Kitanaka, S. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 3980.
- (3) Yun-Choi, H.S. (1990) *J. Nat. Prod.* **53**, 630.
- (4) Wong, S.M. *et al.* (1989) *Planta Med.* **55**, 276.
- (5) Wong, S.M. *et al.* (1988) *Phytochemistry* **28**, 211.
- (6) Nikaido, T. *et al.* (1984) *Chem. Pharm.Bull.* **32**, 3075.
- (7) Mukherjee, P.K. *et al.* (1996) *Phytother. Res.* **10**, 521.

***Chaenomeles sinensis* (Thouin) Koehne****Rosaceae**

Korean Name: Mo-gua-na-moo

English Name: Chinese quince

*Parts used.* Fruit.*Traditional uses.* Asthma, common cold, harsh throat, tuberculosis, mastitis, liver protection.*Description.* Thornless, deciduous tree, to 10 m tall. Branchlets pubescent, but becoming glabrous in the second year. Leaves alternate, entire, elliptic ovate or lanceolate, 7-10 cm long, gland-toothed, pubescent beneath and becoming glabrous later; stipules linear, with glandular hairs at margins. Flowers solitary, pink, 2.5-3 cm across, sepals 5, glandular-serrate, woolly above; calyx with whitish hairs inside, glabrous outside; petals 5, obovate, short pilose at base; stamens 20 or more, in 1 row; carpels fused along the inner side only, styles 5. Fruit fragrant subglobose pome, yellow, 8-15 cm long. May. Fruit ripening in Sep.*Habitat.* Mostly planted for fruit.*Distribution.* China, widely planted in Korea.*Bio-Activities.* Mutagenic, anti-HIV activity (quercetin) (1), aldose reductase inhibition (2), antianaphylactic activity (3).*Chemical components.* Organic acids (4): malic acid, ascorbic acid, hydrocyanic acid. Flavonoids: quercetin, rutin. Isozedoaronidiol (5), isofuranogermacrene (6).*References.*

- (1) Jung, K.Y. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 280.
- (2) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (3) Kataoka, M. and Takagaki, Y. (1995) *Nat. Med.* **49**, 346.
- (4) Yu, D.W. (1954) *Zhongyao Tiya* **24**, 172.
- (5) Kuroyanogi, M. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 13.
- (6) Hikino, H. *et al.* (1970) *Chem. Pharm. Bull.* **18**, 752.

*Chaenomeles sinensis* (Thouin) Koehne





***Chelidonium majus* var. *asiaticum* (Hara) Ohwi**

**Papaveraceae**

Korean Name: Ae-gi-tong-pool

English Name: Celandine

*Parts used.* Herb.

*Traditional uses.* Anodyne, analgesic, antitussive, detoxicant, stomach cancer.

*Description.* Biennial herb, with multicellular curled hairs early, becoming glabrate later. Stems, erect, branched, 30-80 cm tall, with orange-coloured sap secreted when stems cut. Leaves deeply 1-2 pinnatifid, 7-15 cm long, 5-10 cm wide, obtuse, glaucous beneath, obtusely toothed and incised. Inflorescence axillary umbels, pedunculate, few-flowered. Flowers yellow, pedicelled, to 2 cm across, sepals 2, 6-8 mm long, yellow-green, often hairy outside, falling early; petals 4, 10-12 mm long; stamens many; pistils 1. Fruit a cylindrical capsule, 3-4 cm long, 2 cm wide. May - Aug.

*Habitat.* Sunny open places.

*Distribution.* Asia, Europe, naturalized widely in other places.

*Bio-Activities.* Cytotoxicity (1), analgesic (2), antioxidant (3).

*Chemical components.* Alkaloids (4,5): sanguinarine, chelerythrine, chelidamine, chelidonine, berberine, coptisine, protopine, stylopine.

*References.*

- (1) Kim, H.K. *et al.* (1969) J. Pharm. Sci. **58**, 372.
- (2) Seel, H. *et al.* (1939) Hippocrates **10**, 1281.
- (3) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.
- (4) Han, L.F. *et al.* (1991) J. Chromatogr. **543**, 123.
- (5) Bugatti, C. *et al.* (1991) Phytochem. Anal. **2**, 65.



*Chelidonium majus* var. *asiaticum* (Hara) Ohwi

***Chloranthus japonicus* Siebold****Chloranthaceae**

Korean Name: Hol-ah-bee-kot-dae

English Name: Chloranthus

*Parts used.* Rhizome.*Traditional uses.* Dermatopathia, enteric fever.

*Description.* Glabrous perennial herb from short, creeping rhizomes, to 20-30 cm tall. Stems erect, simple. Leaves small, membranaceous and scalelike toward the base; the uppermost consisting of 2 ordinary pairs simulating a whorl of 4 leaves, ovate or elliptic, 4-12 cm long, 2-6 cm wide, abruptly acute, sharply serrate; petioles 10-15 mm long. Spikes usually simple, solitary, 2-3 cm long, erect; peduncle 2-5 cm long. Flowers white, sessile; filaments white and conspicuous, shortly connate below and adnate to the ovary, linear, obtuse, spreading 4-5 mm long. Apr.

*Habitat.* Mountain woods.*Distribution.* Korea, Japan, northern China.*Bio-Activities.* None reported.*Chemical components.* Sesquiterpenes (1,2,3). Coumarins (2).*References.*(1) Uchida, M. *et al.* (1980) *Chem. Pharm. Bull.* **28**, 92.(2) Kawabata, J. *et al.* (1984) *Agr. Biol. Chem.* **48**, 713.(3) Kawabata, J. *et al.* (1995) *Phytochemistry* **39**, 121.*Chelidonium majus* var. *asiaticum* (Hara) Ohwi

***Cimicifuga heracleifolia* Kom.****Ranunculaceae**

Korean Name: Seung-ma

English Name: Bugbane, rattletop

*Parts used.* Rhizome.*Traditional uses.* Fever, headache.

*Description.* Upright, perennial herb with thickened, dark-purple root, to 1 m tall. Leaves large, ternately 1-2 clefted, long-petiolate; leaflets petiolulate, ovate, acuminate, slightly cordate at base, irregularly toothed, glabrous. Flowers small, white, many, in long compound racemes; sepals 4-5, petaloid, falling early; petals 3-4, small, clawed; stamens many; pistils 1-8, sessile, many-ovuled. Fruit of follicles. Aug. - Sep.

*Habitat.* Mountain woods.*Distribution.* Korea, China.*Bio-Activities.* Antioxidant (1). Interleukin-8 induction inhibition (2).*Chemical components.* Cycloartenol triterpenes (3).*References.*(1) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.(2) Hirabayashi, T. *et al.* (1995) Planta Med. **61**, 221.(3) Li, J.K. *et al.* (1993) Chem. Pharm. Bull. **41**, 832.*Cimicifuga heracleifolia* Kom.



*Cirsium japonicum* var. *ussuriense* Kitamura

***Cirsium japonicum* var. *ussuriense* Kitamura**

**Compositae**

Korean Name: Ung-gung-qui

English Name: Japanese thistle

*Parts used.* Herb.

*Traditional uses.* Cough, headache, lassitude, pneumonia, swelling, anti-inflammatory.

*Description.* Perennial herb, to 50-100 cm tall. Basal leaves obovate-oblong, to 30 cm long, pinnately lobed, spiny toothed, sparsely pubescent above, pubescent on nerves beneath; stem leaves alternate, oblong, pinnately cut, clasping, margins spiny. Heads to 4 cm across, solitary or in clusters of 2-3 on the ends of branches; involucre campanulate, ovoid; involucre bracts imbricate in several rows, spine-tipped, receptacle densely bristly. Flowers all tubular, purplish or rose, anthers tailed. Achenes 4 angled, glabrous, pappus of plumose bristles united basally in a ring and falling as a unit. Jun. - Aug.

*Habitat.* Open sunny places.

*Distribution.* Korea, Japan.

*Bio-Activities.* Serotonin secretion inhibition (1).

*Chemical components.* Flavonoids (2).

*References.*

(1) Son, K.H. *et al.* (1994) Korean J. Pharmacog. **25**, 167.

(2) Park, J.C. *et al.* (1995) Phytochemistry **39**, 261.



*Citrus unshiu* Markovich

***Citrus unshiu* Markovich**

**Rutaceae**

Korean Name: Geul

English Name: Japanese sweet orange

*Parts used.* Pericarp.

*Traditional uses.* Dyspepsia, cough, phlegm, common cold, liver disease.

*Description.* Evergreen, small tree, to 5 m tall, without spines. Leaves alternate, lanceolate or broad-lanceolate, obtuse at base, 5-7 cm long, entire or serrulate, petioles narrowly winged or wingless, glandular-dotted. Flowers white, fragrant, bisexual; calyx 5-lobed; petals 5; stamens about 20, united in bundles; carpel; 1. Fruit an aromatic, leathery-skinned berry (a hesperidium), 3-4 cm in diameter, glandular-dotted, with 8-15 cells or internal segments with juicy pulp. Jun.

*Habitat.* Cultivated in the southernmost part of Korea.

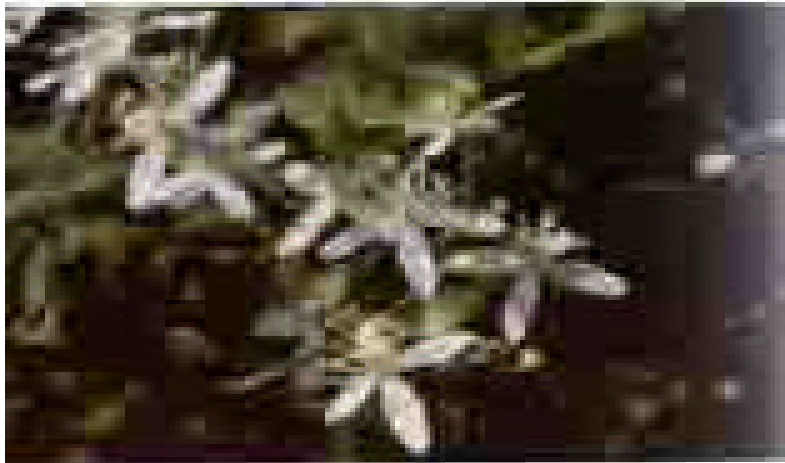
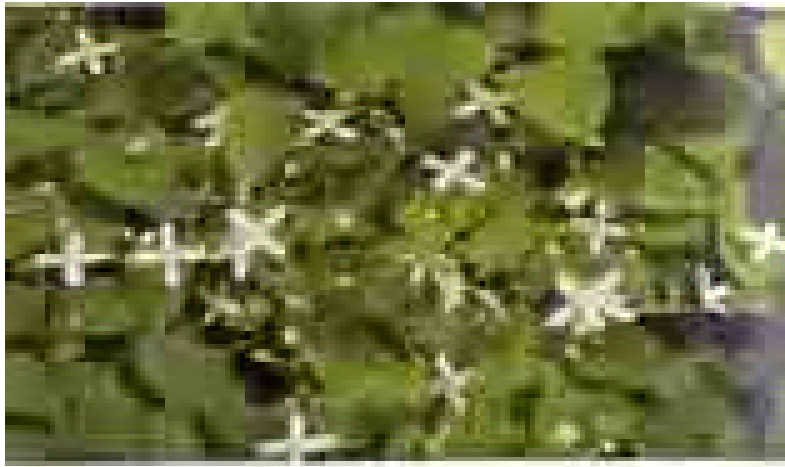
*Distribution.* Origin unknown, but possibly Japan.

*Bio-Activities.* Stimulation of gastric secretion (1,2) and movement (3), serotonin antagonism (4), tyrosinase inhibition (5), antibacterial (6), smooth muscle relaxant activity (7).

*Chemical components.* Phenylpropanoids (8). Monoterpenes, sesquiterpenes (9), flavonoids (10), synephrine (4), citroside A, B (11).

*References.*

- (1) Ikuda, M. (1940) Osaka Igakkai Zasshi **39**, 2072.
- (2) Ikuda, M. (1941) Osaka Igakkai Zasshi **40**, 711.
- (3) Suga, S. (1942) Osaka Igakkai Zasshi **41**, 649.
- (4) Kinoshita, T. *et al.* (1979) Shoyakugaku Zasshi **33**, 146.
- (5) Matsuda, H. *et al.* (1994) Biol. Pharm. Bull. **17**, 1417.
- (6) Namba, T. *et al.* (1981) Shoyakugaku Zasshi **35**, 295.
- (7) Ichikawa, K. *et al.* (1989) Chem. Pharm. Bull. **37**, 345.
- (8) Sawabe, A. *et al.* (1988) Nippon Nogei Kagaku Kaishi **62**, 1067.
- (9) Namba, T. *et al.* (1985) Shoyakugaku Zasshi **39**, 52.
- (10) Nogata, Y. *et al.* (1994) J. Chromatogr. A **667**, 59.
- (11) Umehara, K. *et al.* (1988) Chem. Pharm. Bull. **36**, 5004.

***Clematis mandschurica* Rupr.****Ranunculaceae**

Korean Name: Eu-ah-ri

English Name: Virgin's bower, leather flower, vase vine

*Parts used.* Root.*Traditional uses.* Leucorrhoea, dysentery, neuralgia, menostasis, sputum remedy, emmenagogue.*Description.* Herbaceous climbing vine, to 2m tall. Leaves opposite, pinnately compound; leaflets 5-7, ovate, acuminate at apex, rounded at base, entire, glabrous. Flowers in axillary panicles, white, fragrant, opening flat; sepals petaloid, 4-5, 1-2 cm long, obovate-elliptic, glabrous; petals none; stamens many. Fruit an ovoid achene, with a long feathery style of 2 cm. Jun. - Aug.*Habitat.* Low elevations in mountains.*Distribution.* Korea, northern China.*Bio-Activities.* Antibacterial, antifungal, hypotensive, analgesic, antidiuretic (1), platelet aggregation inhibition (2).*Chemical components.* Clematosides A, A', B, C (3), hederagenin, anemonin (4).*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 328, Oriental Healing Art Institute, Long Beach, CA.
- (2) Yun-Choi, H.S. *et al.* (1986) *Korean J. Pharmacog.* **17**, 19.
- (3) Kochetkov, N.K. *et al.* (1965) *Tetrahedron Lett.* 2201.
- (4) Stamos, I.K. *et al.* (1977) *J. Org. Chem.* **42**, 1703.

*Clematis mandschurica* Rupr.

***Cnidium officinale* Makino****Umbelliferae**

Korean Name: Cheon-gung

English Name: Cnidium

*Parts used.* Rhizome.*Traditional uses.* Women's diseases, anaemia, weakness, pain.

*Description.* Erect perennial herb with thickened root, 30-60 cm tall. Leaves petiolate, long-sheathed at base, 2-pinnately compound; leaflets ovate or lanceolate, incised, sharply serrate. Umbels compound, rather large, with many rays; involucre and involucel bracts 5-6 respectively, linear. Flowers white; calyx-teeth obsolete; petals 5, obovate with an incurved apex; stylopodium elongated-conical. Fruit ovoid-globose; carpels subterete in cross section; ribs thick, obtuse, unwinged. Aug.

*Habitat.* Mostly cultivated.*Distribution.* China, cultivated in Korea.

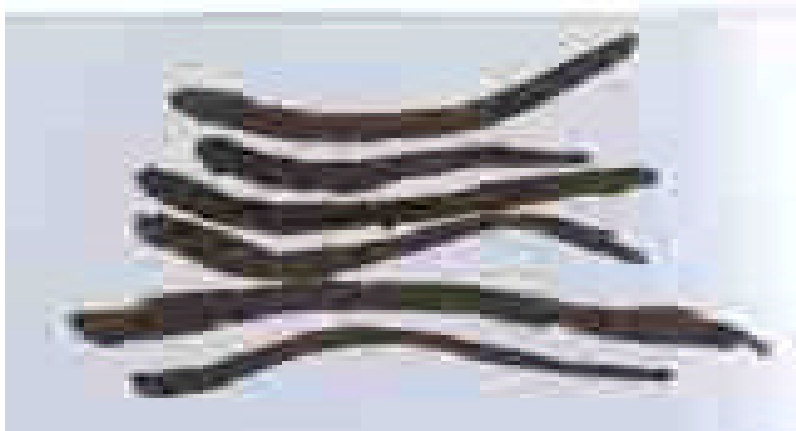
*Bio-Activities.* Vasodilating (1), sedative (2), intestinal blood flow increasing (3), analgesic, anti-inflammatory, antifebrile, antispasmodic (4), antibacterial (5), inotropic effect (6), antioxidant activity (7).

*Chemical components.* Phthalides (8,9): cnidilide, neocnidilide, ligustilide, senkyunolide, butylphthalide, butylidenephthalide. Senkyunolides B- J, pregnenolone, vanillin, coniferyl ferulate, ferulic acid (10).

*References.*

- (1) Matsumoto, S. (1958) Gifu Ikadaigaku Kiyo **6**, 554.
- (2) Kanashima, H. *et al.* (1975) Hokkaido Eisei Kenkyusho **25**, 12.
- (3) Ohmoto, T. *et al.* (1985) Shoyakugaku Zasshi **39**, 28.
- (4) Ka, B. *et al.* (1978) Nippon Yakurigaku Zasshi **74**, 171.
- (5) Kim, C.M. *et al.* (1991) Arch. Pharm. Res. **14**, 87.
- (6) Nakazawa, K. *et al.* (1989) Yakugaku Zasshi **109**, 662.
- (7) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.
- (8) Naito, T. *et al.* (1992) Phytochemistry **31**, 639.
- (9) Ohnishi, A. *et al.* (1987) Agr. Biol. Chem. **51**, 1449.
- (10) Kobayashi, M. *et al.* (1987) Chem. Pharm. Bull. **35**, 1427.

*Cnidium officinale* Makino



***Codonopsis pilosula* (Franch.) Nannf.**

**Campanulaceae**

Korean Name: Man-sam

English Name: Bonnet bellflower

*Parts used.* Root.

*Traditional uses.* Fatigue, diarrhoea, vomiting, nourishing.

*Description.* Twining perennial herb, to 2 m tall, with tuberous root 30 cm long, herbage strong-smelling when crushed. Leaves alternate, opposite on short stem, simple, ovate, 1-5 cm long, 1-3.5 cm wide, obtuse at base, pilose. Flowers solitary on elongate, naked peduncles; calyx 5-lobed, the lobes leaflike; corolla rotate to campanulate, 5lobed, pale greenish, flushed purple apically, 2.5 cm long, 1.5 cm across; stamens 5. Fruit capsule, 2.5 cm across. Aug.

*Habitat.* Mountain woods.

*Distribution.* Korea, northern China.

*Bio-Activities.* Haematopoietic effect (1).

*Chemical components.* Saponins (1). Steroids, triterpenes (2). Furfural derivatives (3).

*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 3916, Shanghai Sci. Tech., Jap. Transl.
- (2) Wong, M.P. *et al.* (1983) *Planta Med.* **49**, 60.
- (3) Lee, I.R. (1978) *Yakhak Hoeji* **22**, 1.

*Codonopsis pilosula* (Franch.) Nannf.



***Cornus officinalis* Siebold et Zucc.****Cornaceae**

Korean Name: San-soo-yoo

English Name: Japanese cornelian cherry

*Parts used.* Pseudocarp.*Traditional uses.* Spermatorrhoea, impotence, enuresis, liver protection.

*Description.* Deciduous shrub to 7 m tall. Branches glabrous, terete. Leaves simple, entire, opposite, ovate, oblong or ovate-lanceolate, 4-12 cm long, 2.5-6 cm wide, acuminate with obtuse tip, rounded at base, with tufts of brown hairs in axils of veins beneath; petioles 5-15 mm long, pubescent. Inflorescence umbels to 2 cm across, 20-30 flowered, short-pedunculate; involucral bracts 4, falling early, 6-8 mm long, elliptic, acute. Flowers yellow, appearing before leaves, bisexual, 4-merous, small, 4-5 mm across; pedicels about 1 cm long, loosely appressed-pilose. Fruit a 2-celled, 2-seeded drupe, oblong, 1.5-2 cm long, red. Mar. - Apr. Fruit ripening in Aug.

*Habitat.* Mainly cultivated for ornamental purposes and for fruit.*Distribution.* Korea, China.

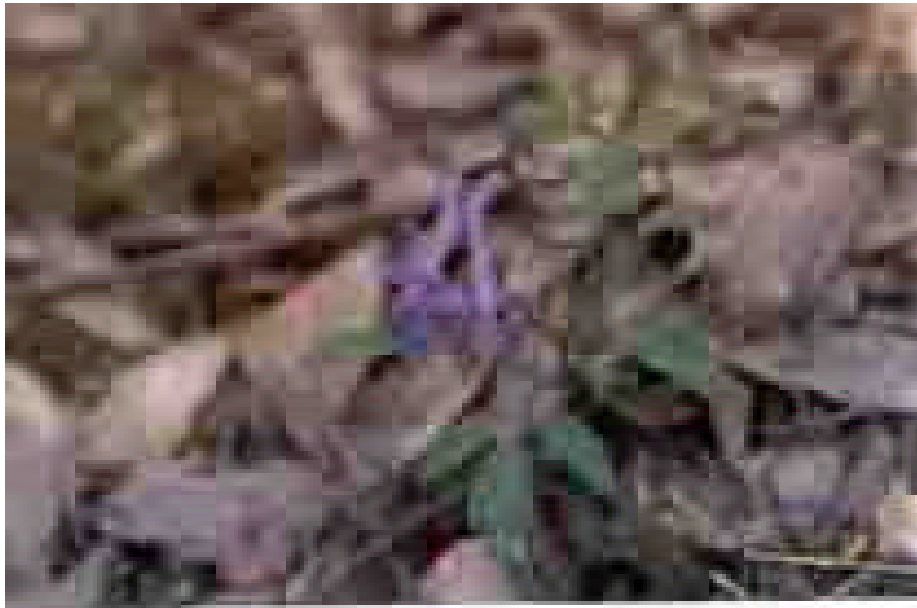
*Bio-Activities.* Improvement of experimental diabetes (1), antihistaminic, CNS-depressing (2), antibacterial (3), DNA polymerase inhibition, RNA reverse transcriptase inhibition (4).

*Chemical components.* Iridoids (5): morroniside, loganin, sweroside. Tannins (6), lectins (7).

*References.*

- (1) Yamahara, J. (1981) Yakugaku Zasshi **101**, 86.
- (2) Ito, T. (1961) Nippon Yakurigaku Zasshi **57**, 15.
- (3) Choe, T.Y. (1986) Kor. J. Pharmacog. **17**, 302.
- (4) Ono, K. *et al.* (1989) Chem. Pharm. Bull. **37**, 1810.
- (5) Endo, T. *et al.* (1973) Yakugaku Zasshi **93**, 30.
- (6) Okuda, T. *et al.* (1984) Chem. Pharm. Bull. **32**, 4662.
- (7) Chung, S. R. (1993) Kor. J. Pharmacog. **24**, 177.

*Cornus officinalis* Siebold et Zucc.

***Corydalis ternata* Nakai****Papaveraceae**

Korean Name: Deul-hyun-ho-sag

English Name: Three-leaf corydalis

*Parts used.* Tuber.*Traditional uses.* Pain, menorrhagia, headache, abdominal pain.*Description.* Glabrous, perennial herb with globose tuber. Rhizomes spreading horizontally underground to form small tubers. Stems branched at base, 15 cm tall. Leaves alternate, ternately divided; petioles long, but becoming shorter for upper leaves; leaflets elliptic, ovate or obovate, 8-20 mm long, 3-16 mm wide, incisedly serrate, green above, bluish-grey beneath. Inflorescence terminal racemose, bracteate; bracts oblanceolate, 1 cm long, 3 mm wide, leaflike, but entire, becoming smaller as going up. Flowers pedicelled, 15-18 mm long, rose-purple. Apr.*Habitat.* Fields and low mountain slopes.*Distribution.* Korea.*Bio-Activities.* Antioxytotic, spasmolytic (1), platelet aggregation inhibition (2).*Chemical components.* No phytochemistry conducted.*References.*(1) Lee, E.B. and Lee, Y.S. (1991) Kor. J. Pharmacog. **22**, 246.(2) Yun-Choi, H.S. *et al.* (1986) Kor. J. Pharmacog. **17**, 19.*Corydalis ternata* Nakai



***Crataegus pinnatifida* Bunge**

**Rosaceae**

Korean Name: San-sa

English Name: Hawthorn, thorn, thorn apple

*Parts used.* Fruit.

*Traditional uses.* Abdominal distension, pain, diarrhoea, induce menstruation.

*Description.* Thorny, deciduous, small tree, to 6 m tall. Branchlets glabrous, with stout spines. Leaves alternate, triangular-ovate, 5-10 cm long, pinnately 5-9 lobed; the lobes obtuse, slightly toothed on upper margin, dark green above, lustrous on both sides; petiole 2-6 cm long; stipules serrate. Flowers few, white, in corymbs, 5-8 cm across; sepals and petals 5; stamens 20, anthers red. Fruit a small pome with 5 or fewer 1-seeded nutlets, light red, finely dotted, to 2 cm long, ripening in Sep. - Oct. May.

*Habitat.* Mountain woods.

*Distribution.* Korea, northern China, east Siberia, cultivated in Japan.

*Bio-Activities.* Digestive, antibacterial, vasodilating, hypotensive, cholesterol level lowering activities (1), platelet aggregation inhibition (2).

*Chemical components.* Amygdalin, quercetin, chlorogenic acid (3), ursolic acid, crataegalic acid, tartaric acid, citric acid (4), sexangularetin (5).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 727 Oriental Healing Art Institute, Long Beach, CA.
- (2) Yun-Choi, H.S. *et al.* (1985) J. Nat. Prod. **48**, 363.
- (3) Ohmoto, T. *et al.* (1978) Chem. Pharm. Bull. **26**, 1437.
- (4) Nishizawa, M. *et al.* (1988) Chem. Pharm. Bull. **36**, 87.
- (5) Nakajima, H. *et al.* (1984) Yakugaku Zasshi **104**, 157.

*Crataegus pinnatifida* Bunge

***Cynanchum ascyrifolium* Matsumura****Asclepiadaceae**

Korean Name: Min-baek-mee-kot

English Name: Cruel plant, Mosquito plant

*Parts used.* Root.*Traditional uses.* Antipyretic, diuretic.

*Description.* Erect, crisped-hairy herb, 30-60 cm tall. Leaves opposite, green above, paler beneath, oblong, elliptic, or ovate, 8-15 cm long, 4-8 cm wide, acuminate to short-acuminate; petioles 1-2 cm long. Inflorescence terminal and in upper axils, pedunculate, few-branched; pedicels 1-3 cm long. Calyx segments broadly lanceolate; corolla white, 15 mm across, the lobes narrowly ovate, 8-10 mm long, glabrous on both surfaces; coronalobes ovate-deltoid, slightly shorter than the gynostegium. Follicles broadly lanceolate, glabrous, 4-6 cm long, 8 mm wide. May - Jul.

*Habitat.* Thickets in hills and mountains.*Distribution.* Korea, Japan, northern China.*Bio-Activities.* No activities reported.

*Chemical components.* Related plant, *C. atratum* Bunge contains: Atratogenin A, B, cynajapogenin A (1), cynatratosides A, B, C, D, E, glaucogenin A, C (2,3,4), atratosides A, B, C, D (1).

*References.*

- (1) Zhang, Z.X. *et al.* (1988) *Phytochemistry* **27**, 2935.
- (2) Zhang, Z.X. *et al.* (1985) *Chem. Pharm. Bull.* **33**, 1507.
- (3) Nakagawa, T. *et al.* (1983) *Chem. Pharm. Bull.* **21**, 870.
- (4) Nakagawa, T. *et al.* (1982) *Tetrahedron Lett.* **23**, 757.

*Cynanchum ascyrifolium* Matsumura



***Cynanchum wilfordii* (Maxim.) Hemsl.**

**Asclepiadaceae**

Korean Name: Keun-jo-rong

English Name: Wilford's cynanchum

*Parts used.* Root.

*Traditional uses.* Tonic, scrofula, cold knee.

*Description.* Glabrous, scandent, perennial herb, 1-3 m tall. Leaves opposite, deltoid, 5-10 cm long, 4-8 cm wide, deeply cordate, entire, petiolate. Inflorescence axillary umbels; peduncles 1-4 cm long; pedicels 5-8 mm long. Flowers pale yellow-green; calyx lobes 5, broadly lanceolate, acuminate; corolla 5-lobed, 3 mm long, incurved, puberulent inside. Follicles lanceolate, 8 cm long, 1 cm wide. Jul. - Aug.

*Habitat.* Open grassy slopes on mountains and hills.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Hepatoprotective activity (1).

*Chemical components.* Sarcostine-, deacylcynanchogenin-, deacylmetaplexigenin-cymarosides, wilforine, cynamoyl-tigloylsarcostine, kidjoranin, caudatin, penupogenin (2,3,4), wilforibose, wilfosides (5,6,7).

*References.*

- (1) Shin, M.-K. (1985) Kor. J. Pharmacog. **16**, 81.
- (2) Mitsuhashi, H. *et al.* (1966) Chem. Pharm. Bull. **14**, 712.
- (3) Mitsuhashi, H. *et al.* (1972) Chem. Pharm. Bull. **20**, 2065.
- (4) Mitsuhashi, H. *et al.* (1975) Chem. Pharm. Bull. **23**, 139.
- (5) Tsukamoto, S. *et al.* (1984) Tetrahedron Lett. **25**, 3595.
- (6) Tsukamoto, S. *et al.* (1985) Tetrahedron Lett. **41**, 927;
- (7) Tsukamoto, S. *et al.* (1985) Chem. Pharm. Bull. 2294.



*Cynanchum wilfordii* (Maxim.) Hemsl.



*Cyperus rotundus* L.

***Cyperus rotundus* L.**

**Cyperaceae**

Korean Name: Hyang-boo-ja

English Name: Round cyperus, purple nut sedge

*Parts used.* Tuber.

*Traditional uses.* Hypochondriac pain and distension, dysmenorrhoea, liver protection, emmenagogue.

*Description.* Perennial herb with rhizomes long and slender. Culms erect, slender, 20-40 cm long, leafy only at base, the base enlarged and covered with brown fibres. Leaves 2-6 mm wide, linear, sheathing at base. Inflorescence simple or compound corymbs, with 1-7 rays; bracts 2-3, as long as inflorescence; spikelets spreading, 1.5-3 cm long, 1.5-2 mm wide, 20-40 flowered; scales narrowly ovate, ascending, 3-3.5 mm long. Achenes oblong, dark brown. Jul. - Aug.

*Habitat.* Sunny places near streams and seashores, sandy soil.

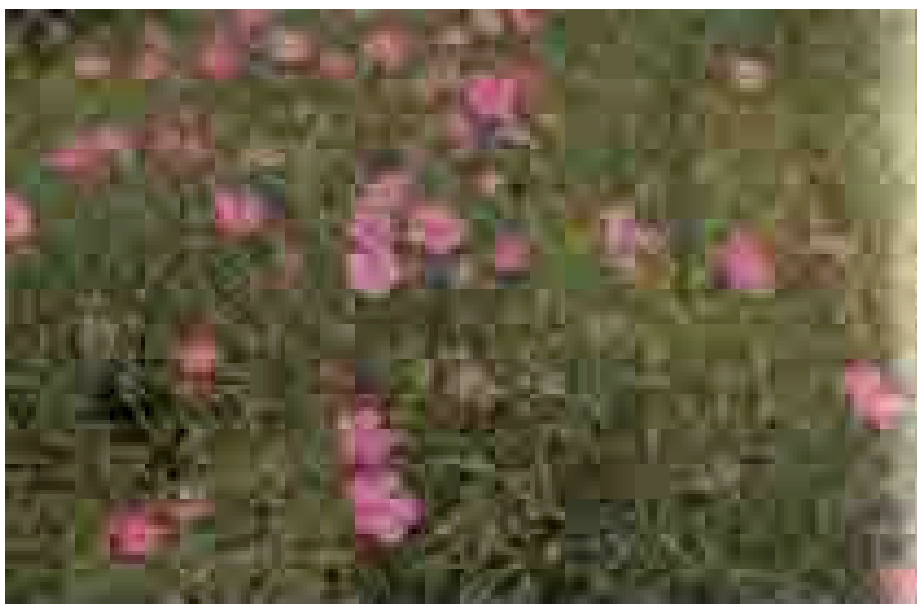
*Distribution.* Almost cosmopolitan.

*Bio-Activities.* Inhibition of prostaglandin biosynthesis (1), antibacterial (2), aldose reductase inhibition (3), anti-inflammatory (4), antimalarial (5).

*Chemical components.* Essential oil; various sesquiterpenes as cyperene, cyperol, isocyperol, cyperotundone, sugeonol, sugetriol, kobusone, isokobusone, patchoulone (2). Tannins; leucocyanidin, leucocyanidin glucoside (3).

*References.*

- (1) Kivchi, F. *et al.* (1983) Chem. Pharm. Bull. **31**, 3391.
- (2) Choe, T.Y. (1986) Kor. J. Pharmacog. **17**, 302.
- (3) Shin, K.H. *et al.* (1993) Fitoterapia **64**, 130.
- (4) Gupta, M.B. *et al.* (1971) Ind. J. Med. Res. **59**, 76.
- (5) Thebtaranonth, C. *et al.* (1995) Phytochemistry **40**, 125.
- (6) Hikino, H. *et al.* (1976) Phytochemistry **15**, 1265.
- (7) Komai, K. *et al.* (1975) Zasso Kenkyu **20**, 66.



*Dianthus chinensis* L.

***Dianthus chinensis* L.**

**Caryophyllaceae**

Korean Name: Pae-raeng-ee-kot

English Name: Rainbow pink

*Parts used.* Herb.

*Traditional uses.* Diuretic, menostasis, gonorrhoea, cough, emmenagogue.

*Description.* Short-lived perennial herb. Stems 30 cm tall, erect, internodes shorter than leaves. Leaves opposite, often united at the base and forming a sheath about the stem; the nodes usually swollen, basal leaves withering early; stem leaves 3-8 cm long, rarely to 0.5 cm wide, ciliate, sheath 0.5 cm long. Inflorescence few-15 flowered, loosely clustered, epicalyx scales 4, abruptly contracted into a long point. Flowers solitary at terminals, 2 cm across, not fragrant, rosy-lilac with purplish eye; calyx tubular, 5-toothed, many-nerved, subtended by an epicalyx; petals 5, limb abruptly attenuated into an elongated claw, many-toothed, fimbriate with dark spot close to the tip; stamens 10; ovary 1-celled; styles 2. Fruit a 4 valved capsule, cylindrical, oblong-ovoid; seeds many. Jun. - Aug.

*Habitat.* Open grassy places.

*Distribution.* Korea, China, cultivated in Japan.

*Bio-Activities.* Diuretic, hypotensive, anthelmintic, increasing peristalsis of intestine (1), antitumour (2), antioxidant activity (3).

*Chemical components.* Eugenol, phenylethylalcohol (1), melosides A and L (4), dianchinenosides A, B (5), C, D (6).

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 283, Oriental Healing Art Institute, Long Beach, CA.
- (2) Kosuge, T. *et al.* (1985) *Yakugaku Zasshi* **105**, 791.
- (3) Kim, S.Y. *et al.* (1994) *J. Amer. Oil Chem. Soc.* **71**, 633.
- (4) Monities, B. *et al.* (1976) *Phytochemistry* **15**, 1053.
- (5) Li, H. Y. *et al.* (1993) *J. Nat. Prod.* **56**, 1065.
- (6) Li, H. Y. *et al.* (1994) *Phytochemistry* **35**, 751.



*Dictamnus dasycarpus* Turcz.

***Dictamnus dasycarpus* Turcz.**

**Rutaceae**

Korean Name: Bag-sun

English Name: Dittany, fraxinella, gas plant, burning bush

*Parts used.* Root bark.

*Traditional uses.* Carbuncle, rashes.

*Description.* Strong-smelling, hardy perennial herb with thick root, to 90 cm tall. Leaves alternate, pinnate; leaflets 9-11, to 7 cm long, ovate, serrulate, glandular-dotted. Flowers about 2 cm long, 2.5 cm across, light red, in terminal racemes, irregular; pedicel 0.5-2 cm, glandular hairs; sepals and petals 5; stamens 10, curved upward. Fruit a deeply 5-lobed capsule. May - Jun.

*Habitat.* Mountain slopes.

*Distribution.* Korea, China.

*Bio-Activities.* Mutagenic (1), vasorelaxant (2), plaque formation suppressant effects (3).

*Chemical components.* Fraxinellone, obaculactone, obacunone, dictamnolides. Alkaloids: dictamnines, skimmianines, isomaculosidine, preskimmianine, robustine, haplopine (4). Sesquiterpene: dictamnol (5).

*References.*

(1) Mizuta, M. *et al.* (1985) *Mutation Res.* **144**, 221.

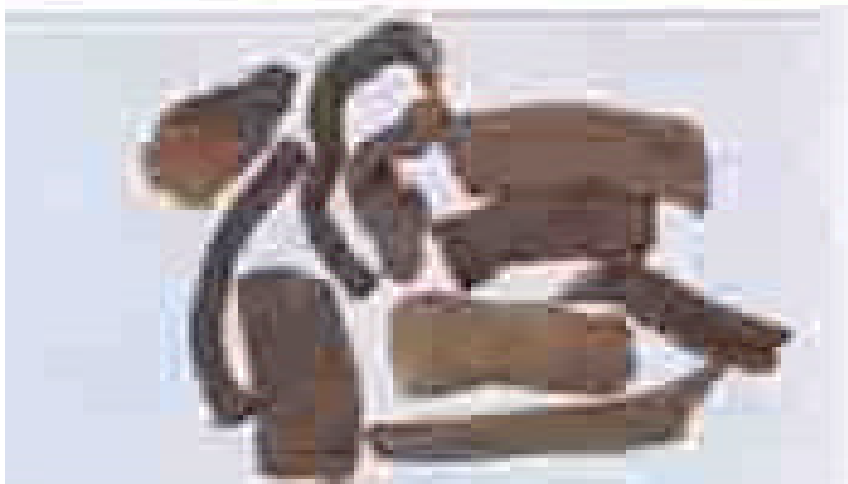
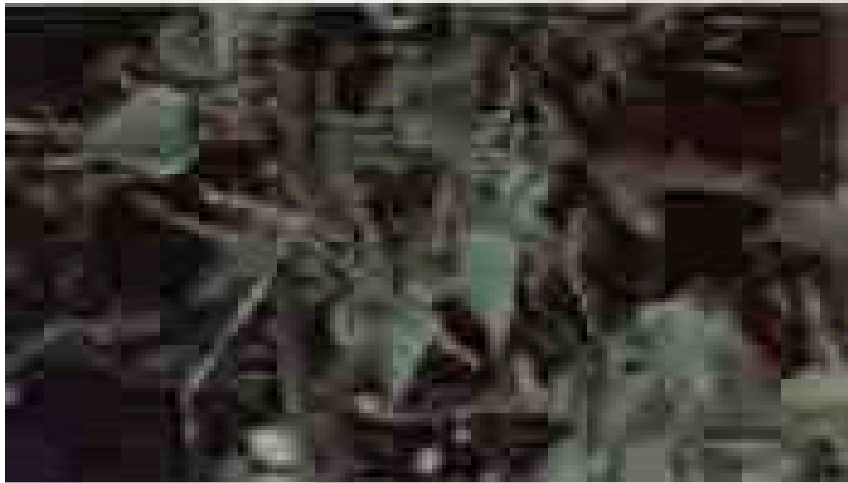
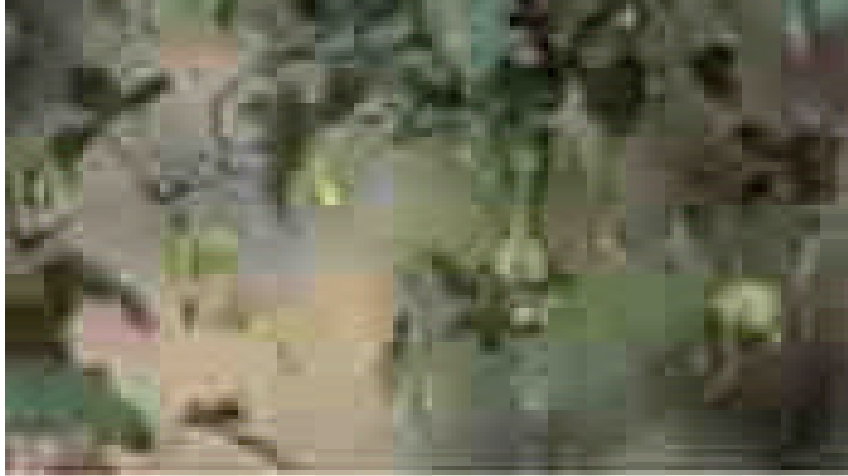
(2) Yu, S.M. *et al.* (1992) *Naunyn-Schmiedeberg's Arch. Pharmacol.* **345**, 349.

(3) Namba, T. *et al.* (1984) *Shoyakugaku Zasshi* **38**, 253.

(4) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 186, Oriental Healing Art Institute, Long Beach, CA.

(5) Takeuchi, N. *et al.* (1993) *Chem. Pharm. Bull.* **41**, 923.



***Dioscorea batatas* Decne.****Dioscoreaceae**

Korean Name: Ma

English Name: Chinese yam, cinnamon vine

*Parts used.* Rhizome.*Traditional uses.* Weakness, dyspepsia, furuncle, diarrhoea.

*Description.* Scandent, perennial, dioecious herb. Tuberous roots to 1 m long, cylindrical or flabellate, deep in ground. Stems long, climbing, twining clockwise, slightly angled, bearing small axillary tubers late in season. Leaves opposite, long-petiolate, deltoid-ovate, acuminate, broadened into 2 lobes at base, purplish on petioles and nerves; bulbils in axils. Inflorescence in spikes, 1-3 in leaf axils. Flowers small, unisexual, sessile; the staminate erect, many-flowered, stamens 6; the pistillate pendulous, few-flowered. Fruit capsules broad than long; seeds encircled by 3 wings. Jun. - Jul.

*Habitat.* Woody areas on mountain slopes.*Distribution.* Korea, China, Japan.*Bio-Activities.* Blood sugar lowering (1,2), nutritive (3), antibacterial (4).*Chemical components.* Glycoproteins, saponins, starch, arginine, choline, sterols, allantoin, mannan (5), mucilages (6). Steroids (7).*References.*

- (1) Hikino, H. *et al.* (1986) *Planta Med.* **52**, 168;
- (2) Tomoda, M. *et al.* (1987) *Planta Med.* **53**, 8.
- (3) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 526, Oriental Healing Art Institute, Long Beach, CA.
- (4) Choe, T.Y. (1986) *Kor. J. Pharmacog.* **17**, 302.
- (5) Tomoda, M. *et al.* (1981) *Chem. Pharm. Bull.* **29**, 3256.
- (6) Han, Y.N. *et al.* (1990) *Kor. J. Pharmacog.* **21**, 274.
- (7) Park, H.S. *et al.* (1994) *Clin. Exp. Aller.* **24**, 575.

*Dioscorea batatas* Decne.



*Dryopteris crassirhizoma* Nakai

***Dryopteris crassirhizoma* Nakai**

**Polypodiaceae**

Korean Name: Gwan-joong

English Name: Crown wood-fern

*Parts used.* Rhizome.

*Traditional uses.* Parasiticide (tapeworm and hookworm).

*Description.* Perennial fern, with rhizomes short and stout. Fronds deciduous; blades oblanceolate to broadly oblanceolate, 40-100 cm long, 15-25 cm wide, acuminate, bipinnate; pinnae many, herbaceous, linear-lanceolate, 15-30 mm wide, acuminate, sessile; pinnules narrowly oblong, 2.5-5 mm wide, obtuse, crenate. Sori dorsal on veins, in 2 rows on lower half of pinnules, round; indusia orbicular-reniform, 1.2 mm across, attached by the inner end of the sinus.

*Habitat.* Shaded and damp places in forests.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Anthelmintic action (1).

*Chemical components.* Aspidinol, aspidin, albaspidine, filmalone, filicinic acid, filicin, filicic acid (1). Flavaspidic acid (2,3), dryocrassin ABBP (4), dryocrassin (5), dryocrassol, diplopterol (6,7), norhopane derivatives (8).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 743, Oriental Healing Art Institute, Long Beach, CA.
- (2) Penttila, A. *et al.* (1964) Acta Chem. Scand. **18**, 344.
- (3) Lounasmaa, M. *et al.* (1978) Planta Med. **33**, 173.
- (4) Widen, C. *et al.* (1980) J. Chromatogr. **188**, 213.
- (5) Nora, Y. *et al.* (1973) Phytochemistry **12**, 1491.
- (6) Ageta, H. *et al.* (1975) Tetrahedron Lett. 3297.
- (7) Shiojima, K. *et al.* (1990) Phytochemistry **29**, 1079.
- (8) Shiojima, K. *et al.* (1994) Chem. Pharm. Bull. **42**, 377.



*Echinops setifer* Iljin

***Echinops setifer* Iljin**

**Compositae**

Korean Name: Jeol-good-dae

English Name: Globe thistle

*Parts used.* Root.

*Traditional uses.* Antidote, menostasis, emmenagogue.

*Description.* Perennial herb, to 1 m tall, branched above; the whole plant covered with whitish hair. Leaves alternate; radical leaves long-petiolate, deeply pinnately dissected, margins prickly; stem leaves sessile, long elliptic, 15-25 cm long, pinnately dissected 5-6 times. Heads of 1 flower within its own involucre; the outer involucre bracts bristlelike; the inner bracts linear; the individual heads aggregated into a dense globose compound head subtended by a small, common, reflexed involucre. Flowers all tubular, bluish purple. Achenes 4-angled, hairy, pappus of many inconspicuous scales. Jul. - Aug.

*Habitat.* Open grassy areas.

*Distribution.* Korea.

*Bio-Activities.* Weak antitumour (1).

*Chemical components.* Echinopsine (2).

*References.*

(1) Woo, W.S. *et al.* (1979) Arch. Pharm. Res. **2**, 127.

(2) Li, H.L. *et al.* (1970) Lloydia **335**, 1.



*Eclipta prostrata* L.

***Eclipta prostrata* L.**

**Compositae**

Korean Name: Han-ryun-cho

English Name: Eclipta

*Parts used.* Herb.

*Traditional uses.* Eruption, enterohaemorrhage, leucorrhoea, dysentery.

*Description.* Erect strigose-pilose annual herb, 10-60 cm tall. Leaves opposite, lanceolate, 3-10 cm long, 5-25 mm wide, acuminate, sessile or short-petiolate, serrulate, densely strigose-pilose on both sides. Heads terminal on stems and branches or axillary, 1 cm across, with pedicel 2-4.5 cm long; involucre campanulate, 5 mm long, 6-7 mm across; phyllaries 5-6, green oblong. Ray flowers white, 2.5-3 mm long, 0.4 mm wide, fertile. Disc flowers bisexual, fertile, white, 4-lobed; anthers very shortly bifid at base. Achenes 2.8 mm long, 3-angled in ray flowers, compressed and 4-angled in disc florets. Aug. - Sep.

*Habitat.* Wet places in fields or lowlands.

*Distribution.* Korea, China, Japan.

*Bio-Activities.* Antidote for snake venom (1), antihepatotoxic (2), anti-inflammatory (2).

*Chemical components.* Ecliptine, wedelactones (3,4), thiophene-derivatives (5).

*References.*

- (1) Mars, W. (1992) *Toxicon* **30**, 1131.
- (2) Wagner, H. *et al.* (1986) *Planta Med.* **5**, 370, 374.
- (3) Bhargava, K.K. *et al.* (1970) *Ind. J. Chem.* **8**, 664.
- (4) Bhargava, K.K. *et al.* (1972) *Ind. J. Chem.* **10**, 810.
- (5) Krishnaswamy, N.R. *et al.* (1966) *Tetrahedron Lett.* 4227.

***Eleutherococcus sessiliflorus*****Araliaceae****(Rupr. et Maxim.) S.Y.Hu**

Korean Name: O-gal-pee

English Name: Acanthopanax

*Parts used.* Bark.*Traditional uses.* Lumbago, neuralgia, arthritis, oedema.

*Description.* Deciduous shrub, to 34 m tall. Stems with gray-brown branchlets, several arising from the base, hardly armed. Leaves alternate, palmately compound; leaflets 3-5, central one largest, to 15 cm long, obovate, acuminate apices, acute bases, acutely double-toothed, dark-green above, pubescent beneath on veins only; petioles 3-6 cm long. Inflorescence terminal on the new shoots with headlike umbels, globose. Flowers purplish, sessile; styles connate the full length, slightly bifid at apex. Fruit ellipsoidal, 10-14 mm long, 3-4 mm in diameter, black. Aug. - Sep.

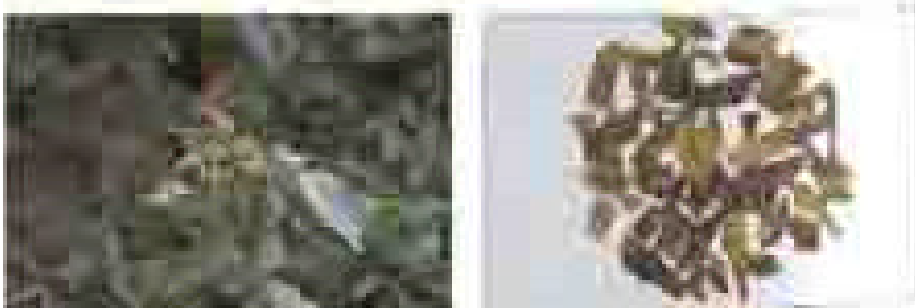
*Habitat.* Mountain woods.*Distribution.* Korea, northern China.

*Bio-Activities.* Anti-inflammatory and antioedemic (1), analgesic, antipyretic, hypotensive, adaptogenic, lipid lowering (2), antimutagenic effects (3).

*Chemical components.* Root: acanthosides A, B, D (lignan-glycosides), cardiac glycosides, saponins, acidic polysaccharides (4). Seed; fatty acids, myristic acid, palmitic acid, sterols, stigmasterol, etc. (5).

*References.*

- (1) Cherkasin, G.V. (1966) Stimulatory Tsentl. Nerv. Syst. 91.
- (2) Yang, Y. et al. (1987) Huan Yixueyuan Xuebo **12**, 217.
- (3) Chung, K.C. et al. (1988) Yakhak Hoeji **32**, 14
- (4) Kimura, T. et al., Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 110, World Sci. Pub. Co., Singapore.
- (5) Kim, C.W. and Kim, S.K. (1987) Kor. J. Pharmacog. **18**, 184.

*Eleutherococcus sessiliflorus*

***Elsholtzia ciliata* (Thunb.) Hylander****Labiatae**

Korean Name: Hyang-yoo

English Name: Elsholtzia

*Parts used.* Herb.*Traditional uses.* Fever, headache, diarrhoea, oedema.

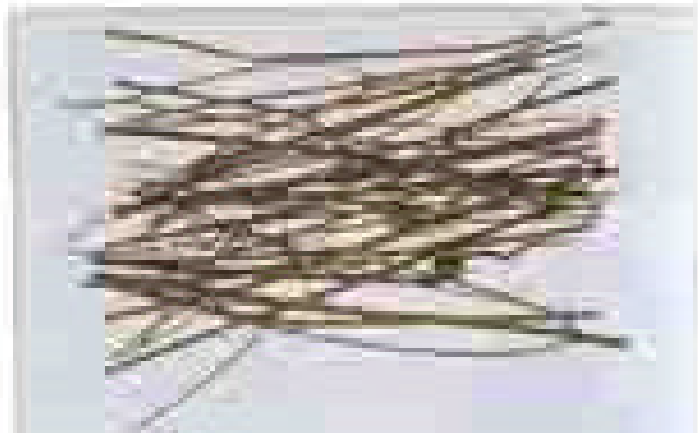
*Description.* Erect annual herb with stems 4-angled and slightly pubescent, to 30-60 cm. Leaves opposite, membranaceous, ovate, 3-10 cm long, 1-6 cm wide, acuminate with obtuse tip, cuneate at base, toothed, pubescent on both sides; petioles 0.5-2 cm long. Inflorescences terminal on branches, spike-like, cylindrical, 5-10 cm long, 7-8 mm across; floral bracts persistent, ovate, dense, purplish. Flowers 5 mm long; calyx 5-lobed; corolla small, tube as long as calyx, pale rose, limb 4-lobed, subbilabiate, the upper lip erect, retuse, the lower lip spreading; stamens 4, exserted, the lower pair longer. Nutlets ovate to oblong, 1 mm long, slightly flattened. Aug. - Sep.

*Habitat.* Grassy areas in mountains.*Distribution.* Korea, Japan, China, naturalized in Europe.*Bio-Activities.* Diuretic and antipyretic (1).

*Chemical components.* Essential oil, elscholtzia ketone (1,2), flavonoids, steroids, triterpenes (3).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 51, Oriental Healing Art Institute, Long Beach, CA.
- (2) Chi, H.J. *et al.* (1992) Kor. J. Pharmacog. **23**, 77.
- (3) Isobe, T and Noda, Y. (1992) Nippon Kagaku Kasshi **4**, 423.

*Elsholtzia ciliata* (Thunb.) Hylander



*Elsholtzia splendens* Nakai et F.Maek.

***Elsholtzia splendens* Nakai et F.Maek.**

**Lamiaceae**

Korean Name: Kot-hyang-yoo

English Name: Shiny elsholtzia

*Parts used.* Herb.

*Traditional uses.* Fever, headache, diarrhea, oedema.

*Description.* Erect annual herb to 60 cm. Stems branched, 4-angled and slightly pubescent. Leaves opposite, membranaceous, ovate, 1-7 cm long, 0.8-4 cm wide, apex acute, base cuneate, attenuate into petiole, acute serrate, pubescent on both sides, especially dense on nerves, lower surface glandular dotted. Spikes terminal and axillary, 25 cm long; floral bracts persistent, ovate, dense, purplish. Flowers 6 mm long; calyx 5-lobed; corolla small, tube as long as calyx, pale rose, limb 4-lobed, subbilabiate, the upper lip erect, retuse, the lower lip spreading; stamens 4, exserted, the lower pair longer. Nutlets ovate to oblong. Sep. - Oct.

*Habitat.* Grassy areas in mountains.

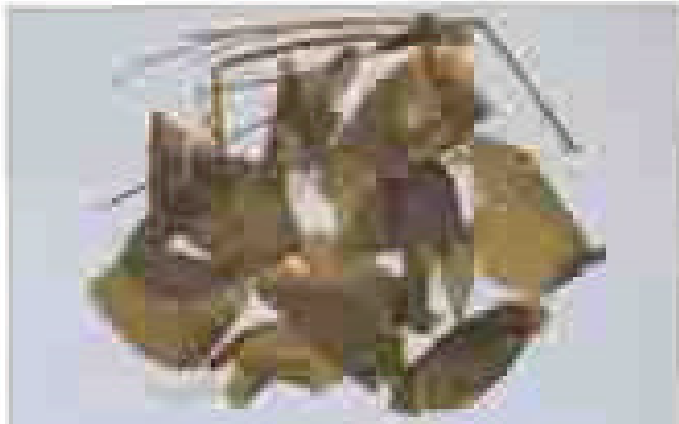
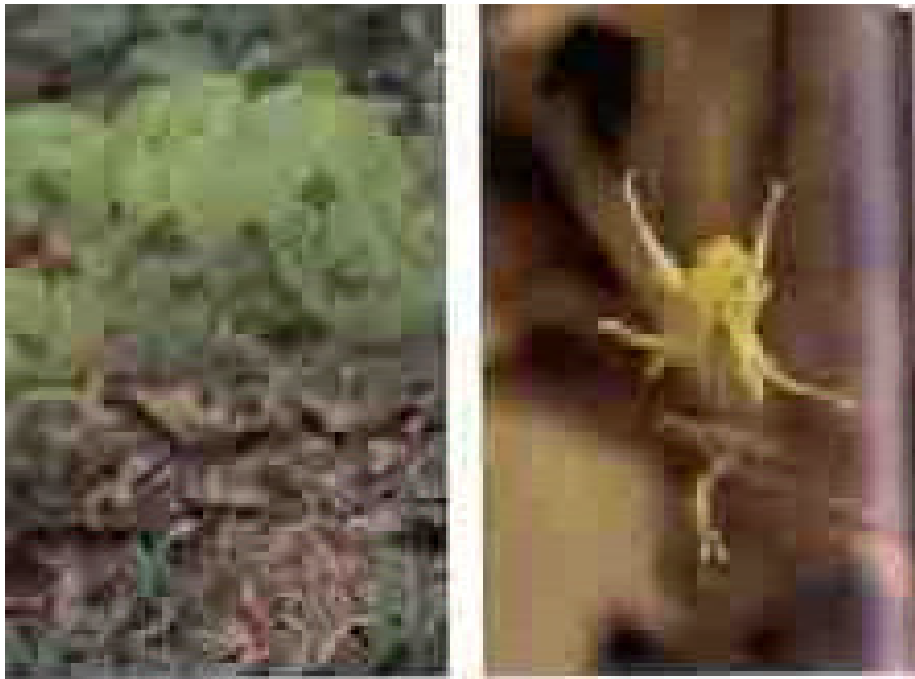
*Distribution.* Korea, northern China.

*Bio-Activities.* Unknown.

*Chemical components.* Thymol (1,2), -phellandrene (2), -bisabolene (3), -trans-bergamotene (4), monoterpenes and sesquiterpenes (5,6).

*References.*

- (1) Schulte, K.E. *et al.* (1963) Arch. Pharm. (Weinheim, Ger.) **296**, 353.
- (2) Okugawa, H. *et al.* (1987) Shoyakugaku Zasshi **41**, 108.
- (3) Mazza, G. (1985) J. Chromatogr. **328**, 179.
- (4) Larsen, S.D. *et al.* (1977) J. Am. Chem. Soc. **99**, 8015.
- (5) Zhu, G.P. (1992) Yao Hsueh Hsueh Pao **27**, 287.
- (6) Li, Z.W. and Zhou, T.H. (1983) Yao Hsueh Hsueh Pao **18**, 363.



*Epimedium koreanum* Nakai

***Epimedium koreanum* Nakai**

**Berberidaceae**

Korean Name: Sam-ji-goo-yeop-cho

English Name: Korean epimedium

*Parts used.* Herb.

*Traditional uses.* Impotence, spermatorrhoea, forgetfulness.

*Description.* Low, rhizomatous perennial herb, to 30 cm tall. Rhizome creeping, covered with many filiform roots. Base of stems surrounded with scale-like leaves. Leaves alternate, long-petiolate, ternately divided twice; leaflets ovate, acuminate, cordate, 5-13.5 cm long, 1.5-7 cm wide, with margin setose. Flowers small, pale yellowish; sepals 8, the outer 4 unequal, in 2 pairs, soon falling, the inner 4 petaloid, reflexed at flowering time; petals 4, extended into spurs; stamens 4, ovary with several ovules. Follicles 10-13 mm long, 5-6 mm across. Apr.

*Habitat.* Wet areas in forests and mountain valleys.

*Distribution.* Korea.

*Bio-Activities.* Aldose reductase inhibition (1), nerve fibre induction (2).

*Chemical components.* Icarin, O-methyl-icariin, icaritin-rhamnoside-glucoside and icariresinol (3). Flavonoids: anhydroicaridin-3-O-rhamnoside (4), 2"-O-rhamnosyl ikarisoside A, 2"-O-rhamnosyl icaridin II (5), epimedokoreanin D (6). Phytosterols: campesterol, campesterol 3-O-D-glucopyranoside (7).

*References.*

- (1) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (2) Park, M.J. *et al.* (1984) *Kor. J. Pharmacog.* **20**, 32.
- (3) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 564, Oriental Healing Art Institute, Long Beach, CA.
- (4) Kang, S.S. *et al.* (1988) *Kor. J. Pharmacog.* **19**, 93.
- (5) Kang, S.S. *et al.* (1991) *J. Nat. Prod.* **54**, 542.
- (6) Li, W.K. *et al.* (1996) *Yao Huseh Huseh Pao* **31**, 29.
- (7) Kang, S.S. *et al.* (1990) *Kor. J. Pharmacog.* **21**, 56.





*Equisetum hyemale* L.

***Equisetum hyemale* L.**

**Equisetaceae**

Korean Name: Sok-sae

English Name: Common horsetail, common scouring rush

*Parts used.* Herb.

*Traditional uses.* Affecting the eyes, causing redness, pain.

*Description.* Primitive, spore-bearing, vascular perennial, rhizomatous herb, to 1 m tall. Stems slender, hollow, furrowed with 14-40 ridges, rough, jointed, impregnated with silica, branches whorled. Leaves scalelike, marginally united into a sheath around each node. Sporophylls in a terminal, spikelike strobilus composed of peltate sporangia-bearing structure.

*Habitat.* Shaded and wet sandy places in ravines and valleys.

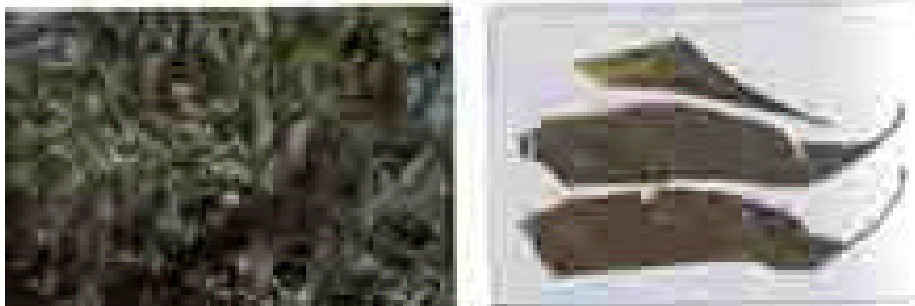
*Distribution.* Nearly cosmopolitan distribution except in Australia and New Zealand.

*Bio-Activities.* Anticancer, diuretic, appetite stimulation (1), antihypertensive (2), toxic effect (3), anti-inflammatory (4), antispasmodic (5).

*Chemical components.* Dimethylsulfone, kaempferol-diglucoside, aconitic acid, palustrine (alkaloid) (2), nicotine (6), caffeic acid, ferulic acid, silicon compound (7).

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 76, Oriental Healing Art Institute, Long Beach, CA.
- (2) Phillipson, J.D. (1960) *J. Pharm. Pharmacol.* 506.
- (3) Kingsbury (1964) *Plants of the U.S. and Canada* 116.
- (4) Han, B.H. *et al.* (1972) *Kor. J. Pharmacog.* 4, 205.
- (5) Woo, W.S. and Lee, E.B. (1979) *Kor. J. Pharmacog.* 10, 27.
- (6) Hegnauer, R. (1962) *Chemotaxonomie der Pflanzen* 1, 251.
- (7) Hartley, R.D. *et al.* (1972) *J. Exp. Bot.* 23, 637.

***Eriobotrya japonica* (Thunb.) Lindley****Rosaceae**

Korean Name: Bee-pa-na-moo

English Name: Loquat, Japanese medlar, Japanese plum

*Parts used.* Leaf.*Traditional uses.* Diuretic, anticough.

*Description.* Woolly-pubescent coarsely branching tree with stout branches, to 10 m tall. Leaves alternate, broadly oblanceolate to narrowly obovate, 15-24 cm long, 3-5 cm wide, acute, gradually narrowed at base, deep green, deciduous woolly-pubescent above, loosely toothed, sessile to the petioles about 1 cm long; the stipules lanceolate-deltoid. Inflorescence erect terminal spikes, densely flowered, covered with pale-brown hairs. Flowers white, 1 cm across; sepals and petals 5. Fruit globose to pyriform, 3-4 cm across, yellow, ripening in June of the next year; seeds 1-5, dark brown. Oct. - Nov.

*Habitat.* Planted in warm southern areas for the edible fruit.*Distribution.* Japan, China, cultivated in southern parts of Korea.

*Bio-Activities.* Anti-inflammatory, inhibition of histamine induced ileum contraction (1,2), antianaphylactic (3), hypoglycaemic (4), plant antifungal (5).

*Chemical components.* Maslinic acid, maslinic acid methyl ester (1,2), loquatoside (6), hyperoside (7), gibberellins A9, A15, A19, A20, A29, A35, A44, A50, A61 (8,9), euscaphic acid (10), sesquiterpenes, triterpenes.

*References.*

- (1) Kojima, H. *et al.* (1986) *Phytochemistry* **25**, 729.
- (2) Shimizu, M. *et al.* (1986) *Chem. Pharm. Bull.* **34**, 2614.
- (3) Kataoka, M and Takagaki, Y. (1995) *Nat. Med.* **49**, 346.
- (4) Khan, A.H. and Burney, A. (1962) *Pak. J. Med. Res.* **2**, 100.
- (5) Singh, K.V. and Pathak, R.K. (1984) *Fitoterapia* **55**, 318.
- (6) Agrawal. S. *et al.* (1980) *Planta Med.* **38**, 277.
- (7) Jung, K.Y. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 280.
- (8) Kirkwood, P.S. *et al.* (1982) *J. Chem. Soc. Perkin Trans. I.* **689**.
- (9) Koshioka, M. *et al.* (1988) *Agr. Biol. Chem.* **52**, 1353.
- (10) Takahashi, K. *et al.* (1974) *Chem. Pharm. Bull.* **22**, 650.

*Eriobotrya japonica* (Thunb.) Lindley

***Eucommia ulmoides* Oliver****Eucommiaceae**

Korean Name: Doo-choong

English Name: Eucommia

*Parts used.* Bark.

*Traditional uses.* Hypertension, diuretic, spermatorrhoea, pain, abortifacient.

*Description.* Deciduous, dioecious tree with lamellate pith, to 20 m tall. Leaves alternate, simple, elmlike, elliptic to oblong-ovate, 5-16 cm long, 2-7 cm wide, serrate, petiolate, almost glabrous on both sides, but short-pilose on veins; petioles 1 cm long, pubescent. Flowers appearing before or with leaves, in lateral clusters, unisexual, without perianth. Male flowers loose in bracteate clusters, pedicellate; anthers 4-10, linear, on very short filaments. Female flowers solitary in axils of bracts or bract-like leaves; ovary 1-celled, flattened; stigma bifid. Fruit 1-seeded, flattened, oblong, winged. Apr.

*Habitat.* Mostly planted in Korea.

*Distribution.* Korea, China.

*Bio-Activities.* Antihypertensive (1), antidiabetic (2), vasodilative, analgesic, anti-inflammatory, diuretic, antifatigue (3), endothelin-I receptor binding (4), immunostimulant (5).

*Chemical components.* Lignan-glycosides (1): pinoresinol-diglucoside, liriodendrin, syringaresinol-glucoside, eucominol, ulmoside (6,7), monoterpenes (8).

*References.*

- (1) Sih, C.J. *et al.* (1976) *J. Am. Chem. Soc.* **98**, 5412.
- (2) Hong, N.D. *et al.* (1987) *Kor. J. Pharmacog.* **18**, 112.
- (3) Hong, N.D. *et al.* (1988) *Kor. J. Pharmacog.* **19**, 102.
- (4) Ohshima, T. *et al.* (1994) *Chem. Pharm. Bull.* **42**, 2174.
- (5) Kinoshita, E. *et al.* (1986) *Shoyakugaku Zasshi* **40**, 325.
- (6) Bianco, A. *et al.* (1974) *Tetrahedron* **30**, 4117.
- (7) Bianco, A. *et al.* (1978) *Gazz. Chim. Ital.* **108**, 17.
- (8) Gewali, M.B. *et al.* (1988) *Shoyakugaku Zasshi* **42**, 247.

*Eucommia ulmoides* Oliver



*Euodia officinalis* Dode

***Euodia officinalis* Dode**

**Rutaceae**

Korean Name: O-soo-yoo

English Name: Euodia

*Parts used.* Fruit.

*Traditional uses.* Gastrointestinal disorder, feeling of chill, pain.

*Description.* Deciduous tree, to 5 m tall. Young branches pubescent. Leaves opposite, odd-pinnately compound; leaflets 7-15, short-petiolulate, ovate to oblong-obvate or long elliptic, acuminate, 7-8 cm long, granular-dotted, pubescent beneath. Flowers small, in terminal or axillary corymbose, 6-11 cm across, pubescent, unisexual; sepals, petals and stamens 5. Fruit splitting 5, 2-valved, 1-2 seeded sections.

*Habitat.* Mostly cultivated in Korea.

*Distribution.* Korea, China.

*Bio-Activities.* Analgesic (1), serotonin antagonism (2), brain dopamine receptor inhibition (3), cardiotonic (4), antihypertensive (5), MDR-modulating activity (6), cytotoxicity (7).

*Chemical components.* Alkaloids (8,9): evodiamine, rutaecarpine, higenamine, dehydroevodiamine.

*References.*

- (1) Yamada, Y. (1957) Gifu Ikadaigaku Kiyo **5**, 269.
- (2) Kinoshita, T. *et al.* (1979) Shoyakugaku Zasshi **33**, 146.
- (3) Sumida, T. (1988) Yakugaku Zasshi **108**, 450.
- (4) Shoji, N. *et al.* (1986) J. Pharm. Sci. **75**, 612.
- (5) Yang, M.C.M. *et al.* (1990) Eur. J. Pharmacol. **182**, 537.
- (6) Lee, S.W. *et al.* (1995) Kor. J. Pharmacog. **26**, 344.
- (7) Park, S.Y. and Kim, Y.W. (1992) Seoul Univ. J. Pharm. Sci. **17**, 1.
- (8) King, C. L. *et al.* (1980) J. Nat. Prod. **43**, 577.
- (9) Kano, Y. *et al.* (1991) Yakugaku Zasshi **111**, 32.



**Euonymus alatus (Thunb.) Siebold**

**Euonymus alatus (Thunb.) Siebold**

**Celastraceae**

Korean Name: Wha-sal-na-moo

English Name: Winged spindle tree

*Parts used.* Twig, bark.

*Traditional uses.* Taenia, cancer, abortifacient, emmenagogue.

*Description.* Deciduous, horizontally spreading, much-branched shrub, to 3 m tall. Branches glabrous, with 2-4 corky wings. Leaves opposite, simple, short-petiolate, elliptic to obovate, 1.5-7 cm long, 1-4 cm wide, glabrous, acuminate, sharply and finely serrate. Flowers greenish, small, about 6 mm across, in axillary cymes, 1 to few flowered on peduncles about 2 cm long, the pedicels short; sepals, petals, and stamens, 4. Fruit a capsule, purplish, seed enclosed in an orange aril. May. Fruit ripening in Oct.

*Habitat.* Mountain woods.

*Distribution.* Korea, Japan, China, Ussuri.

*Bio-Activities.* Hypoglycaemic (1).

*Chemical components.* Sesquiterpene-alkaloids (2): evonine, euonymine, wilfordine, alatamine. Kaempferol-rhamnosyl-xyloside (3), euolatin (4), steroids and triterpenes.

*References.*

- (1) Yoshikawa, K. (1968) Tohoku J. Exp. Med. **96**, 127.
- (2) Shizuri, Y. *et al.* (1973) Tetrahedron Lett. **10**, 741.
- (3) Ishikura, N. *et al.* (1976) Phytochemistry **15**, 1183.
- (4) Sugiura, K. *et al.* (1975) Chemistry Lett. **5**, 471.



*Euryale ferox* Salisb.

***Euryale ferox* Salisb.**

**Nymphaeaceae**

Korean Name: Ga-si-yeon-kot

English Name: Fox nut

*Parts used.* Seed.

*Traditional uses.* Weakness, spermatorrhoea, leucorrhoea.

*Description.* Very prickly, aquatic, annual herb with short rhizome. Leaves 30-120 cm across, marginally flat, circular, dark green and reticulate-rugose above, purple and ribbed beneath, spiny on nerves at both sides. Flowers much smaller, 4 cm across, solitary on long, spiny pedicel; sepals green, 4, very prickly outside, reddish inside; petals shorter and purple, day-blooming, with many petals and stamens; filaments short; ovules 8, 8-celled; ovary inferior. Fruit elliptic or globose, 5-7 cm in diameter, spiny; calyx left at the top. Jul. - Aug.

*Habitat.* Ponds, lakes.

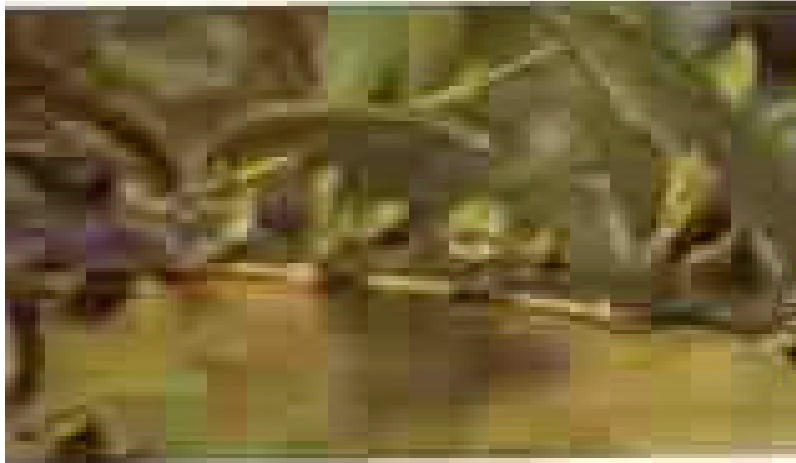
*Distribution.* Korea, Japan, China, India.

*Bio-Activities.* Antioxidant (1), murine retroviral reverse transcriptase inhibition, DNA polymerase inhibition (2).

*Chemical components.* Steryl glycosides (3,4), tocopherols (5).

*References.*

- (1) Su, J.P. *et al.* (1981) *Agr. Biol. Chem.* **50**, 199.
- (2) Ono, K. *et al.* (1989) *Chem. Pharm. Bull.* **37**, 1810.
- (3) Zhao, H.R. *et al.* (1989) *J. Lipid Res.* **30**, 1633;
- (4) Zhao, H.R. *et al.* (1992) *Phytochem. Anal.* **3**, 38.
- (5) Yeh, J.S. *et al.* (1993) *Donghai Xuebao* **34**, 1115.



***Forsythia viridissima* Bunge**

**Oleaceae**

Korean Name: Oe-sung-gae-na-ri

English Name: Golden-bells

*Parts used.* Fruit.

*Traditional uses.* Carbuncles, lymphadenitis, mastitis, inflammation, suppuration, emmenagogue.

*Description.* Deciduous, diffuse, glabrous shrub. Branches 4-angled, erect, with lamellate pith. Leaves opposite, oblong to lanceolate, 6-10 cm long, 1-3 cm wide, toothed at the upper half, deep-green above, pale-green beneath; petioles 7-10 mm long. Flowers showy, yellow, appearing before the leaves; calyx tube short, 4-lobed; corolla deeply 4-lobed, with a short tube, 2-2.5cm across; lobes longer than tube, oblong; stamens 2, inserted at base of corolla; filament short. Fruit a woody capsule, broadly ovoid, 1.5 cm long, nearly rounded at base, 2-valved; seeds winged. Apr.

*Habitat.* Mostly cultivated in Korea.

*Distribution.* Korea, China.

*Bio-Activities.* Choleric (1), antibacterial, 5lipoxygenase inhibition (2), cAMP-phosphodiesterase inhibition (3), antispasmodic (4), antifungal (5).

*Chemical components.* Arctiin, matairesinoside, oleanolic acid (6), monoterpenes (7), flavonoids.

*References.*

- (1) Miura, M. *et al.* (1987) *Yakugaku Zasshi* **107**, 992.
- (2) Kimura, Y. *et al.* (1987) *Planta Med.* **53**, 148.
- (3) Nikaido, T. *et al.* (1981) *Chem. Pharm. Bull.* **29**, 3586.
- (4) Woo, W.S. and Lee, E.B. (1979) *Kor. J. Pharmacog.* **10**, 27.
- (5) Rho, Y.S. (1975) *Kor. J. Pharmacog.* **6**, 143.
- (6) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 193, Oriental Healing Art Institute, Long Beach, CA.
- (7) Damtoft, S. *et al.* (1994) *Phytochemistry* **37**, 173.

*Forsythia viridissima* Bunge



*Fraxinus rhynchophylla* Hance

***Fraxinus rhynchophylla* Hance**

**Oleaceae**

Korean Name: Mool-poo-rae-na-moo

English Name: Chinese ash

*Parts used.* Bark.

*Traditional uses.* Eye diseases, apoplexy, liver diseases.

*Description.* Deciduous tree, to 10 m tall, but usually much smaller. Leaves opposite, odd-pinnate; leaflet 5-7, wide ovate or wide lanceolate, 6-15 cm long, green, glabrous above, pubescent on mid-vein beneath, crenate or smooth. Flowers small, in axillary panicles, with or after leaves, unisexual; calyx small, 4-lobed; petals none in male flowers, 2-4 in female flowers. Fruit a 1-seeded, winged samara, to 5 cm long. May.

*Habitat.* Mountain woods.

*Distribution.* Korea, China.

*Bio-Activities.* Related species, *F. japonicum*, shows platelet antiaggregatory, antibacterial (1), and lipoxxygenase inhibition (2), HMG-Co A reductase inhibition activities (3).

*Chemical components.* Related species, *F. japonicum* contains: Lignans. Coumarins: scopoletin, isofraxidin, esculetin, fraxetin, esculin, fraxin (4,5), fraxidin, fraxinol (6).

*References.*

- (1) Mei, P. F. *et al.* (1962) *Acta Chim. Sin.* **28**, 25.
- (2) Sekiya, K. *et al.* (1982) *Biochem. Biophys. Acta* **713**, 68.
- (3) Han, G.Q. *et al.* (1991) *Int. J. Chinese Med.* **16**, 1.
- (4) Tsukamoto, H. *et al.* (1984) *Chem. Pharm. Bull.* **32**, 4482.
- (5) Tsukamoto, H. *et al.* (1985) *Chem. Pharm. Bull.* **33**, 4069.
- (6) Miyachi, H. *et al.* (1987) *Yakugaku Zasshi* **107**, 435.





*Gastrodia elata* Blume

***Gastrodia elata* Blume**

**Orchidaceae**

Korean Name: Cheon-ma  
English Name: Tall gastrodia

*Parts used.* Tuber.

*Traditional uses.* Headache, infantile convulsion, neurasthenia, haematuria.

*Description.* Saprophytic, leafless, perennial herb with thickened rhizome, 60-100 cm tall. Rhizomes oblong, fleshy, 10-18 cm long, 3.5 cm in diameter. Stems yellowish brown, simple, erect, loosely scaly. Inflorescence loose racemes, erect, bracteate, 10-30 cm long, many-flowered; bracts lanceolate to linear-oblong, 7-12 mm long, 2 mm wide. Flowers yellowish brown; sepals and petals connate; perianth tube broadly ovoid, oblique at mouth, 7-8 mm long, inflated at base. Jun. - Jul.

*Habitat.* Mountain woods.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Sedative, anticonvulsive, anti-inflammatory, antiepileptic, hypnotic, analgesic (1), antithrombotic, anti-platelet aggregation (2), antioxytocic (3).

*Chemical components.* Phenolic compounds; vanillin, gastrodin (4), p-hydroxybenzyl alcohol, p-hydroxy-benzaldehyde, 4,4'-dihydroxy dibenzylether (5).

References.

- (1) Kimura, T. *et al.*, Intern. Collation of Trad. and Folk Med., NE-Asia, Part I, 1996, p. 207, World Sci. Pub. Co., Singapore.
- (2) Paik, Y.-S. *et al.* (1995) Kor. J. Pharmacog. **26**, 385.
- (3) Lee, E.B. and Lee, Y.S. (1991) Kor. J. Pharmacog. **22**, 246.
- (4) Fang, X.Z. *et al.* (1979) Huaxue Xuebao **37**, 175.
- (5) Zhou, J. *et al.* (1979) Huaxue Xuebao **37**, 183.



*Gentiana scabra* L.

***Gentiana scabra* L.**

**Gentianaceae**

Korean Name: Yong-dam

English Name: Gentian

*Parts used.* Root.

*Traditional uses.* Stomatics, anorexia, dyspepsia, inflammation, liver diseases.

*Description.* Perennial herb. Stems more or less erect, leafy, 20-60 cm tall, 4-striate, with short rhizome. Leaves opposite, sessile, lanceolate, margins and midrib rough, 4-8 cm long, 1-3cm wide, with 3 veins, green above, pale-green beneath. Flowers several in terminal clusters; calyx tubular, to 1.5 cm long; corolla dark-blue, campanulate, to 3 cm long; stamens 5, united to corollar tube; style 1. Fruit capsule with withered corolla and calyx; seeds many, broad-lanceolate, winged. Aug. - Oct.

*Habitat.* Grassy places and wet meadows in low mountain elevations.

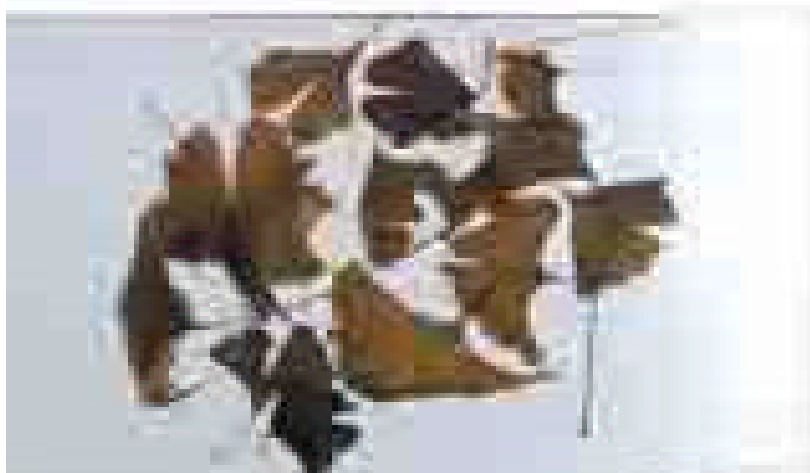
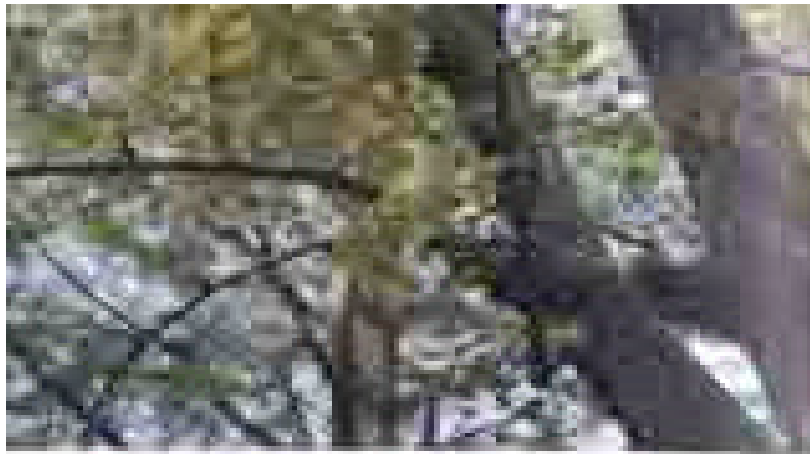
*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Stimulation of gastric secretion and motility (1,2), choleric activity (3), stimulation of bowel movement (4).

*Chemical components.* Gentiopicroside, swertiamarin, gentisin, gentisic acid (5).

*References.*

- (1) Sone, Y. (1936) Tohoku J. Exp. Med. **29**, 321.
- (2) Haginiwa, T. *et al.* (1961) Yakugaku Zasshi **81**, 1387.
- (3) Miura, M. *et al.* (1987) Yakugaku Zasshi **107**, 992.
- (4) Ito, T. (1960) Nippon Yakurigaku Zasshi **56**, 63.
- (5) Hayashi, T. (1976) Yakugaku Zasshi **96**, 356, 366, 679.



*Ginkgo biloba* L.

***Ginkgo biloba* L.**

**Ginkgoaceae**

Korean Name: Eun-hang-na-moo

English Name: Maidenhair tree

*Parts used.* Seed, leaf.

*Traditional uses.* Asthma, sputum and cough, leucorrhoea.

*Description.* Deciduous, resinous, dioecious tree, to 60 m or more tall. Branches stiff, with both elongated and spur shoots. Leaves alternately clustered, fan-shaped, cut in middle dichotomously veined, long-petioled. The female reproductive structures consisting of 2 ovules, rarely more, on a long peduncle, usually only 1 maturing. Seeds plum-like in appearance, yellowish, drupelike, to 2.5 cm long, long peduncled, outer coat fleshy, inner coat stony. May. Fruit ripening in Oct.

*Habitat.* Widely planted in Korea.

*Distribution.* China.

*Bio-Activities.* Antibacterial and antifungal (1), PAF-receptor binding antagonistic (2), many other activities (3).

*Chemical components.* Phenolic acids; ginkgolic acid, hydroginkgolic acid (4), ginkgolides (5). Flavonoids (6). Biflavonoids; sciadopitysin, ginkgetin, bilobetin (7).

*References.*

- (1) Adawadkar, P.D. and El Sohly, M. A. (1981) *Fitoterapia* **52**, 129.
- (2) Braquet, P.G. *et al.* (1985) *Ketsueki to Myakkan* **16**, 558.
- (3) Tang, W. and Eisenbrand, G. (1992) *Chinese Drugs of Plant Origin*, p. 560, Springer-Verlag, Berlin.
- (4) Itokawa, H. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 3016.
- (5) Nakanishi, K. (1967) *Pure Appl. Chem.* **14**, 89.
- (6) Geiger, H. (1979) *Z. Naturforsch.* **34C**, 878.
- (7) Kang, S.S. *et al.* (1995) *Kor. J. Pharmacog.* **26**, 23.

***Gleditsia japonica* var. *koraiensis* (Nakai) Nakai****Leguminosae**

Korean Name: Joo-yeob-na-moo

English Name: Korean honey locust

*Parts used.* Spine, fruit.*Traditional uses.* Cough, expectorant, constipation, abortifacient, liver disease.*Description.* Deciduous tree, to 20 m tall, armed with stout spines. Young branches green, with many lenticels on the surface. Leaves alternate, odd-pinnate, 1- or 2-pinnate, 12-22 cm long; leaflets 11-17, obtuse or emarginate, crenulate, 3-5.5 cm long. Flowers small, greenish, 6 mm across, in spikelike racemes, unisexual or bisexual; sepals and petals 5; stamens 9-10, 4-5 mm long, green, filaments hairy. Fruit a large flat legume, 23 cm long, 3 cm wide, twisted, ripening in Oct. Jun.*Habitat.* Near streams in low mountain elevations.*Distribution.* Korea.*Bio-Activities.* Anti-inflammatory and antiulcer activities (1), anti-HIV activity (2).*Chemical components.* Gleditsia saponins (3). Flavonoids and phenylpropanoids (4).*References.*

- (1) Yamahara, J. *et al.* (1975) *Yakugaku Zasshi* **95**, 1179.
- (2) Konoshima, T. *et al.* (1995) *J. Nat. Prod.* **58**, 1372.
- (3) Konoshima, T. *et al.* (1982) *Chem. Pharm. Bull.* **30**, 3010.
- (4) Hwang, Y.J. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 11.

*Gleditsia japonica* var. *koraiensis* (Nakai) Nakai



*Glehnia littoralis* F.Schmidt

***Glehnia littoralis* F.Schmidt**

**Umbelliferae**

Korean Name: Get-bang-pung

English Name: Glehnia

*Parts used.* Root.

*Traditional uses.* Antipyretic, analgesic, migraine headache.

*Description.* Pubescent perennial herb with thick, elongated rhizomes, to 5-23 cm tall. Leaves twice ternately pinnate, long-petioled, deltoid, 10-20 cm long; leaflets elliptic, dentate, 2-5 cm long, 1-3 cm wide, irregularly dentate. Umbels 1-3 compound, terminal and axillary at upper part, densely pubescent, without an involucre; involucels 10, 4-6 cm long; umbellets 20-40 flowered; bract of involucels few, linear; calyx teeth evident, linear-deltoid, acute; petals white, obovate, emarginate with tip incurved; style elongate; stylopodium disc-shaped, convex. Fruit ellipsoidal, densely pubescent, carpels with thick, winglike prominent ribs; lateral ribs broader than dorsal ones; the vittae numerous, pericarp corky. Jun. - Jul.

*Habitat.* Sandy beaches.

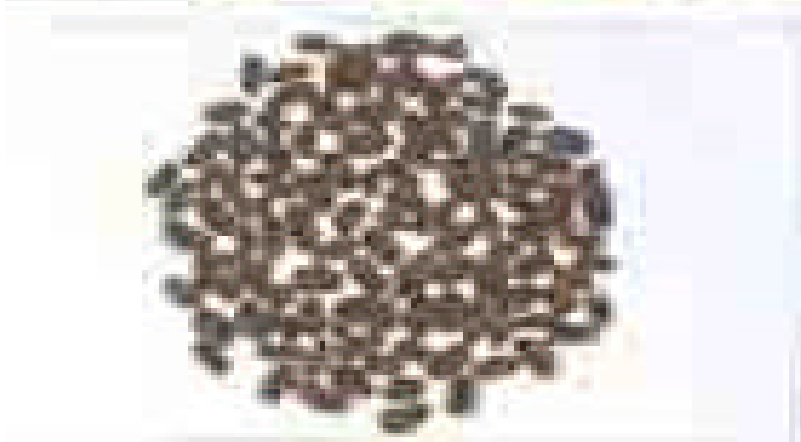
*Distribution.* Korea, China, Japan, Pacific coast of North America

*Bio-Activities.* Antipyretic, analgesic (1), immunosuppressive (2), antibacterial (3), antiulcer (4).

*Chemical components.* Coumarins: psoralen, bergapten, marmesin, osthenol-7-O-gentiobioside (5,6).

*References.*

- (1) Taki, K. (1960) Gifu Daigaku Igakubu Kiyo **8**, 464, 471.
- (2) Fang, X.D. *et al.* (1986) Yaoxue Xuebao **21**, 931.
- (3) Kim, C.M. *et al.* (1991) Arch. Pharm. Res. **14**, 87.
- (4) Muto, Y. *et al.* (1994) Yakugaku Zasshi **114**, 980.
- (5) Sasaki, H. *et al.* (1980) Chem. Pharm. Bull. **28**, 1847.
- (6) Wang, J. (1987) Zhongyao Tongbao **12**, 742.



*Glycine max* Merr.

***Glycine max* Merr.**

**Leguminosae**

Korean Name: Kong

English Name: Soybean, soja bean, soya bean

*Parts used.* Fruit.

*Traditional uses.* Furuncle, lumbar vertebral pain, expectorant, cough, emmenagogue.

*Description.* Hairy erect annual, to 60 cm tall, with brown hairs. Leaves alternate, long petiolate; leaflets 3, ovate or elliptic, acuminate or rounded, stipules linear. Flowers small, papilionaceous, in axillary racemes, pink or white; calyx campanulate, 5-toothed, with upper 2 lobes partly united. Fruit a linear legume, to 7.5 cm long, brown and hairy, pendant, constricted between seeds, valves spiral after dehiscence. Jul. - Aug.

*Habitat.* Widely cultivated.

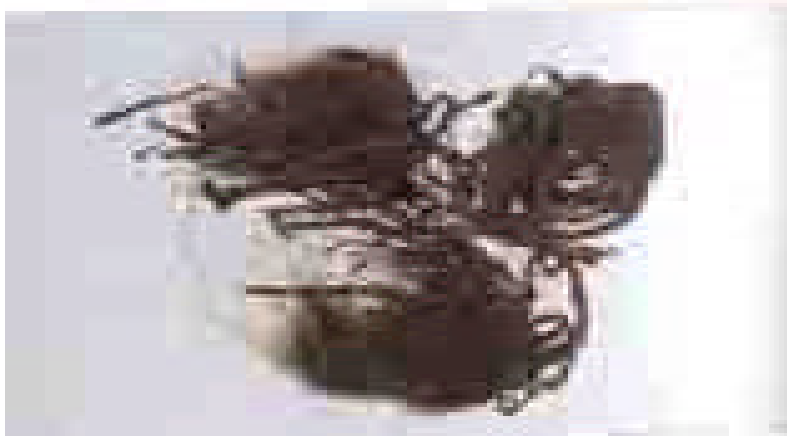
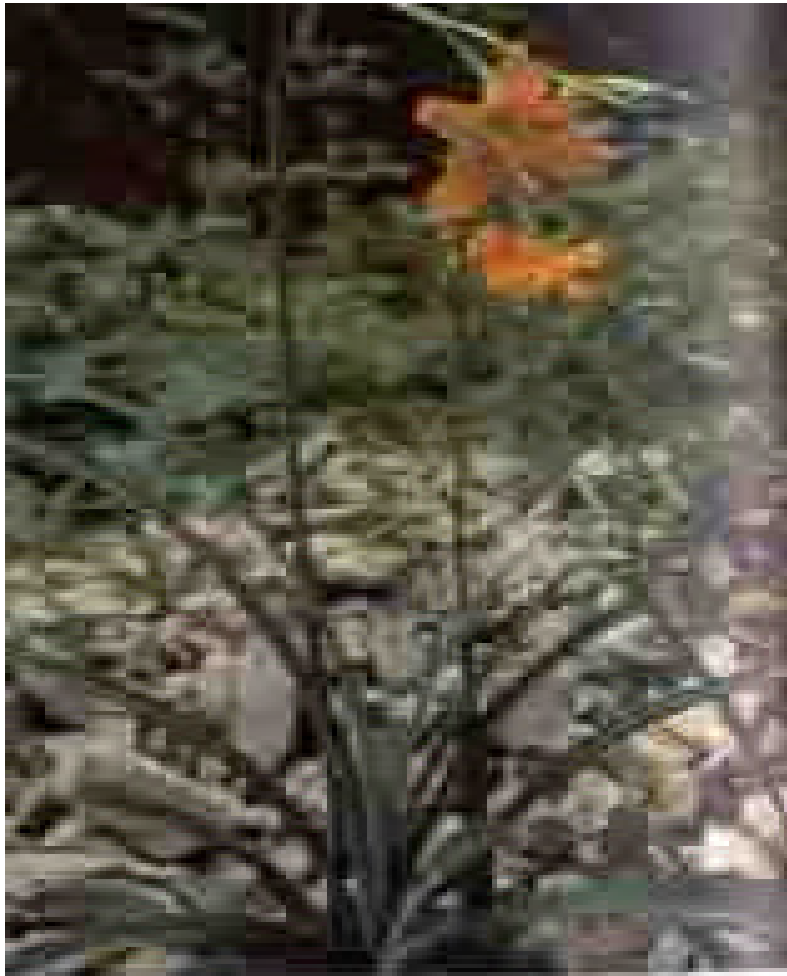
*Distribution.* Korea, China, Japan.

*Bio-Activities.* Soybean sprout shows estrogen-like activity and antispasmodic activity (1). Reduced ovulation rate (coumestrol) (2,3), wound healing (allantoin) (4), haemolytic, insecticidal (soyasaponins) (5).

*Chemical components.* Large amount of protein, carbohydrate, vitamin B, carotenoids, amino acids, soyasaponins (5,6), fatty acids, flavones (1), sojagol (3), glyceollin IV (7), agmatine (8), flazin (9).

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 249, Oriental Healing Art Institute, Long Beach, CA.
- (2) Hiroyuki, K. *et al.* (1993) *Phytochemistry* **33**, 1075.
- (3) Farnsworth, N.R. *et al.* (1975) *J. Pharm. Sci.* **64**, 717.
- (4) Coxon, B. (1977) *J. Org. Chem.* **42**, 3132.
- (5) Kitagawa, I. *et al.* (1976) *Chem. Pharm. Bull.* **24**, 121.
- (6) Price, K.R. and Fenwick, G.R. (1984) *J. Sci. Food. Agric.* **35**, 887.
- (7) Lyne, R.L. *et al.* (1978) *Tetrahedron Lett.* 3127.
- (8) Kossel, A. (1910) *Hoppe Seyler's Z. Physiol. Chem.* **66**, 257.
- (9) Nakatsuka, S. *et al.* (1986) *Tetrahedron Lett.* **27**, 3399.

***Hemerocallis fulva* L.****Liliaceae**

Korean Name: Won-choo-ri

English Name: Orange day lily, tawny day lily, fulvous day lily

*Parts used.* Rhizome.*Traditional uses.* Oppilation, jaundice, constipation, pneumonia.

*Description.* Perennial herb, forming clump by spreading rhizomes. Main roots fleshy. Leaves basal, 60 cm long, 4 cm wide, linear, keeled, often rather grasslike. Flowers ephemeral, orange-red, usually with darker zone and stripes, 15 cm long, 8 cm across when fully opened; perianth tube 2 cm long, in clusters on long scapes; perianth funnelform, segments 6, joined below into a tube; stamens 6; anthers versatile, filament inserted in throat of perianth. Fruit a 3-valved loculicidal capsule; seeds few. Aug.

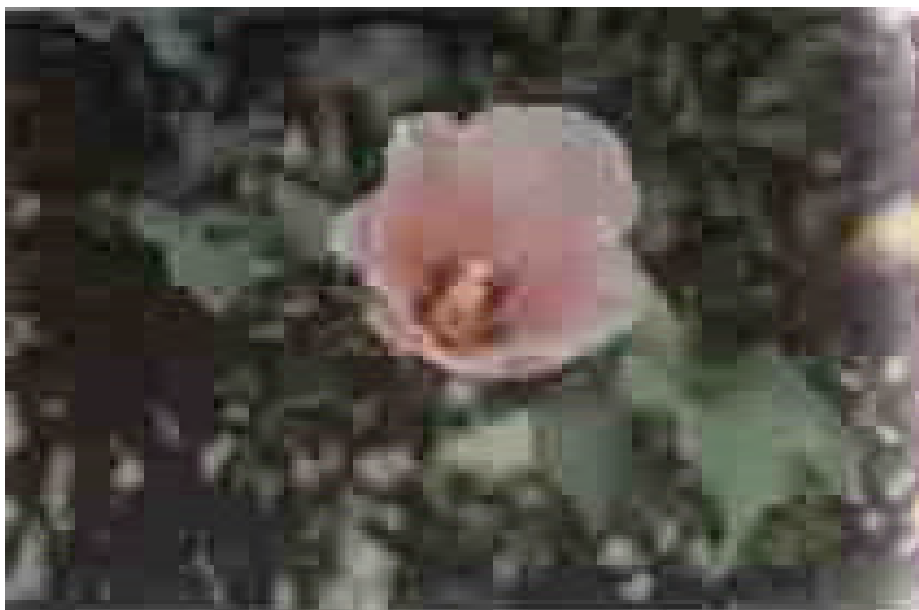
*Habitat.* Open areas of mountains and hills.*Distribution.* Europe to Siberia.*Bio-Activities.* Tuberculostatic, antiparasitic (1), antimicrobial (2).

*Chemical components.* -Hydroxyglutamic acid, chrysophanol, colchicine (1), rhein, anthraquinones (2).

*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 700, Shanghai Sci. Tech., Japanese Transl.
- (2) Sarg, T.M. *et al.* (1990) Int. J. Crude Drug Res. **28**, 153.

*Hemerocallis fulva* L.



*Hibiscus syriacus* L.

***Hibiscus syriacus* L.**

**Malvaceae**

Korean Name: Moo-goong-wha

English Name: Rose-of-sharon, althaea, shrub althaea

*Parts used.* Bark.

*Traditional uses.* Dysentery, abdominal pain, leucorrhoea, omalgia.

*Description.* Erect, nearly glabrous shrub or small tree, 2-3 m tall. Leaves mostly less than 8 cm long, triangular to rhombic ovate in outline, mostly deeply and narrowly 3lobed, coarsely toothed. Flowers on short pedicels, in upper leaf axils; involucral bracts 6-8, mostly lanceolate, less than 2 cm long and 0.5 cm wide; calyx slightly longer than bracts; corolla single; petals 5, longer than calyx, 3-8 cm long, whitish purple, with crimson base; stamens united in a tubular column, included; style 5-branched at the apex. Fruit a 5-celled capsule, each cell with 3 or more seeds. Aug.- Sept.

*Habitat.* Commonly planted in gardens and roadsides.

*Distribution.* China, introduced to Korea long ago.

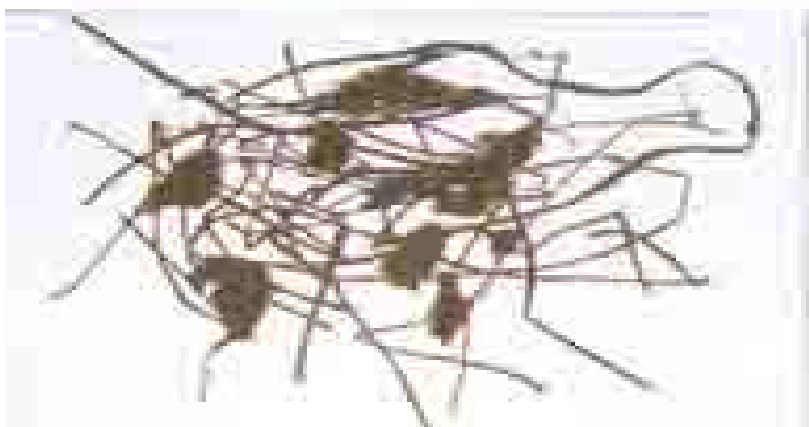
*Bio-Activities.* Antipyretic, anthelmintic (1), antifungal (2), anticomplementary, hypoglycaemic (3), antiulcer (4)

*Chemical components.* Mucilages (5,6), carotenoids (7), anthocyanidins (8), alkanes, aromatics, sesquiterpenes.

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 503, Oriental Healing Art Institute, Long Beach, CA.
- (2) Yokota, M. *et al.* (1978) *Yakugaku Zasshi* **98**, 1508.
- (3) Tomoda, M. *et al.* (1989) *Carbohydr. Res.* **190**, 323.
- (4) Muto, Y. *et al.* (1994) *Yakugaku Zasshi* **114**, 980.
- (5) Shimizu, N. *et al.* (1986) *Chem. Pharm. Bull.* **34**, 4133.
- (6) Tomoda, M. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 2360.
- (7) Hanny, B. *et al.* (1972) *J. Agr. Food Chem.* **20**, 914.
- (8) Kim, J.H. *et al.* (1989) *Phytochemistry* **28**, 1503.





*Houttuynia cordata* Thunb.

***Houttuynia cordata* Thunb.**

**Saururaceae**

Korean Name: Yag-mo-mil

English Name: Houttuynia, stink grass

*Parts used.* Herb.

*Traditional uses.* Suppuration, poisoning.

*Description.* Glabrous perennial herb with creeping rhizome, 20-50 cm tall. Leaves alternate, ovate, 3-8 cm long, 3-6 cm wide, cordate, 5-nerved from base, gland-dotted, deep green above, paler beneath; stipules oblong, obtuse, united to petioles. Inflorescence dense lateral spike subtended by 4 involucral bracts; spikes 1-3 cm long, cylindric, densely many-flowered; peduncles 2-3 cm long. Flowers small, bracted, perianth none; stamens 3, united at base to 1-celled ovary; stigma 3. Fruit dry opening at top. Jun.

*Habitat.* Wet places in lowlands.

*Distribution.* Korea, Japan, China, Himalayas.

*Bio-Activities.* Anti-inflammatory (1), antiviral, vitamin P-like (2), antifungal, antimicrobial (3,4), platelet coagulation depressing (5), plaque formation suppressant (6), hypoglycaemic activities (7).

*Chemical components.* Flavonoids: quercitrin, isoquercitrin (8). Benzamide: cis- and trans-N-(4-hydroxystyryl)-benzamide (5). Fatty aldehydes: decanoylacetalddehyde, laurylaldehyde, methyl nonylketone (3,4). Monoterpenes and sesquiterpenes (9).

*References.*

- (1) Suzuki, Y. (1985) *Oyo Yakuri* **30**, 403.
- (2) Wacker, A. *et al.* (1978) *Arzneim. Forsch.* **28**, 347.
- (3) Kosuge, T. (1952) *Yakagaku Zasshi* **72**, 1227.
- (4) Kosuge, T. (1953) *Yakagaku Zasshi* **73**, 435.
- (5) Nishiya, H. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 1902.
- (6) Namba, T. *et al.* (1984) *Shoyakugaku Zasshi* **38**, 253.
- (7) Choi, J. S. *et al.* (1990) *Kor. J. Pharmacog.* **21**, 153.
- (8) Nakamura, H. *et al.* (1936) *Yakagaku Zasshi* **56**, 441.
- (9) Tutupalli, L.V. and Chaubal, M.G. (1975) *Lloydia* **38**, 92.



*Inula helenium* L.

***Inula helenium* L.**

**Compositae**

Korean Name: Mok-hyang  
English Name: Elecampane

*Parts used.* Root.

*Traditional uses.* Bronchitis, whooping cough, diarrhoea.

*Description.* Robust perennial herb, to 1.5 m tall. Stems furrowed, with spreading hairs. Leaves alternate, irregularly toothed, nearly glabrous above, velvety-tomentose beneath; basal leaves elliptic, to 40 cm long on petioles; stem leaves ovate-cordate, successively reduced upward, sessile, clasping. Heads to 5-10 cm across, solitary or 2-3 in a cluster; involucre hemisphere; phyllaries imbricate in several rows; the outer herbaceous, the inner usually narrow and scarious; receptacle flat, naked. Ray flowers female, yellow. Disk flowers tubular, bisexual, yellow, anthers sagittate-tailed. Achenes nearly cylindrical to 4-5 ribbed; pappus of 1 row of many capillary bristles. Jul. - Aug.

*Habitat.* Cultivated in Korea.

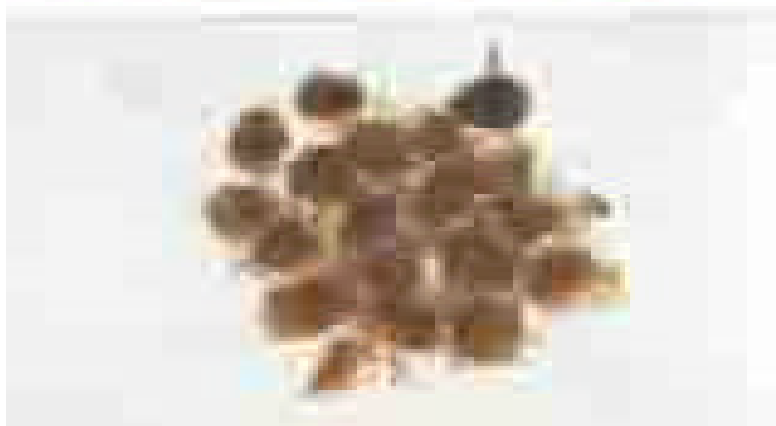
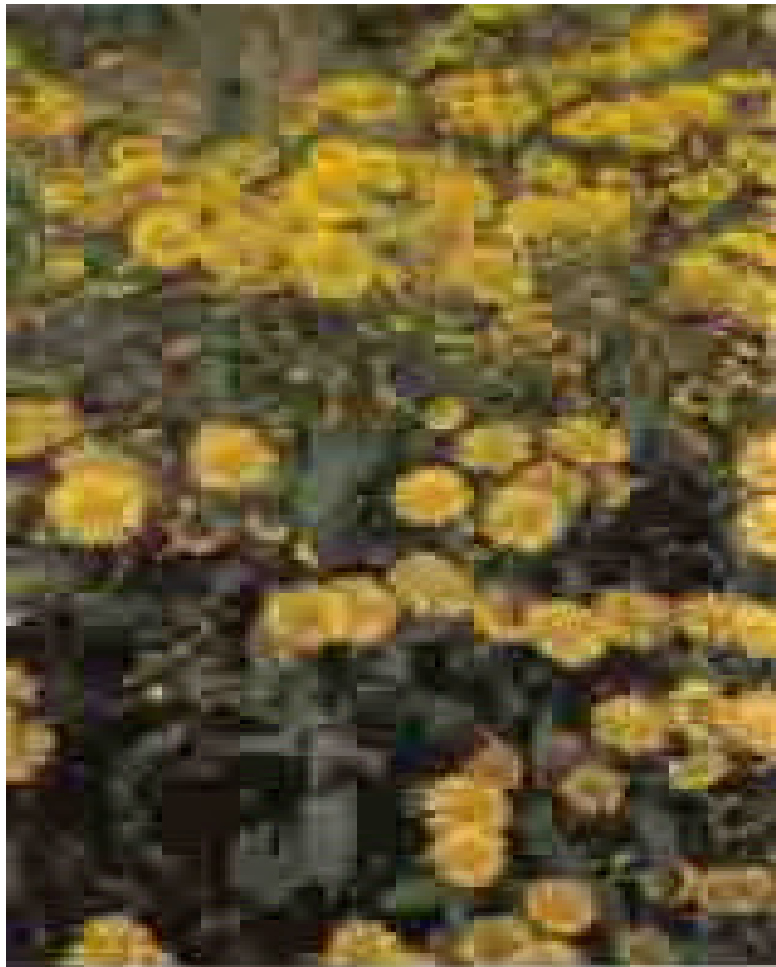
*Distribution.* Probably native to central Asia.

*Bio-Activities.* Clonorchicidal (1,2), antibacterial (3), increase peristalsis of large intestine, hypotensive, anthelmintic, smooth muscle relaxant (4), platelet aggregation inhibition (5), allergenic (6).

*Chemical components.* Sesquiterpenes: alantolactone, helenine, isoalantolactone, dihydroisoalantolactone, alantonic acid, alantol, dammaradienyl acetate, alantopicrin, inunolide, tomentosin, costunolide (7).

*References.*

- (1) Rhee, J.K. *et al.* (1981) *Am. J. Chin. Med.* **9**, 277.
- (2) Rhee, J.K. *et al.* (1985) *Am. J. Chin. Med.* **13**, 119.
- (3) Boatto, G. *et al.* (1994) *Fitoterapia* **65**, 279.
- (4) Reiter, M. and Brandt, W. (1985) *Arzneim.-Forsch.* **35**, 408.
- (5) Yun-Choi, H.S. *et al.* (1986) *Kor. J. Pharmacog.* **17**, 19.
- (6) Opdyke, D.L.J. (1976) *Food Cosmet. Toxicol.* **14**, 307.
- (7) Bohlmann, F. *et al.* (1978) *Phytochemistry* **17**, 1165.



*Inula helenium* L.

***Inula japonica* Regel**

**Compositae**

Korean Name: Keum-bool-cho

English Name: Japanese inula

*Parts used.* Inflouescence.

*Traditional uses.* Wheezing, copious sputum, vomiting.

*Description.* Perennial herb, 20-60 cm tall. Basal and lower leaves smaller than middle ones; middle leaves lanceolate to long-elliptic, slightly acute, 5-10 cm long, 1-3 cm wide, sessile, partially grasping stems, appressed-pilose on both sides. Heads solitary or few, 3-4 cm across; involucre hemisphere, 7-8 mm long, 15-17 mm across; phyllaries 5-seriate, nearly equal, the outer lanceolate, the inner narrow, both ciliolate. Ray flowers 16-19 mm long, 1.5-2 mm wide, yellow. Achenes 10-ribbed, pilose; pappus 5 mm long, bristles minutely scabrous. Jul. - Sep.

*Habitat.* Wet areas in lowlands.

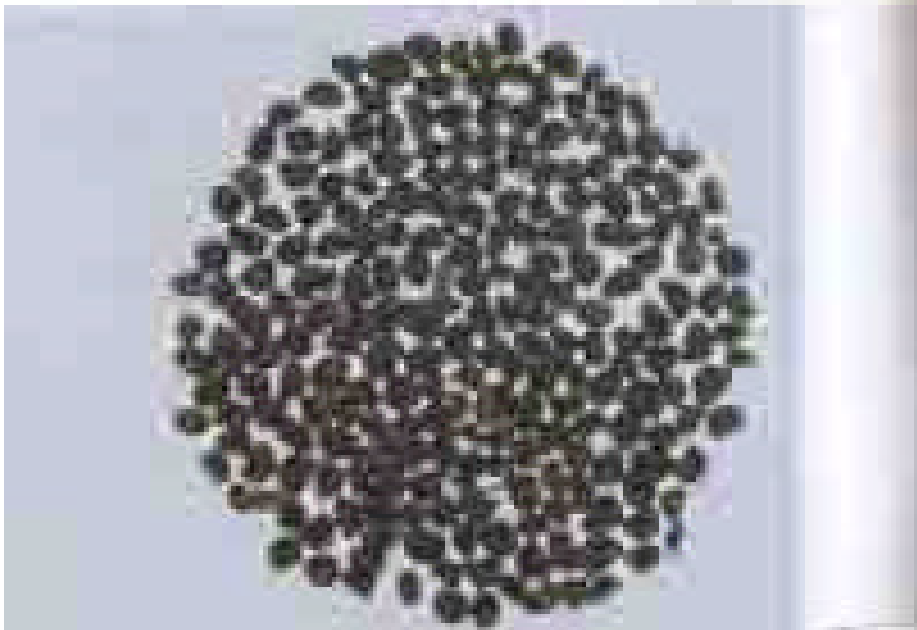
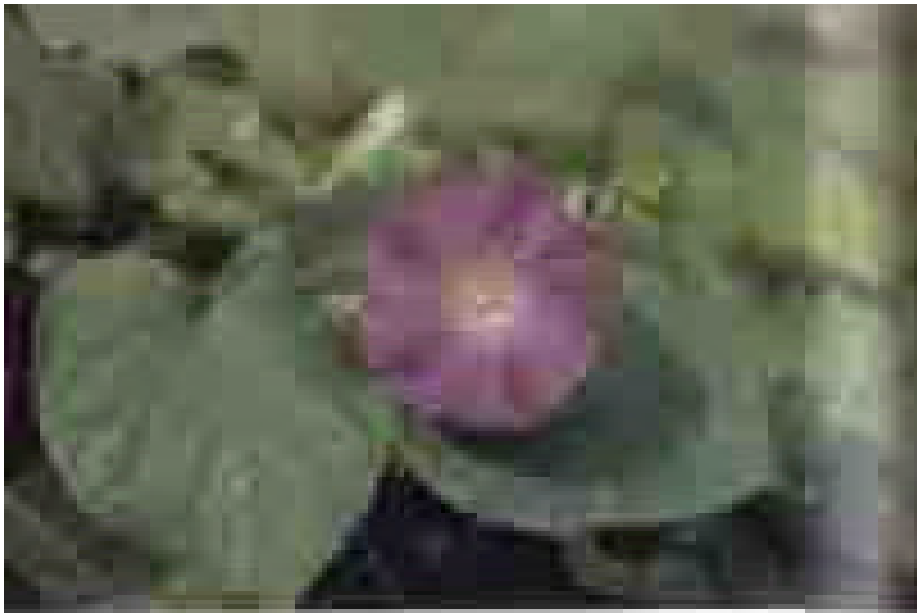
*Distribution.* Korea, Japan, China.

*Bio-Activities.* Antibacterial, increases intestinal motility.

*Chemical components.* Inusterol A, B, C. Inulicin (1), secoeudesmanolides (2), quercetin, isoquercetin.

*References.*

- (1) Belova, L.F. *et al.* (1981) *Farmakol. Toksikol. (Moscow)* **44**, 463.
- (2) Jeske, F. *et al.* (1993) *Phytochemistry* **34**, 1647.



*Ipomoea nil* (L.) Roth

***Ipomoea nil* (L.) Roth**

**Convolvulaceae**

Korean Name: Na-pal-kot

English Name: Imperial Japanese morning-glories

*Parts used.* Seed.

*Traditional uses.* Constipation, contraceptive.

*Description.* Twining or trailing annual, to 3 m tall. Stems with retrorse hairs. Leaves alternate, broadly cordate-ovate, to 15 cm across, usually 3-lobed, pubescent. Flowers showy, axillary, 1-3 in a cluster; calyx deeply segmented by 5, long-pilose outside; corolla funnelform or campanulate, 5-lobed, with 5 strips, to 5 cm long, 10-20 cm across, violet, purple, red or white; stamens 5; style solitary, included, stigma entire. Fruit 3-valved capsule; seeds 2 in each cell. Jul. - Aug.

*Habitat.* Commonly cultivated in Korea.

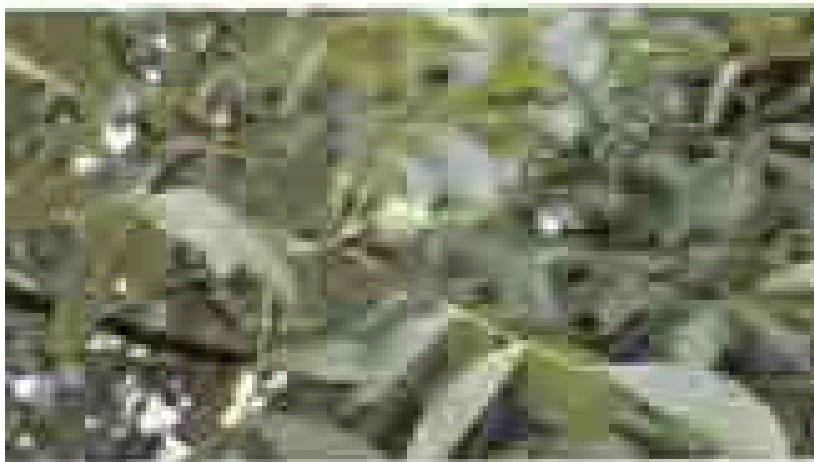
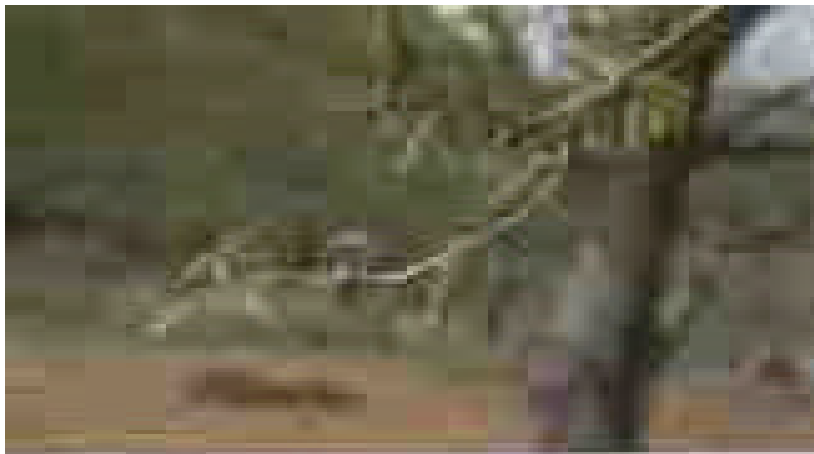
*Distribution.* Probably circumtropical in Asia.

*Bio-Activities.* Purgative, diuretic (1), antitumour (2), antifungal (3), anticholinergic, antispasmodic (4).

*Chemical components.* Pharbitin (resin glycosides) (5), pharbitic acids (6), ipurolic acid, tiglic acid, nilic acid, *d*-methyl-ethyl-acetic acid (7). Flavonoids (8).

*References.*

- (1) Ito, H. (1964) *Mie Med. J.* **14**, 47.
- (2) Aswal, B.S. *et al.* (1984) *Indian J. Exp. Biol.* **22**, 312.
- (3) Singh, K.V. (1984) *Fitoterapia* **55**, 300.
- (4) Lee, E.B. (1982) *Kor. J. Pharmacog.* **13**, 99.
- (5) Okabe, H. *et al.* (1970) *Tetrahedron Lett.* 3123.
- (6) Okabe, H. *et al.* (1971) *Chem. Pharm. Bull.* **19**, 2394.
- (7) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 107, Oriental Healing Art Institute, Long Beach, CA.
- (8) Saito, N. *et al.* (1994) *Phytochemistry* **35**, 407.

***Juglans sinensis* Dode****Juglandaceae**

Korean Name: Ho-doo-na-moo

English Name: English walnut, Persian walnut, madeira walnut

*Parts used.* Seed.

*Traditional uses.* Spermatorrhoea, frequent urination, dermatitis.

*Description.* Deciduous, monoecious tree, to 30 m tall, with silvery-gray bark. Pith in the twigs with minute cross-partitions. Leaves large, aromatic, odd-pinnate; leaflets usually 7-9, obtuse, to 15 cm long, entire except in young tree. Male flowers in drooping catkins borne on the previous year's wood. Female flowers on wood of current year. Fruit a drupelike furrowed nut enclosed within a thick, indehiscent husk. Produces a valuable cabinet wood. Apr. - May.

*Habitat.* Mostly cultivated in Korea.

*Distribution.* China, naturalized in Korea and Japan.

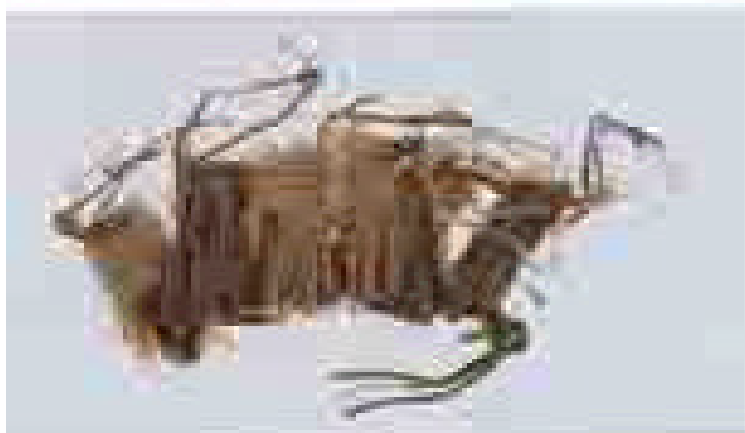
*Bio-Activities.* None reported.

*Chemical components.* Gangliosides (1).

*References.*

(1) Kim, H.S. and Jhon, G.J. (1992) Kor. J. Biochem. **25**, 429.

*Juglans sinensis* Dode



*Juncus effusus* var. *decipiens* Buchenau

***Juncus effusus* var. *decipiens* Buchenau**

**Juncaceae**

Korean Name: Gol-pool

English Name: Soft rush, Japanese-mat rush

*Parts used.* Herb.

*Traditional uses.* Urethritis, fracture, lumbago, diuretic, toothache.

*Description.* Glabrous, stiffish, perennial herb. Stems 30-90 cm tall, arching, ascending, in dense tussocks, striated and ridged. Leaves reduced to basal sheaths. Inflorescence pseudolateral, the lowest bract growing to 10-20 cm, appearing like the continuation of stem, many-flowered, open, the branches many. Flowers yellowish-green to pale brown, 2-2.5 mm long; perianth segments 2-3 mm long, lanceolate; sepals and petals 3, scalelike; stamens 3; ovary 3-celled. Fruit a capsule; seeds many, 0.5 mm long. Aug. - Oct.

*Habitat.* Wet areas in lowlands and mountains.

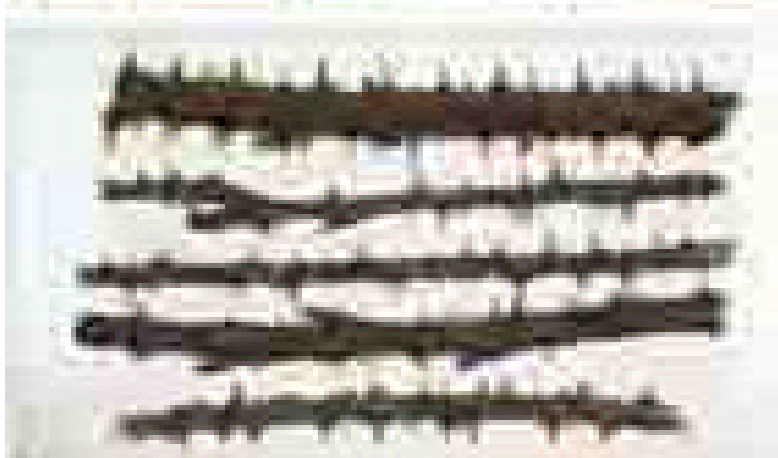
*Distribution.* Korea, Japan, China, Ussuri.

*Bio-Activities.* Antitumour, cytotoxic (1), antioxidant, antimicrobial (2).

*Chemical components.* Undecan-2-one, tridecanone, ionoes, bisabolene, luteolin and its glycoside (3), -coumaroyl glyceride (4), effusol, dehydroeffusol, juncanol, juncunone, micrandol B (1,3), -tocopherol (2), alkanes, phenylpropanoids (5).

*References.*

- (1) Della Greca, M. *et al.* (1993) *Tetrahedron* **16**, 3425.
- (2) Oyaizu, M. *et al.* (1991) *Yakagaku* **40**, 511.
- (3) Shima, K. *et al.* (1991) *Phytochemistry* **30**, 3149.
- (4) Stabursvik, A. (1968) *Acta Chem. Scand.* **22**, 2371.
- (5) Kameoka, H. and Goto, S. (1978) *Nippon Nogai Kagaku Kaishi* **52**, 323.

***Kalopanax pictus* (Thunb.) Nakai****Araliaceae**

Korean Name: Eum-na-moo

English Name: Tree aralia

*Parts used.* Bark.*Traditional uses.* Contusion, beri-beri, lumbago, neuralgia, pleurisy.

*Description.* Prickly, deciduous tree, to 30 m tall. Leaves alternate, palmately compound, to 30 cm across, 5-7 lobed, lobes toothed, dark green above, light green beneath, usually glabrous but somewhat pubescent when young; petioles 10-30 cm long. Flowers in umbels forming large, terminal panicles; main branch short, obsolete; the branches to more than 10, 8-15 cm long, spreading, with few umbels at the apex; bracts 1-2 cm long; pedicels 7-10 mm long; petals 5, white, valvate; stamens 5; ovary inferior, 2-celled; style bifid. Fruit globose drupe. Jul. - Aug.

*Habitat.* Mountain woods.*Distribution.* Korea, Japan, China

*Bio-Activities.* Antifungal, antihepatotoxic (1), DNA polymerase a inhibition, RNA reverse transcriptase inhibition (2).

*Chemical components.* Saponins (3): hederagenin glycosides. Lignans (4): syringin, liriodendrin (1), glucosyringic acid. Kalopanaxins A, B, C, D. Fatty acids: arachidic acid, etc. (1). Phenols (4): coniferin, protocatechuic acid, chlorogenic acid. Flavonol glycosides: hyperin, quercitrin (5).

*References.*

- (1) Lee, E. *et al.* (1995) *Kor. J. Pharmacog.* **26**, 122.
- (2) Ono, K. *et al.* (1989) *Chem. Pharm. Bull.* **37**, 1810.
- (3) Shao, C.J. *et al.* (1990) *Chem. Pharm. Bull.* **38**, 1087.
- (4) Shao, K. *et al.* (1991) *Chem. Pharm. Bull.* **39**, 865.
- (5) Jung, K.Y. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 280.

*Kalopanax pictus* (Thunb.) Nakai



*Kochia scoparia* Schrad.

***Kochia scoparia* Schrad.**

**Chenopodiaceae**

Korean Name: Dab-ssa-ri

English Name: Summer cypress, belvedere

*Parts used.* Fruit.

*Traditional uses.* Uretic, eczema, scabies.

*Description.* Annual herb, to 1 m tall, usually much-branched, of columnar or pyramidal to globular habit, more or less hairy. Leaves alternate, lanceolate to narrow-linear, entire, to 8 cm long, ciliate. Flowers inconspicuous, axillary, leaves at the terminal reduced to bracts resembling spike superficially, bisexual or female; calyx 5-lobed; corolla none; stamens 5, exerted; ovary 1-celled; stigmas mostly 2. Fruit a utricle enveloped by the calyx, which develops transverse wing in age. Jul. - Aug.

*Habitat.* Naturalized in fields and mountains.

*Distribution.* Korea, Japan to east Europe, widely naturalized in Eurasia.

*Bio-Activities.* Cytotoxic, intercalating agent (harman), adverse GI and CNS effects in humans (harmine) (1).

*Chemical components.* Triterpenoid saponins (2). Phytoecdysterols (3), betanin (4), phyllocactin, isophyllocactin, isobetainin (5), harman, harmine (6).

*References.*

(1) Li, H.L. *et al.* (1970) *Lloydia* **33S**, 1-283.

(2) Wen, Y. *et al.* (1995) *Planta Med.* **61**, 450.

(3) Dinan, L. (1994) *J. Chromatogr.* **658**, 69.

(4) Forni, E. *et al.* (1984) *Food Chem.* **13**, 149.

(5) Piattelli *et al.* (1964) *Phytochemistry* **3**, 547.

(6) Drost-Karbowska, K. (1978) *Lloydia* **41**, 289.





*Leonurus sibiricus* L.

***Leonurus sibiricus* L.**

**Labiatae**

Korean Name: Ik-mo-cho

English Name: Motherwort

*Parts used.* Herb.

*Traditional uses.* Amenorrhoea, menstrual irregularities, malaria.

*Description.* Biannual herb, to 1-1.5 m tall, gray-green, white-pubescent. Stems square in cross section. Basal leaves ovate-cordate, toothed and incised, long-petiolate, withering before flowers appear; stem leaves 5-10 cm long, pinnately dissected, long-petioled; uppermost leaves often entire, linear-lanceolate. Flowers in many-flowered verticillasters, 2 cm long; bractlets shorter than calyx; calyx campanulate, 5-nerved, 5-toothed, teeth spiny; corolla tube shorter than calyx, rose-pink, limb 2-lipped; upper lip erect, entire; lower lip spreading, 3-lobed; stamens 4, in 2 pairs; anther cells opposite, opening by a common slit. Fruit of 4 glabrous, 3-angled, nutlets. Jul. - Aug.

*Habitat.* Grassy areas in lowlands.

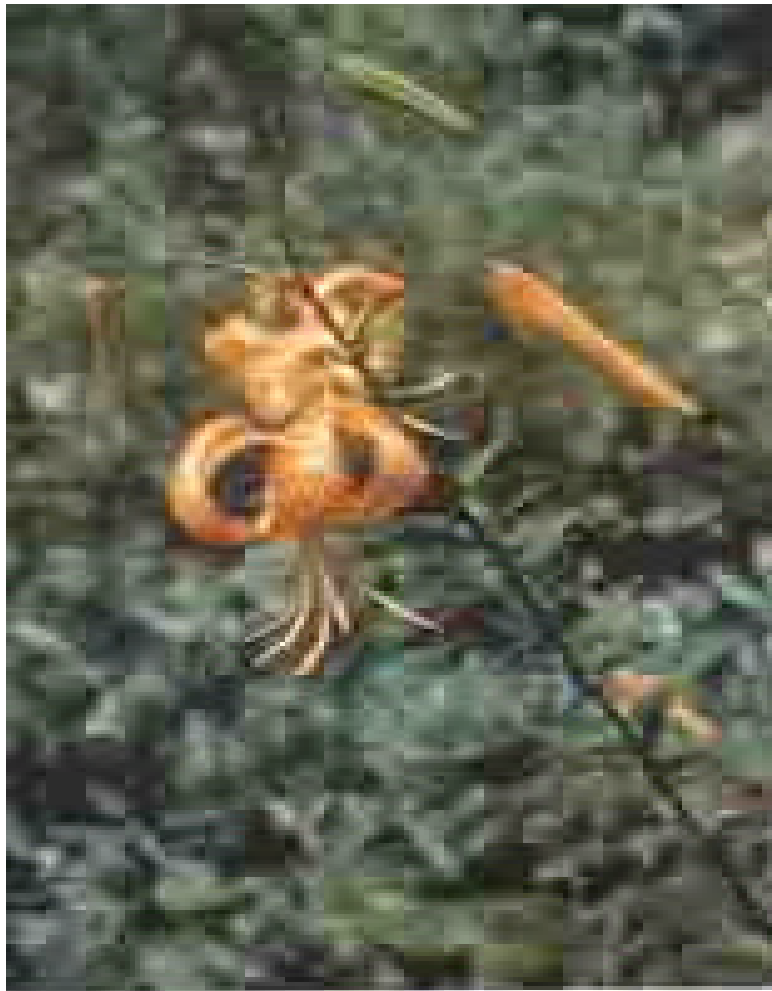
*Distribution.* Korea, Japan, China, northeast Asia.

*Bio-Activities.* Uterotonic (1), hypotensive, anticancer, antibacterial, platelet activating factor antagonistic (2), anticoagulant activities (3).

*Chemical components.* Alkaloids: leonurinine, leonuridine, stachydrine, leuronurine. Prehispanolone (4), cycloleonurinine (5), leoheterin, preleoheterin.

*References.*

- (1) Teng, J.M. *et al.* (1992) Acta Univ. Med. Tongji **21**, 103.
- (2) Lee, C.M. *et al.* (1991) Br. J. Pharmacol. **103**, 1719.
- (3) Kosuge, T. *et al.* (1984) Yakugaku Zasshi **104**, 1050.
- (4) Hon, P.M. *et al.* (1991) Phytochemistry **30**, 354.
- (5) Kinoshita, K. *et al.* (1991) Chem. Pharm. Bull. **39**, 712.



*Lilium lancifolium* Thunb.

***Lilium lancifolium* Thunb.**

**Liliaceae**

Korean Name: Cham-na-ri

English Name: Tiger lily

*Parts used.* Tuber.

*Traditional uses.* Cough, sore throat, palpitation, boils.

*Description.* Perennial herb, with the bulb scaly. Stems unbranched, to 1-2 m, purplish, scabrous, cobwebby-hairy, with bulbils in leaf axils. Leaves alternate, many, broadly linear to lanceolate, 5-18 cm long, 5-15cm wide. Flowers 1-25 in a raceme, nodding, to 12 cm across, orange-red, spotted inside with purple-black; perianth funnellform, segments 6, strongly reflexed, each with a basal nectar-bearing gland; stamens 6, anthers versatile. Fruit a 3-valved, loculicidal capsule, the margins of valves flat; seeds many, flat, in 2 rows in each cell. Jul. - Aug.

*Habitat.* Woods in lowlands and mountains.

*Distribution.* Korea, China, Japan.

*Bio-Activities.* Anti-inflammatory (1).

*Chemical components.* Liliuola-glucomannan (2), lilioid C (3), phenylpropanoids (4).

*References.*

(1) Han, B.H. *et al.* (1972) Kor. J. Pharmacog. **4**, 205.

(2) Tomoda, Y. *et al.* (1976) Chem. Pharm. Bull. **24**, 2744.

(3) Kaneda, M. *et al.* (1982) Phytochemistry **21**, 891.

(4) Shiomura, H. *et al.* (1989) Shoyakugaku Zasshi **43**, 64.



***Liriope platyphylla* Wang et Tang**

**Liliaceae**

Korean Name: Mac-moon-dong

English Name: Lilyturf

*Parts used.* Tuber.

*Traditional uses.* Tonic, sputum remedy, strengthening stamina.

*Description.* Evergreen, perennial herb. Plants tufted with thick, fasciculate rhizomes; leaves grasslike, deep-green, clustered from the base, 30-50 cm long, 8-12 mm wide, 11-15 nerved; scape 30-50 cm long; flowers pale violet, in axillary fascicles arranged in terminal spikes, few to several in a group, pedicels 25 mm long, perianth-segments 6, separate, stamens 6, ovary superior; fruit berrylike, black, seed 1 or 2, fleshy. May - Jun.

*Habitat.* Shaded areas in mountain woods.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Anti-inflammatory (1), antiallergic (2).

*Chemical components.* Saponins: ophiogonins A, B, C, D, etc. (3, 4).  
Monoterpenoids: borneol derivative (5).

*References.*

- (1) Shibata, M. *et al.* (1971) Hoshi Yakkadaigaku Kiyo **13**, 66.
- (2) Mita, A. *et al.* (1979) Biomedicine **31**, 223.
- (3) Watanabe, Y. *et al.* (1983) Chem. Pharm. Bull. **31**, 3486.
- (4) Watanabe, Y. *et al.* (1984) Chem. Pharm. Bull. **32**, 3994.
- (5) Kaneda, N. *et al.* (1983) Yakugaku Zasshi **103**, 1133.



*Liriope platyphylla* Wang et Tang



*Lonicera japonica* Thunb.

***Lonicera japonica* Thunb.**

**Caprifoliaceae**

Korean Name: In-dong

English Name: Japanese honeysuckle, gold-and-silver flower

*Parts used.* Flower bud.

*Traditional uses.* Dysentery, pain, swelling.

*Description.* Climbing, wholly or partly evergreen shrub. Branches terete, glandular and pubescent when young. Leaves opposite, simple, broadly lanceolate to ovate-elliptic, 3-7 cm long, 1-3 cm wide, acute or obtuse, rounded at base, entire, pubescent beneath; petioles 3-8 mm long. Flowers in axillary pairs subtended by 2 bracts and 4 bractlets, showy, fragrant; calyx tube 4-5 toothed, glabrous, the lobes ovate, 1 mm long; corolla white, turning to yellow with age, 4-5 lobed, 2-lipped, 3-4 cm long, soft-pubescent outside, the limb as long as tube; stamens 5; ovary inferior, 2-3 celled. Fruit blue-black, berrylike. Jun. - Jul.

*Habitat.* Woods in mountains and lowlands.

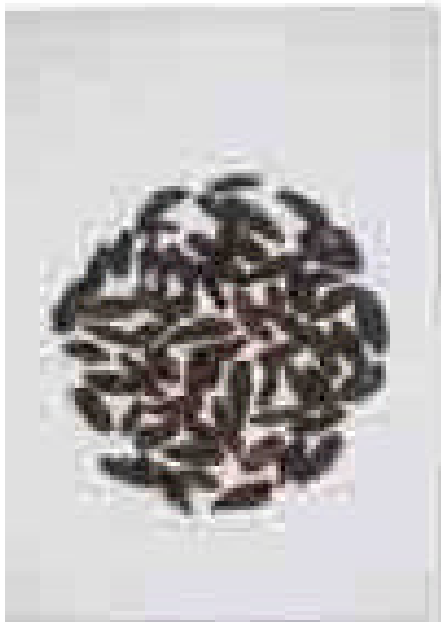
*Distribution.* Korea, Japan, China, east Asia, naturalized in North America.

*Bio-Activities.* Antiulcer, antibacterial (1), antiviral, antispasmodic, diuretic, anti-inflammatory, analgesic (2).

*Chemical components.* Wax, luteolin, lonicerine, inositol, triterpenoid saponins (3), essential oil, chlorogenic acid. Flavonoids: diosmetin 7-O-glucoside (4). Iridoids: vogeloside (4,5), loganic acid derivatives (6).

*References.*

- (1) Song, G. *et al.* (1985) *Zhongcaoyao* **16**, 229.
- (2) Lee, S.J. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 363.
- (3) Son, K.H. *et al.* (1994) *Phytochemistry* **35**, 1005.
- (4) Son, K.H. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 24.
- (5) Kawai, H. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 3664.
- (6) Tomassini, L. *et al.* (1995) *J. Nat. Prod.* **58**, 1756.

***Lycium chinense* Mill.****Solanaceae**

Korean Name: Goo-kee-ja-na-moo

English Name: Chinese matrimony vine

*Parts used.* Fruit, root bark.*Traditional uses.* Fruit - exhaustive coughing, debility. Root bark - consumptive fever, hypertension, oedema.*Description.* Deciduous clambering woody shrub, with arching or prostrate branches, to 4 m long, generally unarmed. Leaves alternate, often clustered, small, commonly narrow, entire, usually grayish-green, without stipules, ovate or ovate-lanceolate, to 7 cm long. Flowers solitary or clustered in leaf axils, usually 1-4 at a node, 1 cm long; calyx campanulate, 3-5 toothed, not enlarged in fruit; corolla funnellform, purplish; stamens 5, pubescent at the base. Fruit berry, scarlet or orange, to 2 cm long. Jun. - Sep.*Habitat.* Thickets in lowlands.*Distribution.* Korea, Japan, China, east Asia, naturalized in Europe, east United States.*Bio-Activities.* Immunopotentiating (1), hepatoprotective, hypoglycaemic, hypolipidaemic (2), antioxidative, angiotensin converting enzyme inhibition (3), antianaphylactic activity (4), platelet aggregation inhibition (5).*Chemical components.* Betaine, zeaxanthin, carotene, vitamins B, C, phytosterols, hyoscyamine, atropine (6), scopoletin, aurantiamide acetate, polysaccharides, lyciumines A, -D (7), liciumosides, triterpenes (8).*References.*

- (1) Kim, M.S. *et al.* (1988) *Kor. J. Pharmacog.* **19**, 193.
- (2) Kim, N.J. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 264.
- (3) Yahara, S. *et al.* (1989) *Tetrahedron Lett.* **30**, 6041.
- (4) Kataoka, M. and Takagaki, Y. (1995) *Nat. Med.* **49**, 346.
- (5) Yun-Choi, H.S. *et al.* (1985) *J. Nat. Prod.* **48**, 363.
- (6) Harsh, M.L. *et al.* (1989) *Curr. Sci.* **58**, 817.
- (7) Yahara, S. *et al.* (1993) *Chem. Pharm. Bull.* **41**, 703.
- (8) Itoh, T. *et al.* (1978) *Phytochemistry* **17**, 971.

*Lycium chinense* Mill.



*Lycopodium lucidum* Turcz

***Lycopodium lucidum* Turcz.**

**Labiatae**

Korean Name: Ship-ssa-ri

English Name: Bugleweed, gypsywort, water horehound.

*Parts used.* Herb.

*Traditional uses.* Amenorrhoea, oedema, swelling, pain.

*Description.* Stoloniferous, glabrous, perennial herb, not aromatic, to 1 m tall. Stems square in cross section, erect. Leaves opposite, serrate, wide-lanceolate, glabrous, 2-4 cm wide, 1-2 cm long. Flowers small, white, in axillary verticillasters; bracts leaflike, bractlets small; calyx campanulate, 13-nerved, 5-toothed; corolla tube shorter than calyx, limb 4-lobed; stamens 2, divergent, exerted; anther cells parallel. Fruit of 4 four-sided nutlets. Jul. - Aug.

*Habitat.* Wet areas in mountains and lowlands.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Weak diuretic (water ext.) (1), blood-activating and stasis-resolving activities (2).

*Chemical components.* Essential oils (1); carvacrol, 2,5-dimethoxy-cymene, trans-caryophyllene, spathurenol, trans-farnesene. Betulinic acid, oleanolic acid, 3-epimaslinic acid, euscaptic acid (3), 2-hydroxyursolic acid, tormentic acid, linarin (4).

*References.*

(1) Shin, S.H. *et al.* (1992) Kor. J. Pharmacog. **23**, 29.

(2) Gao, N. *et al.* (1996) Zhongcaoyao **27**, 352.

(3) Do, J.C. *et al.* (1991) Kor. J. Pharmacog. **22**, 162.

(4) Do, J.C. *et al.* (1991) Kor. J. Pharmacog. **22**, 166.



*Magnolia denudata* Desr.

***Magnolia denudata* Desr.**

**Magnoliaceae**

Korean Name: Bag-mok-ryeon

English Name: Lily tree

*Parts used.* Flower bud.

*Traditional uses.* Headache, nasal obstruction, sinusitis.

*Description.* Deciduous tree, to 20 m tall, with rough, gray-brown bark. Twigs dark-brown, pubescent at first, glabrous with age. Terminal buds covered with tomentum. Leaves obovate, elliptic, or broadly elliptic, 7-15 cm long, 5-10 cm wide, dark-green, glabrous above, light-green, pubescent beneath, almost glabrous at maturity, abruptly acuminate at apex, cuneate or obtuse at the base; petiole 2.5 cm long, tomentose, glabrous at age. Flowers appearing before leaves, erect, white, fragrant, vase-shaped; petals 9 (10-12), white tinged with pink or purple at the base or midrib, obovate, 5-10 cm long, 2-5 cm wide; stamens rose-purple, 0.5 cm long. Fruit aggregated to form follicetum, reddish brown, cylindrical, 5-15 cm long; outer seed coats red. Feb. - Mar.

*Habitat.* Commonly planted in Korea.

*Distribution.* Korea, Japan, east China, naturalized in some areas.

*Bio-Activities.* Uterus stimulating, hypotensive, local astringent (1), cytotoxic (2), antifungal.

*Chemical components.* Essential oil: 1,8-cineol, eugenol, asarone, methylchavicol, pinene (3). Alkaloids: *d*-coclaurine, *l*-*N*-methylcoclaurine, *d*-reticuline, yuzirine. Magnosalin (lignan). Costunolide, parthenolide, myristicin (2).

*References.*

- (1) Wang, Y.S. *et al.* (1983) Zhongyao Yaoli Yu Yingyong 540.
- (2) Funayama, S. *et al.* (1995) Int. J. Pharmacog. **33**, 21.
- (3) Xue, Z.L. *et al.* (1989) Zhongguo Zhongyao Zazhi **14**, 38.



*Malva verticillata* L.

***Malva verticillata* L.**

**Malvaceae**

Korean Name: A-wook

English Name: Mellow, musk mellow

*Parts used.* Seed.

*Traditional uses.* Postpartum fever, poisoned dermatitis from contact with varnish tree, abortifacient.

*Description.* Erect annual, or biennial, to 60-90 cm tall. Leaves alternate, rounded, palmately lobed, 5- or 7-lobed. Flowers in dense axillary clusters; involucral bracts 3, separate; petals white or purplish, about 1 cm long; stamens united in a tubular column; style branches filiform, stigmatic along inner edge, as many as the mericarps. Fruit a discoid mericarps, mericarps glabrous, conspicuously transverse-ridged, each 1-seeded. May - Oct.

*Habitat.* Cultivated in Korea.

*Distribution.* Eurasia.

*Bio-Activities.* Reticuloendothelial system potentiating (1), anticomplementary (2), hypoglycaemic (2).

*Chemical components.* Mucilage (3). Polysaccharides: MVS-1(4), -IIA, -IIG, -V (5), IVA (1). Flavonoids (6).

*References.*

(1) Gonda, R. *et al.* (1990) *Planta Med.* **56**, 73.

(2) Tomoda, H. *et al.* (1990) *Planta Med.* **56**, 168.

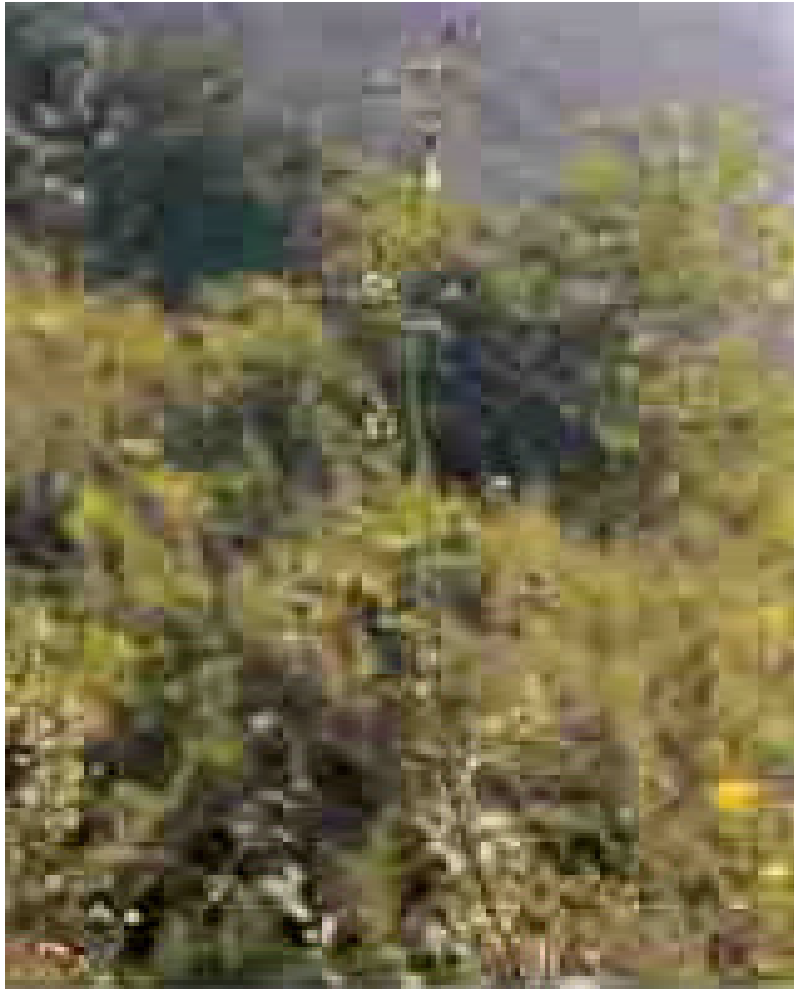
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(4) Shimizu, N. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 4981.

(5) Gonda, R. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 2790.

(6) Matlawska, I. (1990) *Herba Pol.* **36**, 65.





*Melandrium firmum* (Siebold et Zucc.) Rohrb.

***Melandrium firmum* (Siebold et Zucc.) Rohrb.**

**Caryophyllaceae**

Korean Name: Jang-goo-chaе

English Name: Catchfly, cockle

*Parts used.* Herb.

*Traditional uses.* Gonorrhoea, galactagogue, emmenagogue, contraception.

*Description.* Biennial, erect herb, to 30-80 cm tall. Stems glabrous, green, but dark purple at nodes. Leaves opposite, ovate-elliptic or ovate-lanceolate, 3-10 cm long, hairy at edges and on both sides; stipules absent. Flowers white; calyx tubular, 5-toothed, 10-veined; petals 5, 2-lobed; coronal scales present at juncture of blade and claw; stamens 10; ovary 1-celled above but 3-5 celled at base; styles 3, alternate with calyx teeth. Fruit a capsule, dehiscent by teeth twice as many as the styles; seeds many, reniform. Jul.

*Habitat.* Open areas in lowlands and mountains.

*Distribution.* Korea, Japan, China, Siberia.

*Bio-Activities.* Induction of drug metabolizing enzymes in liver (1), aldose reductase inhibition (2).

*Chemical components.* Flavonoids; linarin, schaftoside (3), 3-*-D-Glucuronopyranosylmelandrigenin methyl ester* (4), saponins (5).

*References.*

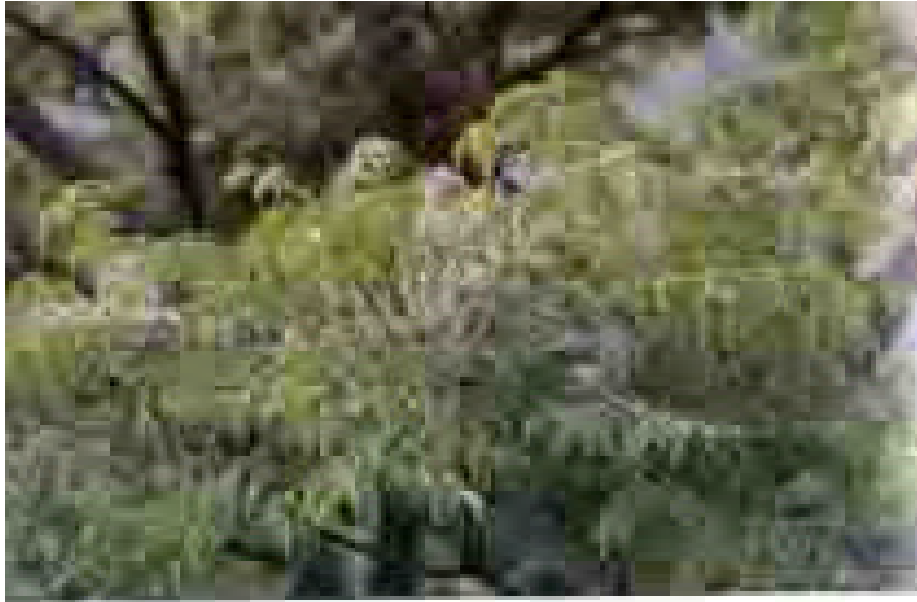
(1) Shin, K.H. *et al.* (1985) Kor. J. Pharmacog. **16**, 1.

(2) Shin, K.H. *et al.* (1993) Fitoterapia **64**, 130.

(3) Woo, E.H. *et al.* (1989) Arch. Pharm. Res. **12**, 223.

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(5) Chang, I.S. *et al.* (1989) Planta Med. **55**, 544.



***Melia azedarach* var. *japonica* Makino**

**Meliaceae**

Korean Name: Mul-goo-seul-na-moo

English Name: Chinaberry, pride-of-India, pride-of-China, paradise tree, Japanese bead tree

*Parts used.* Bark, fruit.

*Traditional uses.* Ascaris, oxyuriasis.

*Description.* Spreading deciduous tree, to 15 m tall. Leaves alternate, 2-pinnate, 30-90 cm long, petioled; leaflets many, ovate or elliptical, acute, toothed or lobed, 2-5 cm long, glabrous above, pubescent beneath, almost glabrous with age. Flowers pale purple, in axillary panicles; calyx 5-lobed; petals 5, spreading; stamens 10, filaments united in a cylindrical tube; ovary 5-celled, 2 ovules in each cell. Fruit a berry, yellow, to 2 cm across, persisting after leaves fall, usually mistakenly called a drupe. May.

*Habitat.* Thickets in lowlands and hills.

*Distribution.* Korea, Japan, China, Asia, naturalized in warm-temperate and tropical America.

*Bio-Activities.* Anthelmintic, antifungal (1).

*Chemical components.* Chuanliansu, isochuanliansu (ascaricidal tetra- or triterpenoids), melinanones, orchinolides, nimboldines, salanin, meldenin, kulolactones, nimbolines, melianins, and gedunins (1). 12-Hydroxyammorastatone (2), azedarachol (3), monoterpenes, sesquiterpenes, phenylpropanoids (4,5).

References.

- (1) Inubushi, Y. and Hibino, T. (1970) Yakugaku Zasshi **90**, 99.
- (2) Ahn, J. W. *et al.* (1993) Bull. Korean Chem. Soc. **14**, 554.
- (3) Nakatani, M. *et al.* (1985) Phytochemistry **24**, 1945.
- (4) Kameoka, H. and Wang, C.P. (1976) Nippon Nogei Kagaku Kaishi **50**, 127.
- (5) Wang, C.P. and Kameoka, H. (1978) Nippon Nogei Kagaku Kaishi **52**, 297.

*Melia azedarach* var. *japonica* Makino

***Mentha arvensis* var. *piperascens* Malinv.****Labiatae**

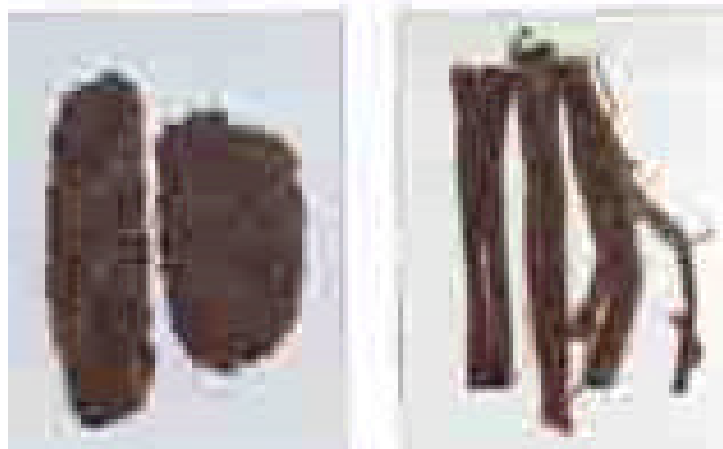
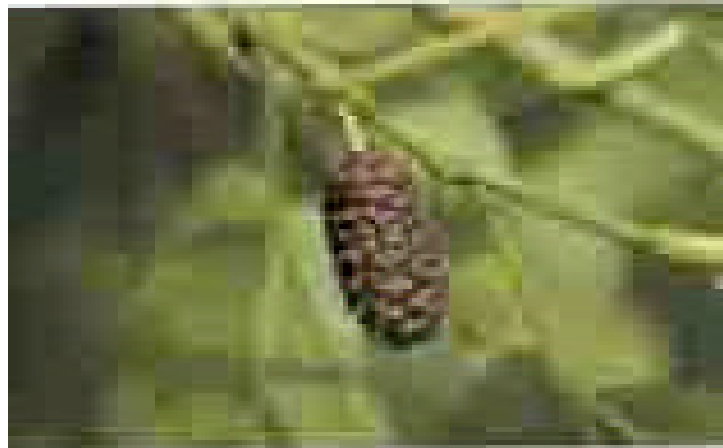
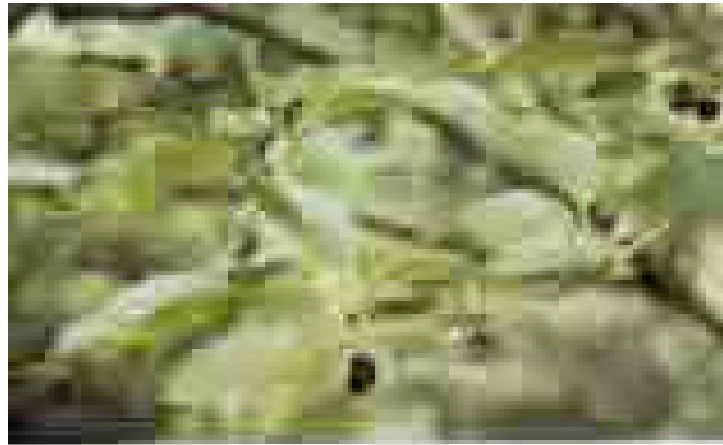
Korean Name: Bak-ha

English Name: Japanese mint

*Parts used.* Herb.*Traditional uses.* Nausea, dyspepsia, pharyngitis, headache, emmenagogue.*Description.* Erect, aromatic, perennial herb, to 50 cm tall. Stems mostly square in cross section, hairy. Leaves opposite, petiolate, ovate to elliptical, broadest below the middle, 2.5 cm long, 1-2.5 cm wide, serrate; petioles 3-10 mm long. Flowers in dense, many flowered verticillasters; calyx tubular or campanulate, 2.5-3 mm long, 10-13 nerved, 5-toothed; corolla white or pale rose, 4-5 mm long, corolla tube as long as calyx, limb 4-lobed, 3-4 mm long; upper lobe emarginate, larger; stamens 4, in 2 pairs, usually exserted. Fruit of 4 smooth, reticulate, or tubercled nutlets. Aug. - Oct.*Habitat.* Fields and wet areas in lowlands.*Distribution.* Korea, Japan, eastern Asia.*Bio-Activities.* Analgesic (1), local vasodilation (2), skin irritant (3), antispasmodic (4), cholagogic (5), antibacterial (6).*Chemical components.* Essential oil containing 70-90% *l*-menthol, other monoterpenoids and sesquiterpenoids as *l*-menthone, cineol, caryophyllene, *l*-limonene, isomenthone, germacrene-D, piperitone, pulegone (7,8).*References.*

- (1) Yamahara, J. *et al.* (1980) *Yakugaku Zasshi* **100**, 713.
- (2) Yamahara, J. *et al.* (1981) *Shoyakugaku Zasshi* **35**, 103.
- (3) Masaki, Y. *et al.* (1948) *Nippon Yakurigaku Zasshi* **43**, 80.
- (4) Giachetti, D. *et al.* (1988) *Planta Med.* **54**, 389.
- (5) Yamahara, J. *et al.* (1985) *Shoyakugaku Zasshi* **39**, 93.
- (6) Chen, C.P. *et al.* (1987) *Shoyakugaku Zasshi* **41**, 215.
- (7) Bicchi, C. *et al.* (1989) *J. High Resolut. Chromatogr.* **12**, 316.
- (8) Pichitakul, N. and Sthapitanonda, K. (1977) *J. Natl. Res. Counc. Thailand* **9**,1.

*Mentha arvensis* var. *piperascens* Malinv.



*Morus alba* L.

***Morus alba* L.**

**Moraceae**

Korean Name: Pong-na-moo  
English Name: White mulberry

*Parts used.* Leaf, bark.

*Traditional uses.* Leaf - hypertension, weakness. Bark - Cough, anasarca with oliguria, dysuria, constipation.

*Description.* Deciduous, monoecious tree or large shrub with almost glabrous branches. Leaves alternate, round-ovate or elliptic-ovate, to 10 cm long or more, coarsely toothed, often 3-5 lobed, acuminate or obtuse at tip, deep cordate at base, glabrous or scabrous, glossy green above, pubescent on midrib beneath; petioles 2-2.5 cm long, pubescent. Flowers unisexual, in drooping catkins. Fruit a juicy syncarp, blackish-purple, 1-2.5 cm long, sweet. Jun.

*Habitat.* Mountain woods.

*Distribution.* Korea, central and east China.

*Bio-Activities.* Hypotensive, vasodilator (1), blood sugar lowering (2), antitussive, analgesic, anti-inflammatory (3), HMG Co-A reductase inhibition (4), antitumour activity (5).

*Chemical components.* Prenylflavones (6,7,8,9): morusin, cyclomorusin, kuwanones A, F, G, umbelliferone. Triterpenoids: betulinic acid (10).

*References.*

- (1) Tanemura, I. (1960) Nippon Yakurigaku Zasshi **56**, 704.
- (2) Hikino, H. *et al.* (1985) Planta Med. **51**, 159.
- (3) Yamatake, Y. *et al.* (1976) Japan. J. Pharmacol. **26**, 461.
- (4) Han, G.Q. *et al.* (1991) Int. J. Chinese Med. **16**, 1.
- (5) Chang, I.M. and Woo, W.S. (1980) Arch. Pharm. Res. **3**, 75.
- (6) Nomura, T. *et al.* (1983) Chem. Pharm. Bull. **31**, 2936.
- (7) Nomura, T. *et al.* (1984) Chem. Pharm. Bull. **32**, 808, 1260.
- (8) Nomura, T. *et al.* (1985) Heterocycles **23**, 819.
- (9) Nomura, T. *et al.* (1986) Heterocycles **24**, 1251, 1381, 1807.
- (10) Nomura, T. *et al.* (1978) Chem. Pharm. Bull. **26**, 1394, 1453.



*Nelumbo nucifera* Gaertner

***Nelumbo nucifera* Gaertner**

**Nymphaeaceae**

Korean Name: Yeon-kot

English Name: Sacred lotus

*Parts used.* Seed.

*Traditional uses.* Diarrhoea, spermatorrhoea, leukorrhoea.

*Description.* Large, aquatic herb with wide-spreading, horizontal, thickened rhizomes rooted in mud. Leaves glaucous, nearly orbicular, concave, peltate, 30-90 cm across, with often sinuate margins, usually above the water on long petioles; petioles and peduncles rough. Flowers fragrant, pink, rose, or sometimes white, solitary, large, showy, mostly overtopping leaves; sepals 4-5; petals and stamens many, attached at the base of an obconical, flat-topped receptacle in which the many 1-ovuled carpels are embedded. Flowers are sacred to Buddhists. Grown widely in the Orient for the edible rhizomes and seeds. Jul. - Aug.

*Habitat.* Ponds, lakes.

*Distribution.* Korea, south Asia to Australia.

*Bio-Activities.* Vasodilation (methylcorypalline), uterine smooth muscle relaxation (demethylcocloraurine) (1), hypotensive (liensinine, benzylisoquinoline dimer) (2), antihypercholesterolaemic (3).

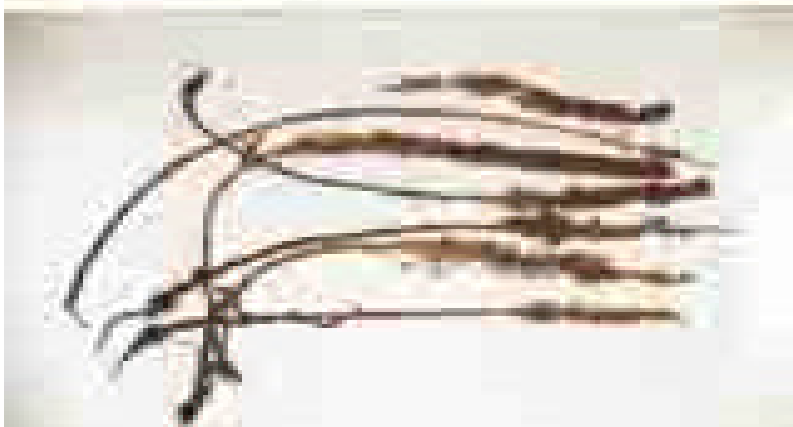
*Chemical components.* Alkaloids (1): lotusine, demethylcocloraurine, liensinine, isoliensinine, neferine, nornuciferine, pronuciferine, methylcorypalline, norarmepavine, liriodenine. Flavonoids (4): nelumboside.

(1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 251, 508, Oriental Healing Art Institute, Long Beach, CA.

(2) Chen, W.Z. *et al.* (1962) *Yueh Hsueh Hsueh Pao* **9**, 271, 277.

(3) Onishi, E. *et al.* (1984) *Chem. Pharm. Bull.* **32**, 646.

(4) Ishida, H. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 4585.

***Orostachys japonicus* A. Berger****Crassulaceae**

Korean Name: Ba-we-sol

English Name: Rock pine

*Parts used.* Herb.*Traditional uses.* Cancer, gingivitis, coagulation, metritis.

*Description.* Glabrous, succulent perennial herb. Rosettes flowering and dying, but often offsets, withering in autumn, leaving compact winter bud of mostly callus leaves that grow basally in spring to form callus-tipped foliage leaves. Stem leaves sessile, dense on stem, subulate at tip, lanceolate, green, sometimes purplish or powdery white. Inflorescence a terminal, pyramidal thyrse 6-15 cm long. Flowers white, 5-merous; sepals nearly equal, lanceolate, pale green; petals spreading, nearly separate, lanceolate, 6 mm long; stamens 10. Sep.

*Habitat.* Surface of mountain rocks.*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Cytotoxic (1), pyruvate-orthophosphate dikinase (2), antispasmodic activities (3).

*Chemical components.* Fatty acid esters: friedelin, glutinone, glutinol, 1-hexatriacontanol, etc. (4), taraxerone, stigmast-4-en-3-one, ergost-4-en-3-one (5). Flavonoids (6).

*References.*

- (1) Lee, I.R. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 132.
- (2) Sanada, Y. *et al.* (1982) *Z. Pflanzenphysiol.* **105**, 189.
- (3) Woo, W.S. and Lee, E.B. (1979) *Kor. J. Pharmacog.* **10**, 27.
- (4) Park, H.J. *et al.* (1991) *Kor. J. Pharmacog.* **22**, 78.
- (5) Park, H.J. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 20.
- (6) Park, H.J. *et al.* (1991) *Arch. Pharm. Res.* **14**, 167.

*Orostachys japonicus* A. Berger



*Paeonia lactiflora* var. *hortensis* Makino

***Paeonia lactiflora* var. *hortensis* Makino**

**Ranunculaceae**

Korean Name: Jak-yag

English Name: Chinese peony, common garden peony

*Parts used.* Root.

*Traditional uses.* Pain, blood circulation disorders, women's diseases.

*Description.* Stout perennial herb with thickened and tuberous root. Stems 40-80 cm tall, glabrous, each 2- or more flowered. Leaves alternate, lower leaves 2-ternate; leaflets elliptic to lanceolate, entire or occasionally lobed, margins rough-scabrous. Flowers 1 or few at the ends of stems, 7-10 cm across, fragrant; petals 10, pink, red; stamens many, yellow; pistils 4-5, 3-5 celled, glabrous, or hairy in some varieties. Fruit a cluster of horizontally spreading follicles. May - Jun.

*Habitat.* Mostly cultivated in Korea.

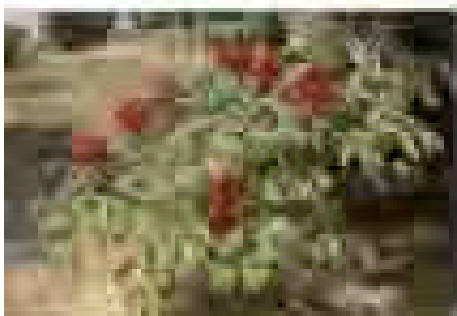
*Distribution.* Korea, China, to Siberia.

*Bio-Activities.* Anti-inflammatory, sedative, analgesic, antiulcer, vasodilation (1), anticonvulsion, hypotensive, muscle relaxation activities by paeoniflorin. Anti-platelet aggregation (2), anticoagulant (3), plaque formation suppressant (4).

*Chemical components.* Paeoniflorin, albiflorin, oxypaeoniflorin, paeoniflorigenone, paeonilactone (5). Tannins: gallo-tannins (6). Aromatics (7), monoterpenes, sesquiterpenes, phenylpropanoids (8).

*References.*

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- (2) Kang, S.S. *et al.* (1991) *Kor. J. Pharmacog.* **22**, 215.
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- (4) Namba, T. *et al.* (1984) *Shoyakugaku Zasshi* **38**, 253.
- (5) Lang, *et al.* (1984) *Planta Med.* 501.
- (6) Nishizawa, M. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 849.
- (7) Miyazawa, M. *et al.* (1984) *Agr. Biol. Chem.* **48**, 2847.
- (8) Kumar, N. and Motto, M.G. (1986) *Phytochemistry* **25**, 250.

***Paeonia suffruticosa* Andrews****Paeoniaceae**

Korean Name: Mo-ran

English Name: Tree peony

*Parts used.* Root bark.*Traditional uses.* Headache, stomachic, cough, cold, lumbago, antispasmodic.*Description.* Coarsely branched, small shrub, 1-1.5 m tall. Leaves alternate, 2-pinnate; leaflets deeply and incisively divided, 3-5 clefted, acute, whitish beneath, with a few hairs along midrib. Flowers large and showy, 10-15 cm across, rose-pink to white; stamens many; carpels 2-6, densely brown-pubescent, at first enveloped by a thin, white lobe of the disc that splits as the follicles develop. Fruit a cluster of horizontally spreading follicles. May.*Habitat.* Mostly cultivated in Korea.*Distribution.* Bhutan to Tibet, China, long cultivated in Korea and Japan.*Bio-Activities.* Diuretic (1), antiviral (2), anticoagulant (3), antiulcer, anti-inflammatory, antispasmodic (4), aldose reductase inhibition (5).*Chemical components.* Phenolic compounds (6): paeonol, paeonolide, paeonoside. Monoterpene glycosides (7,8): paeoniflorin, oxypaeoniflorin derivatives. Flavonoids (9).*References.*

- (1) Kawashima, K. *et al.* (1985) *Planta Med.* **5**, 1187.
- (2) Takechi, M. *et al.* (1982) *Planta Med.* **45**, 252.
- (3) Ishida, H. *et al.* (1987) *Chem. Pharm. Bull.* **35**, 846.
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- (5) Shimizu, M. *et al.* (1993) *Chem. Pharm. Bull.* **41**, 1469.
- (6) Miyazawa, M. *et al.* (1983) *Agr. Biol. Chem.* **47**, 2925.
- (7) Kaneda, M. *et al.* (1972) *Tetrahedron* **28**, 4309.
- (8) Yoshikawa, M. *et al.* (1993) *Chem. Pharm. Bull.* **41**, 630.
- (9) Egger, K. and Keil, M. (1969) *Planta* **88**, 154.

*Paeonia suffruticosa* Andrews





*Panax ginseng* C.A.Mey

***Panax ginseng* C.A.Mey.**

Korean Name: In-sam

English Name: Ginseng

**Araliaceae**

*Parts used.* Root.

*Traditional uses.* Weakness, diabetes, alcoholism, endometritis.

*Description.* Perennial herb with thick roots and simple stems, to 50 cm tall. Root fusiform. Leaves borne in whorls, 3-4, palmately compound; leaflets 5, long-petioluled, obovate, 7-20 cm long, abruptly acuminate to caudate, serrate. Umbel solitary in the middle of leaf whorls. Flowers small, yellowish green, bisexual, in single terminal umbels; petals 5, imbricate; stamens 5; ovary 2-3 celled; styles 2. Fruit a drupe, red, globose, about 5 mm in diameter. Apr.

*Habitat.* Mostly cultivated, extremely rare in wild.

*Distribution.* Korea, northern China.

*Bio-Activities.* Antioxidant, antifatigue (1), immunostimulating (2), increasing HDL cholesterol, stimulation of ADH (3), hypoglycaemic (4).

*Chemical components.* Saponins (5); ginsenosides Ro, Ra, -Rh, malonyl-ginsenosides. Sesquiterpenes; eremophilene etc. Phenols; maltol, salicylic acid (1). Polyacetylenes (6); panaxynol, panaxydol, panaxyne (7). Peptide glycans (8); panaxans A, L, Q, U.

*References.*

- (1) Han, B.H. *et al.* (1979) Kor. J. Biochem. **12**, 33.
- (2) Jie, Y.H. *et al.* (1984) Agents Actions **15**, 386.
- (3) Joo, C.N. *et al.* (1977) Kor. J. Biochem. **10**, 109.
- (4) Yokozawa, T. *et al.* (1985) Chem. Pharm. Bull. **33**, 869.
- (5) Kitagawa, I. *et al.* (1983) Chem. Pharm. Bull. **31**, 3353.
- (6) Dabrowski, Z. *et al.* (1980) Phytochemistry **19**, 2464.
- (7) Kim, S.-I. *et al.* (1989) Kor. J. Pharmacog. **20**, 71.
- (8) Konno, C. *et al.* (1985) J. Ethnopharmacol. **14**, 69.



***Patrinia scabiosaefolia* Fisch.**

**Valerianaceae**

Korean Name: Ma-ta-ri

English Name: Patrinia

*Parts used.* Root.

*Traditional uses.* Initial stages of appendicitis, perityphlitis, neuralgia, emmenagogue.

*Description.* Rhizomatous perennial herb, to 60-150 cm tall. Leaves opposite, pinnatifid, to 15 cm long, coarsely toothed, somewhat hairy to nearly glabrous; terminal segment lanceolate, longer than the others; basal leaves ovate-oblong, lyrate. Flowers yellow, in corymbose-paniculate cymes; calyx 5-toothed; corolla 5-lobbed; stamens 4; ovary inferior, 3-celled. Fruit an achene, wingless, with 1 fertile and 2 sterile cells. Jul. - Aug.

*Habitat.* Open grassy areas.

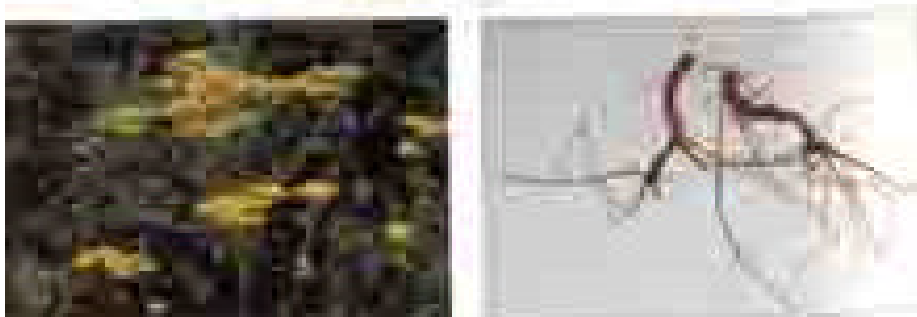
*Distribution.* Korea, Japan, China, eastern Siberia.

*Bio-Activities.* Induction of drug metabolizing enzymes in liver (1), antispasmodic (2), antibacterial (3).

*Chemical components.* Triterpenic glycosides (4,5), patrinoside (6), oleanolic acid, hederagenin (5,7), scopoletin, esculetin (8).

*References.*

- (1) Shin, K.H. *et al.* (1985) Kor. J. Pharmacog. **16**, 1.
- (2) Itokawa, H. *et al.* (1983) Shoyakugaku Zasshi **37**, 223.
- (3) Choe, T.Y. (1986) Kor. J. Pharmacog. **17**, 302.
- (4) Bukharov, V.G. and Karlin, V.V. (1970) Khim. Prir. Soedin **6**, 211, 372.
- (5) Choi, J.S. and Woo, W.S. (1987) Planta Med. **53**, 62.
- (6) Taguchi, H. and Endo, T. (1974) Chem. Pharm. Bull. **22**, 1935.
- (7) Woo, W.S. *et al.* (1983) Phytochemistry **22**, 1045.
- (8) Choi, J.S. and Woo, W.S. (1984) Arch. Pharm. Res. **7**, 121.



*Patrinia scabiosaefolia* Fisch.



*Peucedanum japonicum* Thunb.

***Peucedanum japonicum* Thunb.**

**Umbelliferae**

Korean Name: Get-kee-reum-na-mool

English Name: Japanese peucedanum

*Parts used.* Root.

*Traditional uses.* Migraine headache, common cold, rheumatoid arthritis.

*Description.* Glaucous perennial herb, glabrous in lower part, short-pubescent in upper part, to 60-100 cm tall. Leaves alternate, long-petioled, 2-3 pinnately compound; leaflets obovate-cuneate, 3-6 cm long, often 3-lobed, irregularly deeply dentate; upper leaves reduced, with a membranous, uninflated sheath. Umbels many, on short peduncles; peduncles 10-20, 2-3.5 cm long, densely pubescent; involucre absent; involucels 5-10, deltoid or lanceolate; pedicels 20-30. Fruit elliptic, puberulent, 4.5 mm long; the dorsal ribs slender and filiform; the lateral narrowly winged. Jun. - Aug.

*Habitat.* Sandy places near seashores.

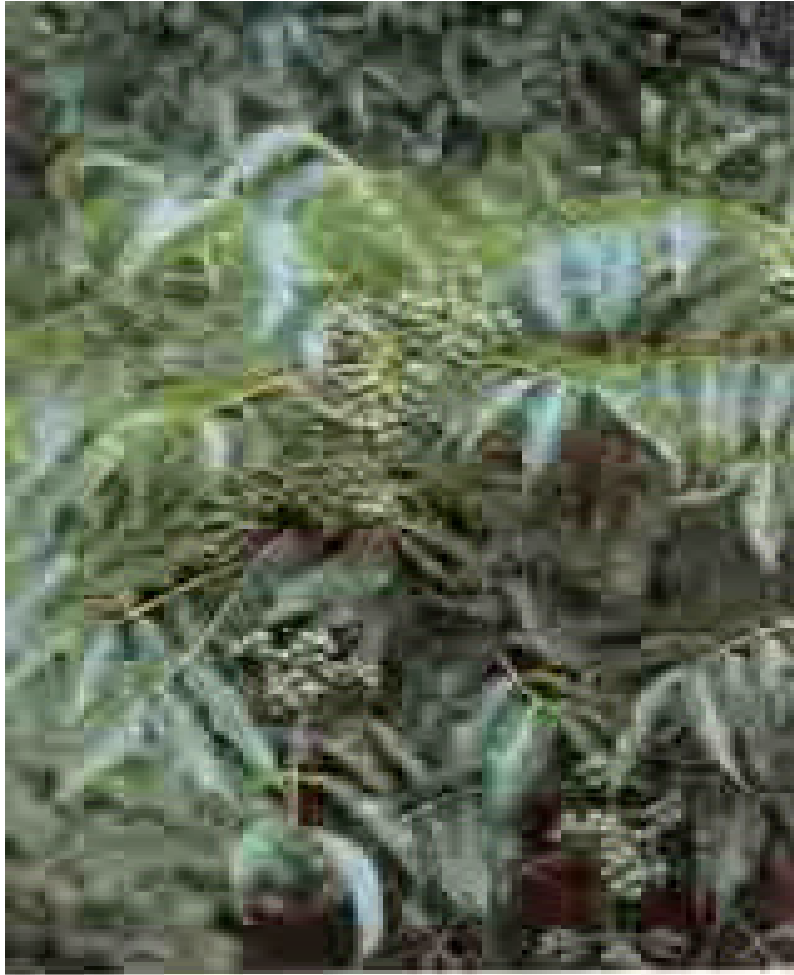
*Distribution.* Korea, China, Japan, Philippines.

*Bio-Activities.* Platelet aggregation inhibition (1), cytotoxicity (2).

*Chemical components.* Coumarins and dihydrocoumarins (1,2,3,4).

*References.*

- (1) Chen, I.S. *et al.* (1996) *Phytochemistry* **41**, 525.
- (2) Ikeshiro, Y. *et al.* (1992) *Phytochemistry* **31**, 4303.
- (3) Shin, K.H. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 20.
- (4) Duh, C.Y. *et al.* (1992) *Phytochemistry* **31**, 1829.

***Phellodendron amurense* Rupr.****Rutaceae**

Korean Name: Whang-byeuk-na-moo

English Name: Cork tree

*Parts used.* Bark.*Traditional uses.* Diarrhoea, ulcer, swelling, gastrointestinal disorders.

*Description.* Dioecious, deciduous tree, to 15 m tall, with corky bark; cortex orange-yellow. Leaves opposite, odd-pinnate, glandular-dotted; leaflets 5-13, ovate to ovate-lanceolate, to 10 cm long, long-acuminate, ciliate, dark green and glossy above, glabrous and glaucous beneath. Inflorescence terminal panicles, pubescent, 5-7 cm across. Flowers greenish, 6 mm long, unisexual; sepals, petals, and stamens 5-6. Fruit black, berrylike, 5-seeded. Jun.

*Habitat.* Woody areas in mountains.*Distribution.* Korea, Japan, northern China, Amur.

*Bio-Activities.* Antibacterial, antimalarial, oxytocic, antianaemic, antihypertensive, antipyretic, choleric, inhibition of cholinesterase, serum cholesterol and blood sugar level lowering activities by berberine (1,2,3), aldose reductase inhibition (4).

*Chemical components.* Alkaloids (5,6): berberine, palmatine, magnoflorine, phellodendrine, jatrorrhizine, candicine, menisperine. Bitter principles (7): obakunone, obakulactone. Phytosterols. Butenolides (8). Flavonoids (leaves): amurensin, phellamurin.

*References.*

- (1) Sun, D.C. *et al.* (1988) *Antimicrob. Agents Chemother.* **32**, 1379.
- (2) Shanbhag, S.M. *et al.* (1970) *Japan J. Pharmacol.* **20**, 482.
- (3) Sabir, M. *et al.* (1978) *Ind. J. Physiol. Pharmacol.* **22**, 9.
- (4) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (5) Tomita, M. *et al.* (1960) *Yakugaku Zasshi* **80**, 880, 885, 1238, 1300.
- (6) Liu, Y.M. and Sheu, S.J. (1993) *J. Chromatogr.* **634**, 329.
- (7) Kubota, T. *et al.* (1961) *Tetrahedron Lett.* 325.
- (8) Kondo, Y. *et al.* (1985) *Yakugaku Zasshi* **105**, 742.

*Phellodendron amurense* Rupr.

***Phlomis umbrosa* Turcz.****Labiatae**

Korean Name: Sok-dan

English Name: Phlomis

*Parts used.* Root.*Traditional uses.* Haemostatic, tineapedis.

*Description.* Pubescent perennial herb to 1 m tall. Some roots thickened to spindle shape. Leaves opposite, long-petiolate, suborbiculate to cordate, 13 cm long, 10 cm wide; the upper leaves smaller, pubescent beneath, margins crenate. Flowers in axillary verticillasters; calyx tubular, 8 mm long, 5-toothed; corolla purple, 2-lipped; upper lip hooded; lower 3-lobed, spreading. Jul.

*Habitat.* Mountains and hills.*Distribution.* Korea, northern China.*Bio-Activities.* Antihepatotoxic (1).

*Chemical components.* Shanzhiside methyl ester (2), succinic acid, bentonidine (3), umbroside (4).

*References.*

- (1) Kim, Y.S. and Park, K.H. (1994) Kor. J. Pharmacog. **25**, 388.
- (2) Chung, B.S. *et al.* (1983) Kor. J. Pharmacog. **14**, 5.
- (3) Zhu, D. *et al.* (1984) Zhongcaoyao **15**, 380.
- (4) Chung, B.-S. *et al.* (1981) Kor. J. Pharmacog. **12**, 82.

*Phlomis umbrosa* Turcz.

***Phytolacca esculenta* Van Houtte****Phytolaccaceae**

Korean Name: Ja-ri-gong

English Name: Pokeweed, pokeberry

*Parts used.* Root.*Traditional uses.* Oedema, beri-beri, tineapedis, lumbago, rheumatism, abortifacient.*Description.* Perennial herb, to 1 m tall, slightly woody at base. Leaves alternate, broad-elliptic or lanceolate, 10-20 cm long, 5-12 cm wide, margins entire; petioles 1.5-2.5 cm long. Inflorescence racemes, 10-12 cm long, opposite against leaves, erect or oblique; pedicels 10-12 mm long. Flowers small, bisexual, white; sepals 5, ovate, obtuse; petals none; stamens 8, anther pale pink; carpels 8; style 1, curved outwards. Fruit a depressed-globose berry; each carpel 1-seeded. May - Jun.*Habitat.* Abandoned or open fields near residences.*Distribution.* China, naturalized in Korea.*Bio-Activities.* Anti-inflammatory (1), hypotensive (2), purgative, diuretic, toxic (convulsive) activities.*Chemical components.* Saponins (3,4,5); many oleanane-derived phytolaccosides, 3-acetylmyricadiol (6).*References.*

- (1) Yi, Y.H. (1984) Chin. Trad. Herb. Drugs **15**, 55.
- (2) Funayama, S. (1979) J. Nat. Prod. **42**, 672.
- (3) Woo, W.S. (1971) Yakhak Hoeji **15**, 99.
- (4) Wang, Z.L. and Yi, Y.H. (1984) Yaoxue Xuebao **19**, 825.
- (5) Yi, Y. and Dai, F. (1991) Planta Med. **57**, 162.
- (6) Woo, W.S. and Kang, S.S. (1985) Phytochemistry **24**, 1116.

*Phytolacca esculenta* Van Houtte



***Picrasma quassioides* (D. Don) Bennet**

**Simaroubaceae**

Korean Name: So-tae-na-moo

English Name: Picrasma

*Parts used.* Wood.

*Traditional uses.* Bitter stomatic, chronic dyspepsia.

*Description.* Deciduous, slender tree, to 20 m tall, but usually much smaller to shrublike. Young branches red-brown, with yellow spots. Leaves alternate, odd-pinnate, petioles 24 cm long; leaflets 7-9, sessile, ovate or narrowly ovate, 4-10 cm long, 1.5-3 cm wide, acuminate with obtuse tip, cuneate at base, obtusely toothed, nearly glabrous. Cymes axillary, 8-15 cm across; peduncles 4-10 cm long. Flowers yellowish green, 4-7 mm across; sepals 4-5, ovate; petals 4-5, obovate, 3-4 mm long. Fruit 1-5 drupelets, globose-obovoid, 6-7 mm long. Jun.

*Habitat.* Lowland woods.

*Distribution.* Korea, Japan, China, India.

*Bio-Activities.* Gastric secretion, insecticidal, antiamebic, anthelmintic by quassinoids (1,2), antihypertensive, antiviral, cAMP phosphodiesterase inhibition, blood flow increase in GI-tract by alkaloids (3,4).

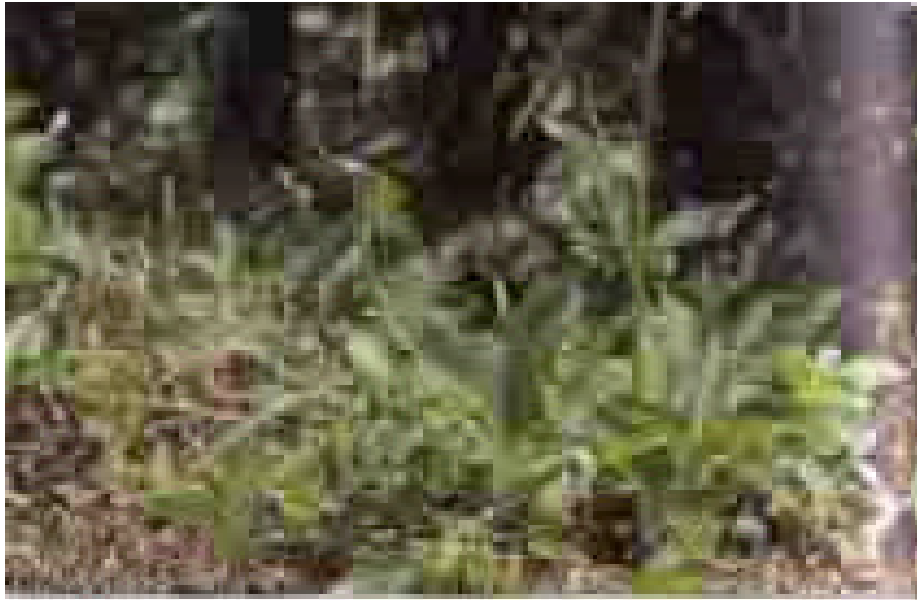
*Chemical components.* Nigakilactones A-N (5), picrasins (6), picrasinosides (7), canthinones (8), -carboline alkaloids (9,10), 2,6-dimethoxybenzophenone.

*References.*

- (1) Park, M.H. *et al.* (1987) Chem. Pharm. Bull. **35**, 3082.
- (2) Sone, Y. (1936) Tohoku J. Exp. Med. **29**, 321.
- (3) Sung, Y.-I. *et al.* (1984) Chem. Pharm. Bull. **32**, 1872.
- (4) Ohmoto, T. *et al.* (1988) Chem. Pharm. Bull. **36**, 4588.
- (5) Murae, T. *et al.* (1973) Tetrahedron **29**, 1515.
- (6) Hikino, H. *et al.* (1975) Phytochemistry **14**, 2473.
- (7) Okano, M. *et al.* (1985) Bull. Chem. Soc. Japan **58**, 1793.
- (8) Kohda, K. *et al.* (1990) Shoyakugaku Zasshi **44**, 298.
- (9) Ohmoto, T. *et al.* (1984) Chem. Pharm. Bull. **32**, 3579.
- (10) Ohmoto, T. *et al.* (1985) Chem. Pharm. Bull. **33**, 4901.



*Picrasma quassioides* (D. Don) Bennet

***Pinellia ternata* (Thunb.) Breitenb.****Araceae**

Korean Name: Ban-ha

English Name: Three-leaf pinellia

*Parts used.* Corm.*Traditional uses.* Vomiting, damp and phlegm.

*Description.* Perennial herb with corm. Corm 1 cm in diameter. Leaves 1-2, directly from the corm, ternate; petiole 10-20 cm long, with bulbils borne on the petiole; leaflets 3, sessile, entire, 3-12 cm long, 1-5 cm wide, ovate-elliptical to oblong, glabrous. Scape solitary, 20-40 cm long; spathe green, 6-7 cm long; the tubular part 1.5-2 cm long; the blade lanceolate, rounded at apex, puberulent inside; spadix with appendage filiform, erect, 6-10 cm long. Fruit berry, small, green. May - Jun.

*Habitat.* Common in cultivated fields and roadsides.*Distribution.* Korea, Japan, China.

*Bio-Activities.* Anti-emetic (1), sedative, antitussive, expectorant activities by boiled extract, emetic action by unprocessed extract. Mitogenic, haemagglutinating activities by pinellin (2). Aldose reductase inhibition (3).

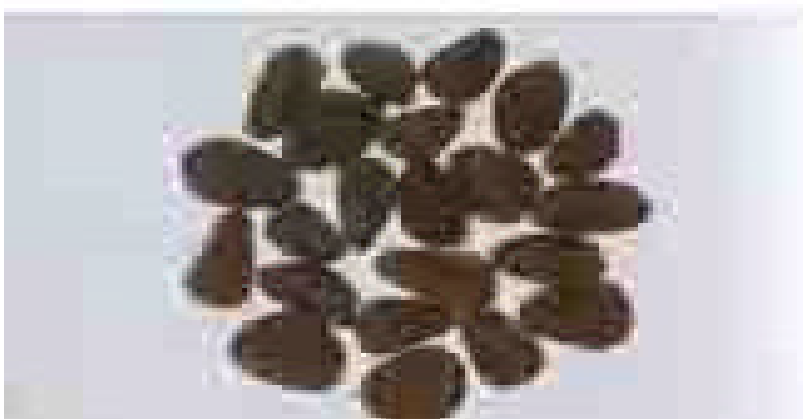
*Chemical components.* Amino acids, polysaccharides (1,4), homogentisic acid, ephedrine, 3,4-dihydroxybenzaldehyde-diglucoside (5), pinellin (low molecular weight crystalline protein), phytosterols.

*References.*

- (1) Maki, T. *et al.* (1987) *Planta Med.* **53**, 410.
- (2) Park, K.B. and Lee, K.S. (1981) *Kor. J. Biochem.* **14**, 137.
- (3) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (4) Maki, T. *et al.* (1985) *J. Agr. Food Chem.* **33**, 1024.
- (5) Suzuki, M. (1969) *Arzneim. Forsch.* **19**, 1307.

*Pinellia ternata* (Thunb.) Breitenb.





*Pinus koraiensis* Siebold et Zucc.

***Pinus koraiensis* Siebold et Zucc.**

**Pinaceae**

Korean Name: Jat-na-moo

English Name: Korean pine

*Parts used.* Seed.

*Traditional uses.* Tonic earache, galactagogue, epistaxis.

*Description.* Tall, coniferous, evergreen, monoecious tree, to 30 m tall or more. Branchlets yellow-brown-tomentose. Leaves of two kinds; the scalelike ones soon deciduous; the needle-shaped ones long, in fascicles of 5, to 10 cm long, dark green. Male cones catkinlike, clustered. Female cones conic-oblong, to 15 cm long; scales woody, persistent, thickened at the end, with a terminal projection; seeds 2 to each scale, without wing, maturing 2-3 years. May.

*Habitat.* Mountain woods at high elevation.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Inhibition of TXB<sub>2</sub> formation (piceid), hypolipidaemic (piceid) (1,2), analgesic, anti-inflammatory (3), antibacterial (4).

*Chemical components.* Oleic acid ester, linoleic acid ester, essential oil, various monoterpene, sesquiterpene and diterpene derivatives (1,2,5,6).

*References.*

- (1) Chi, H.J. *et al.* (1986) *Kor. J. Pharmacog.* **17**, 73.
- (2) Kimura, Y. *et al.* (1983) *Planta Med.* **49**, 51.
- (3) Jiang, X.L. *et al.* (1988) *Chung Yao Tung Pao* **13**, 39.
- (4) Sakagami, H. *et al.* (1992) *In Vivo* **6**, 13.
- (5) Hang, V.A. *et al.* (1980) *Chem. Nat. Comp.* **16**, 361.
- (6) San Feliciano, A. *et al.* (1988) *Phytochemistry* **27**, 2241.



*Plantago asiatica* L.

***Plantago asiatica* L.**

**Plantaginaceae**

Korean Name: Jil-kyung-ee

English Name: Asian plantain

*Parts used.* Seed.

*Traditional uses.* Cough, diarrhoea, inflammation of eyes.

*Description.* Perennial herb with radical leaves. Leaves all basal, cauline, ovate, 5-15 cm long, 3-8 cm wide, obtuse, with several parallel nerves; petioles as long as leaves, dilated at base. Scapes 10-50 cm long. Spike solitary, densely many-flowered, glabrous. Flowers bisexual, small, not showy; calyx 4parted; corolla 4lobed, scarious; stamens 4, exerted; ovary superior. Fruit a capsule enclosed by calyx. Jun. - Aug.

*Habitat.* Roadsides, fallow fields.

*Distribution.* Korea, Japan, China, eastern Siberia, Malaysia.

*Bio-Activities.* Choleric (1), blood sugar lowering, inhibition of complement activation by plantago-mucilage A (2,3).

*Chemical components.* Polysaccharides: plantasan, plantago-mucilage A (4). Flavonoids: plantagoside (5), plantagin, homoplantagin, aucubin. Monoterpenes (6), phenylpropanoids (7).

*References.*

(1) Miura, M. *et al.* (1987) *Yakugaku Zasshi* **107**, 992.

(2) Tomoda, M. *et al.* (1987) *Planta Med.* **53**, 8.

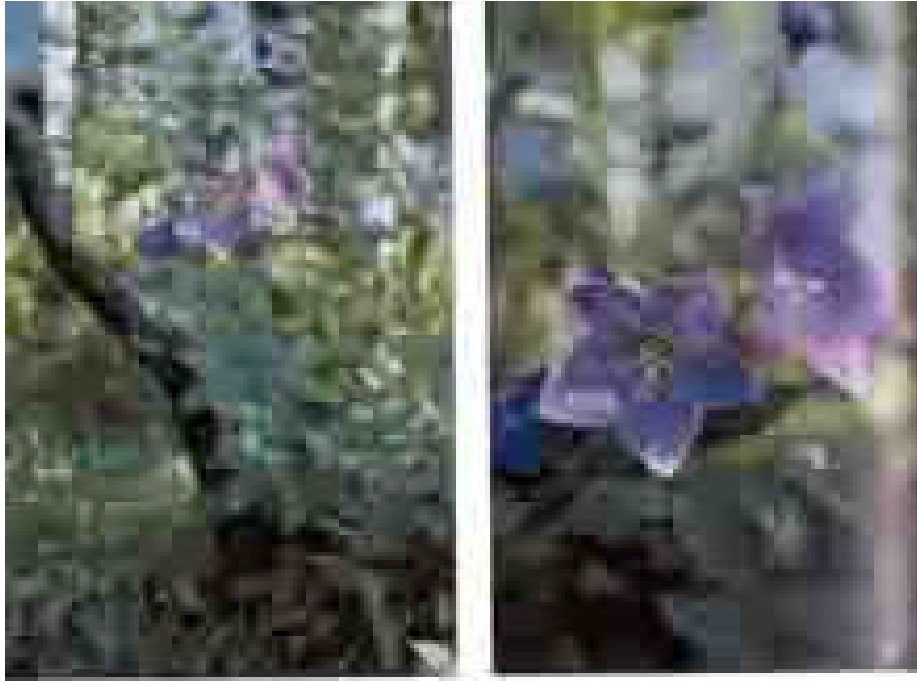
(3) Yamada, H. *et al.* (1986) *Carbohydr. Res.* **156**, 137.

(4) Tomoda, M. *et al.* (1984) *Chem. Pharm. Bull.* **32**, 2182.

(5) Endo, T. *et al.* (1981) *Chem. Pharm. Bull.* **29**, 1000.

(6) Kameoka, H. *et al.* (1979) *Yakugaku Zasshi* **99**, 95.

(7) Miyase, T. *et al.* (1991) *Phytochemistry* **30**, 2015.

***Platycodon grandiflorum* (Jacq.) DC.****Campanulaceae**

Korean Name: Do-ra-ji

English Name: Balloon flower

*Parts used.* Root.*Traditional uses.* Cough, expectorant, dermatomycoses, hypertension, diabetes.*Description.* Showy perennial herb, to 40-100 cm tall. Stems glabrous, erect, branched above. Leaves ovate to ovate-lanceolate, 4-7 cm long, 1.5-4 cm wide, sharply dentate, glaucous-pale blue beneath. Flowers erect, solitary, terminal on branches; corolla broadly bell-shaped to nearly rotate, deep to pale blue, lilac, or white, 4-5 cm across; filaments dilated at the base; anthers separate; stigmas 5. Jul. - Aug.*Habitat.* Open grassy areas in hills and mountains.*Distribution.* Korea, Japan, northern China.*Bio-Activities.* Anti-gastric ulcer (1), inhibition of congestive oedema, diuretic (2), CNS depressing sedative, analgesic, antifebrile activities, antiallergic, antitussive, expectorant (3), vasodilation (4), histamine release inhibition (5).*Chemical components.* Saponins: platycodins A, C, D, D2, polygalacins D, D2 (6). Sugars: inulin (7). Polyacetylenes (8).*References.*

- (1) Kawashima, K. *et al.* (1972) Chem. Pharm. Bull. **20**, 755.
- (2) Yamahara, J. *et al.* (1979) Chem. Pharm. Bull. **27**, 1464.
- (3) Takagi, K. *et al.* (1972) Yakugaku Zasshi **92**, 951, 971, 969.
- (4) Kato, H. *et al.* (1973) Japan J. Pharmacol. **23**, 709.
- (5) Hirai, Y. *et al.* (1983) Shoyakugaku Zasshi **37**, 374.
- (6) Ishii, H. *et al.* (1984) J. Chem. Soc., Perkin Trans. **I**, 661.
- (7) Mino, Y. *et al.* (1985) Chem. Pharm. Bull. **33**, 3503.
- (8) Ahn, J.C. *et al.* (1996) Phytochemistry **42**, 69.

*Platycodon grandiflorum* (Jacq.) DC.



***Polygonatum odoratum* var. *pluriflorum* Ohwi**

**Liliaceae**

Korean Name: Doong-geul-lae

English Name: Solomon's seal, King-Solomon's-seal

*Parts used.* Rhizome.

*Traditional uses.* Convalescence, weakness, febrile diseases.

*Description.* Rhizomatous, perennial herb. Rhizome horizontal, much-jointed, with many scars. Stems to 30-50 cm or more, angled, arching. Leaves alternate, sessile, elliptic-oblong to ovate, to 10 cm long, glabrous. Flowers greenish-white, axillary, to 2 cm long, fragrant, on 2-flowered peduncles; perianth cylindrical, 6lobed; stamens 6, on perianth tube, filaments glabrous. Fruit a blue-black berry with several seeds. Apr. - May.

*Habitat.* Meadows and sparse woods in lowlands and foothills.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Cardiotonic (1).

*Chemical components.* Polysaccharide (2); odoratan. Flavonoids (3); cosmosiin, saponarin, vitexin, vitexin-2"-glucoside, polygonatiin. Saponins (4).

*References.*

- (1) Virtane, A.I. and Lindo, P. (1955) *Nature* **176**, 984.
- (2) Tomoda, M. *et al.* (1973) *Chem. Pharm. Bull.* **21**, 1806.
- (3) Morita, N. *et al.* (1976) *Yakugaku Zasshi* **96**, 1180.
- (4) Ono, M. *et al.* (1988) *Shoyakugaku Zasshi* **42**, 135.

*Polygonatum odoratum* var. *pluriflorum* Ohwi



*Polygonum multiflorum* Thunb.

***Polygonum multiflorum* Thunb.**

**Polygonaceae**

Korean Name: Ha-soo-o

English Name: Fleece flower

*Parts used.* Tuber.

*Traditional uses.* Constipation, weakness of the body, abortifacient, liver protection.

*Description.* Scandent perennial herb, with thick rhizomes. Stems much-elongate, branched, 1-2 m tall. Leaves alternate, simple, ovate-cordate, 3-4.5 cm long, 2.5-4.5 cm wide, short-acuminate, glabrous; petioles 1-5 cm; sheaths rather short. Spikes branched, terminal, paniculate. Flowers greenish white, small in slender panicles, 2 mm long. Fruit an achene, 3-angular, with 3 wings, entirely enclosed by sepals, 7-8 mm long. Aug. - Sep.

*Habitat.* Mountain thickets.

*Distribution.* China, naturalized in Korea.

*Bio-Activities.* Hepatoprotective (1,2), antibacterial, senility-resistant effect (3), DNA polymerase a inhibition, RNA reverse transcriptase inhibition (4), Ca<sup>2+</sup>-ATPase inhibition (5), antioxidant (6).

*Chemical components.* Anthraquinones (7): emodin, chrysophanol, rhein. Stilbenes (5): 2,3,5,4'-tetrahydroxystilbene-2-O-β-D-glucoside. Phenolic glycosides: polygoacetophenoside (8).

*References.*

- (1) Shin, M.-K. *et al.* (1985) Kor. J. Pharmacog. **16**, 81.
- (2) Kimura, Y. *et al.* (1983) Planta Med. **49**, 51.
- (3) Yao, M.C. *et al.* (1984) Yaoxue Tongbao **19**, 28.
- (4) Ono, K. *et al.* (1989) Chem. Pharm. Bull. **37**, 1810.
- (5) Grech, J.N. *et al.* (1994) J. Nat. Prod. **57**, 1682.
- (6) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.
- (7) Li, J.B. and Lin, M. (1993) Chung Ts'ao Yao **24**, 115.
- (8) Yoshizaki, M. *et al.* (1987) Planta Med. **53**, 273.



*Polygonum tinctorium* Lour.

***Polygonum tinctorium* Lour.**

**Polygonaceae**

Korean Name: Chog

English Name: Polygonum

*Parts used.* Leaf, fruit.

*Traditional uses.* Antidote for fish toxin, burn, liver protection.

*Description.* Annual herb, to 50-60 cm tall, cultivated as a source of dye. Stems appearing to be jointed. Leaves alternate, simple, ovate, 8 cm long, entire, stipular sheaths well developed; stipules tinged red. Flowers small, whitish pink, in terminal or axillary compact spikes; sepals 5; stamens 6-8. Fruit a small achene, 3-angular, 2 mm long, wholly enclosed by sepals. Leaves used for dark-blue dye. Aug. - Sep.

*Habitat.* Open wet grassy areas.

*Distribution.* China, naturalized in Korea.

*Bio-Activities.* Augmented leukocyte phagocytosis, anti-inflammatory, antipyretic activities (1), antifungal (2).

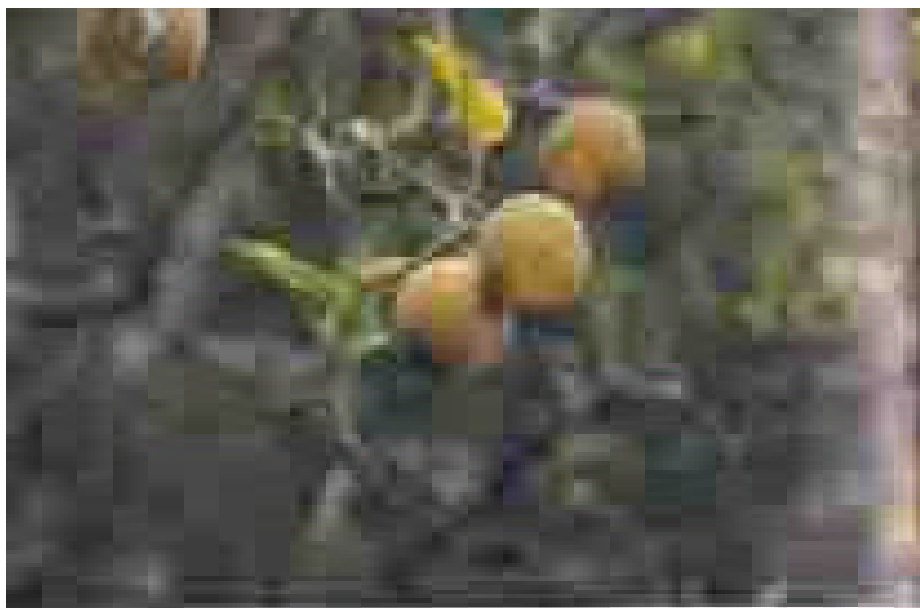
*Chemical components.* Glucosides: indican (1). Tryptanthrin (2). *N*-Phenyl-2-naphthylamine (3).

*References.*

(1) Nanjing College of Pharmacy (1976) *Zhongcaoyao Xue* Vol. 2, p. 366.

(2) Honda, E. *et al.* (1980) *Planta Med.* **38**, 275.

(3) Chen, D. *et al.* (1984) *Chung Ts'ao Yao* **15**, 534.

***Poncirus trifoliata* Raf.****Rutaceae**

Korean Name: Tang-ja-na-moo

English Name: Trifoliate orange, bitter orange

*Parts used.* Fruit.*Traditional uses.* Gastritis, hernia, sputum remedy, sinusitis.*Description.* Deciduous shrub, to 3 m tall, with tangled, rigid, green branches and stout green spines 3-5 cm long. Leaves alternate, trifoliate; leaflets 3-6 cm long, obovate or elliptic, cuneate at base, crenate; petioles slightly winged, 25 mm long. Flowers solitary, terminal or axillary, 1-2, 3 cm across, white, scented, sepals and petals 5; stamens many. Fruit globose, 3-5 cm in diameter, fragrant when ripe, inedible. May. Fruit ripening in Sep.*Habitat.* Woods in mountains and hills, commonly planted as a fence.*Distribution.* Korea, China.*Bio-Activities.* Sedative (1), angiotonic (2,3).*Chemical components.* Flavonoids (4). Coumarins (5). Monoterpenes (6). Alkaloids: 5-hydroxy-noracronycine (7).*References.*

- (1) Wagner, H. *et al.* (1973) *Deut. Apoth.-Ztg.* **113**, 1159.
- (2) Ariyoshi, T. *et al.* (1975) *Xenobiotica* **5**, 33.
- (3) Kodama, R. *et al.* (1976) *Life Sci.* **19**, 1559.
- (4) Kanes, K. *et al.* (1993) *Phytochemistry* **32**, 967.
- (5) Guiotto, A. *et al.* (1977) *Phytochemistry* **16**, 1257.
- (6) Kekelidze, N.A. *et al.* (1984) *Chem. Nat. Comp.* **20**, 572.
- (7) Wu, T. S. *et al.* (1986) *J. Nat. Prod.* **49**, 1154.

*Poncirus trifoliata* Raf.



*Portulaca oleracea* L.

***Portulaca oleracea* L.**

**Portulacaceae**

Korean Name: Shoi-bee-reum

English Name: Purslane, pussley

*Parts used.* Herb.

*Traditional uses.* Chronic wound, urticaria, snake-bite, swelling, psoriasis.

*Description.* Fleshy, trailing, glabrous, annual herb, to 30 cm tall. Stems thick and soft, decumbent or ascending, much branched, terete, reddish brown. Leaves alternate, fasciculate, spatulate to obovate, 15-25 mm long, 5-15 mm wide, short-petioled; the upper forming a leafy involucre subtending flowers. Flowers bright yellow, to 1 cm across, terminal on stems; sepals 2-cleft; petals 5, obovate, 4 mm long; stamens 7-12. Fruit a capsule, opening by the top falling as a lid. Jun. - Sep.

*Habitat.* Weedy, common in waste ground and cultivated fields.

*Distribution.* Cosmopolitan, but probably originated in India.

*Bio-Activities.* Diuretic (1), antibacterial (2), antihyperglycaemic (3), skeletal muscle relaxant (4).

*Chemical components.* Oleracin I, II, betacyanin (5), nicotinic acid, tocopherol (6), norepinephrine (7).

*References.*

- (1) Yasuye, M. and Honda, Y. (1944) J. Pharm. Soc. Japan 64.
- (2) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 223, Oriental Healing Art Institute, Long Beach, CA.
- (3) Eskander, E.F. and Jun, H.W. (1995) Egypt J. Pharm. Sci. **36**, 331.
- (4) Okwaasaba, F. *et al.* (1987) J. Ethnopharmacol. **21**, 55.
- (5) Imperats, F. (1975) Phytochemistry **14**, 2091.
- (6) Tashbekov, I. (1977) Rastit. Resur. **13**, 361.
- (7) Feng, J.C. *et al.* (1961) Nature **191**, 1108.



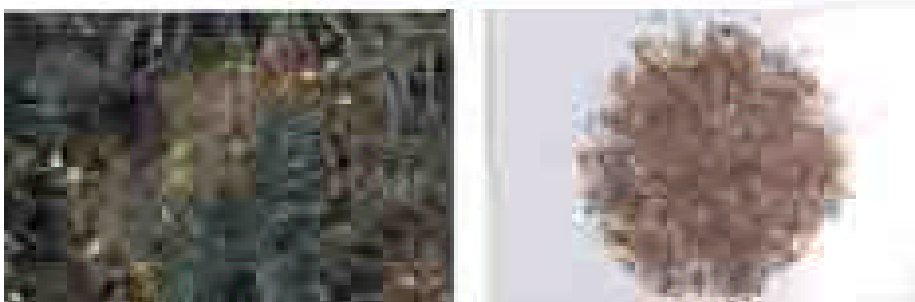
**Potentilla chinensis Ser.****Rosaceae**

Korean Name: Tag-ji-kot

English Name: Chinese cinquefoil

*Parts used.* Herb.*Traditional uses.* Antipyretic, haemostatic, women's tonic.*Description.* Pubescent perennial herb with stout rhizome, to 30-60 cm tall. Leaves pinnately compound, alternate, obovate to linear-lanceolate; leaflets 15-29, the lower smaller, the upper oblanceolate to narrowly oblong, 2-5 cm long, 8-15 mm wide, glabrous above, densely white-woolly tomentose beneath. Flowers many, 1-2 cm across, yellow; calyx segments ovate, acute; bracts lanceolate; receptacle hairy. Achenes broadly ovoid, longitudinally rugose, 1.3 mm long. Jun. - Jul.*Habitat.* Open sunny places in lowlands.*Distribution.* Korea, Japan, China.*Bio-Activities.* Antitumour (1).*Chemical components.* Gallic, catecholic tannins (2).

References.

(1) Amirova, M.N. (1974) *Adravookhr. Kaz* **8**, 36.(2) Haag-Berrurier, M. and Mathis, C. (1973) *Plant Med. Phytother.* **7**. 297.*Potentilla chinensis Ser.*

***Prunella vulgaris* var. *lilacina* Nakai****Labiatae**

Korean Name: Cool-pool

English Name: Self-heal, heal-all

*Parts used.* Flower.*Traditional uses.* Oedema, nephritis, scrofula, goitre.

*Description.* Pubescent perennial herb with stems mostly square in cross section, to 20-30 cm tall. Leaves opposite, simple, ovate to rhombic-ovate, cuneate, crenulate, 2-5 cm long; petioles 2-3 cm long; upper leaves almost sessile. Flowers in 6flowered verticillasters arranged in dense, terminal, cylindrical spikes; spikes subtended by leaves, 3-8 cm long; calyx tubular-campanulate, 7-10 mm long, short-pubescent outside, 2-lipped; upper lip 3-toothed, lower lip 2-toothed; corolla tube longer than calyx, obconical, limb 2-lobed, upper lip hooded; stamens 4, in 2 pairs; anther cells diverging. Fruit of 4 oblong, glabrous nutlets. May - Jul.

*Habitat.* Open sunny places in mountains and lowlands.*Distribution.* Europe, Asia, widely naturalized.*Bio-Activities.* Diuretic (1), anticancer (2).*Chemical components.* Triterpenoids (3,4), phenylpropanoids (5).*References.*

- (1) Haginiwa, T. *et al.* (1963) *Shoyakugaku Zasshi* **17**, 6.
- (2) Lee, K.H. *et al.* (1988) *Planta Med.* **54**, 308.
- (3) Kojima, H. and Ogura, H. (1986) *Phytochemistry* **25**, 729.
- (4) Kojima H. *et al.* (1987) *Phytochemistry* **26**, 1107.
- (5) Okuda, T. *et al.* (1986) *Yakugaku Zasshi* **106**, 1108.

*Prunella vulgaris* var. *lilacina* Nakai



*Prunus armeniaca* var. *ansu* Maxim.

***Prunus armeniaca* var. *ansu* Maxim.**

**Rosaceae**

Korean Name: Sal-goo

English Name: Apricot

*Parts used.* Seed.

*Traditional uses.* Cough, phlegm, common cold.

*Description.* Small round-crowned tree, with reddish bark and glabrous twigs. Leaves alternate, ovate, sometimes subcordate, 5-8 cm long, abruptly short-pointed, closely simply serrate, pubescent beneath on veins; stipules small, falling early. Flowers before the leaves, bisexual, pinkish, 2.5 cm across; sepals and petals 5; stamens many, inserted with the petals on the calyx tube; pistil 1, with 2 ovules. Fruit a drupe, with a fleshy outer layer surrounding a hard stone containing the seed, smooth at maturity, pubescent when young, yellow, often flushed with red; the stone flattened, ridged along suture. Apr.

*Habitat.* Mostly cultivated in Korea.

*Distribution.* Korea, China.

*Bio-Activities.* Antitussive, expectorant (1,2), antipyretic (1). Apricot seed oil lubricates intestine and produces laxative action.

*Chemical components.* Amygdalin (cyanhydrine-glucoside) (3), emulsin, anti-inflammatory protein (4).

*References.*

(1) Goto, *et al.* (1984) *Wakan Iyaku Gakkaishi* **1**, 126.

(2) Miyagoshi, M. *et al.* (1984) *Planta Med.* **52**, 275.

(3) Nagoshi, Y. *et al.* (1976) *Shoyakugaku Zasshi* **30**, 42.

(4) Nagamoto, N. *et al.* (1988) *Shoyakugaku Zasshi* **42**, 81.

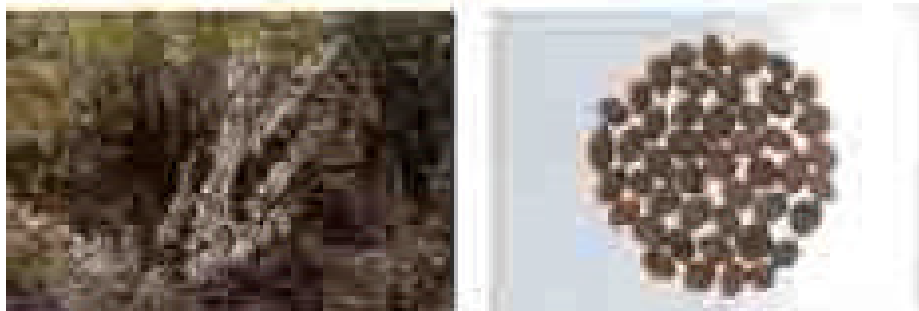
***Prunus japonica* var. *nakaii* (Lév.) Rehder****Rosaceae**

Korean Name: E-seu-ra-ji

English Name: Japanese bush berry, Japanese plum

*Parts used.* Seed.*Traditional uses.* Constipation, laryngitis, acute gastritis.*Description.* Deciduous small shrub, to 1 m tall. Branches fine, elongate, often puberulent while young, glabrous. Leaves alternate, petiolate, ovate to ovate-oblong, sharply serrate, 2-7 cm long, long-pointed, glabrous above, pubescent beneath on the veins. Flowers before or with leaves, 2-4, in umbels, pale pink, to 2 cm in diameter; pedicels 1.7-2.2 mm long, with hairs or glabrous. Fruit globose, red, glabrous; the stone globose, pointed at the ends, 12 mm long. May. Fruit ripening Jul. - Aug.*Habitat.* Woods in mountains and hills.*Distribution.* Korea, China, widely cultivated in Japan as an ornamental plant and for the edible fruit.*Bio-Activities.* Purgative, diuretic (1).*Chemical components.* Amygdalins. Saponins. Flavonoids; prunuside (1).*Reference.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 98, Oriental Healing Art Institute, Long Beach, CA.

*Prunus japonica* var. *nakaii* (Lév.) Rehder



*Prunus mume* Siebold et Zucc.

***Prunus mume* Siebold et Zucc.**

**Rosaceae**

Korean Name: Mae-sil-na-moo

English Name: Japanese apricot, Japanese flowering apricot

*Parts used.* Fruit.

*Traditional uses.* Bronchitis, cough.

*Description.* Round-crowned tree, to 10 m tall. Twigs thin, green. Leaves alternate, ovate to elliptic, long-pointed, 3-10 cm long, sharply serrulate, pubescent beneath, at least on veins. Flowers 1-2, white to dark red, to 3 cm across; sepals and petals 5; stamens many, inserted with the petals on the calyx tube; pistil 1, with 2 ovules. Fruit round, 3 cm in diameter, yellow to greenish, slightly pubescent, sour and bitter; the stone furrowed. Apr.

*Habitat.* Mostly cultivated and naturalized, mountain woods.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Broad spectrum antibacterial activity, antifungal, antiallergy (1,2), antioxidant (3).

*Chemical components.* Various organic esters, alcohols and acids. Amygdalin (4).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 615, Oriental Healing Art Institute, Long Beach, CA.
- (2) Dictionary of Chinese Herbal Drugs. 1985, p. 66, Shanghai Sci. Tech., Japanese Transl.
- (3) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.
- (4) Tagaki, K. *et al.* (1982) The Pharmacology of Medicinal Herbs in East Asia, Tokyo, Nanzando.

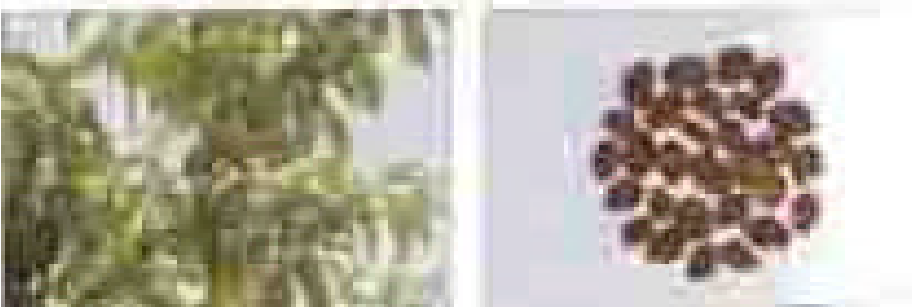
***Prunus persica* (L.) Batsch****Rosaceae**

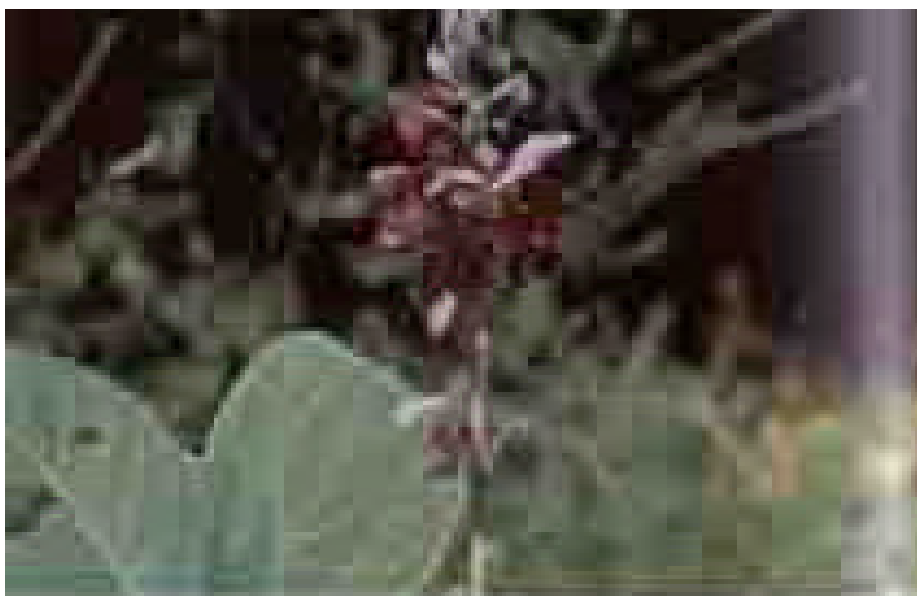
Korean Name: Bok-sa-na-moo

English Name: Peach

*Parts used.* Seed.*Traditional uses.* Constipation, laryngitis, menostasis, dermatopathy, contusion.*Description.* Deciduous, small, glabrous tree, to 6 m, mainly cultivated for its fruit, peach. Leaves alternate, simple, long-lanceolate, serrulate, 8-15 cm long, 15-35 mm wide; petioles 1-1.5 cm, with glands; stipules small, falling early. Flowers before leaves, 1-2, 3 cm in diameter, bisexual, pink; sepals pubescent on exterior; sepals and petals 5; stamens many, inserted with the petals on the calyx tube; pistil 1, with 2 ovules. Fruit more or less spherical, 5 cm in diameter, tomentulose, drupe, with a fleshy outer layer surrounding a hard stone or pit containing the seed; the stone deeply sculptured. Apr. - May. Fruit matured Aug. - Sep.*Habitat.* Widely cultivated for fruit and flowers in Korea.*Distribution.* Korea, China.*Bio-Activities.* Anti-inflammatory, analgesic (1), platelet aggregation inhibitory (2), vasodilatory (3), antitumour (4), cAMP phosphodiesterase inhibition (5).*Chemical components.* Amygdalin (6). Enzyme: emulsinase (6). Steroids (7). Flavonoids. Carotenoids.*References.*

- (1) Arichi, S. *et al.* (1986) *Shoyakugaku Zasshi* **40**, 129.
- (2) Yun-Choi, H.S. *et al.* (1985) *J. Nat. Prod.* **48**, 363.
- (3) Watanabe, K. *et al.* (1987) *Wakan Iyaku Gakkaishi* **4**, 274.
- (4) Han, D.S. *et al.* (1980) *Kor. J. Pharmacog.* **11**, 7.
- (5) Nikaido, T. *et al.* (1990) *Yakugaku Zasshi* **110**, 504.
- (6) Nakamoto, N. *et al.* (1988) *Shoyakugaku Zasshi* **42**, 81.
- (7) Mori, H. *et al.* (1983) *Shoyakugaku Zasshi* **37**, 46.

*Prunus persica* (L.) Batsch

***Pueraria lobata* (Willd.) Ohwi****Leguminosae**

Korean Name: Chik

English Name: Japanese arrowroot, kudzu vine

*Parts used.* Root.*Traditional uses.* Fever, pain, myalgia, alcohol poisoning, abortifacient.

*Description.* Twining perennial herb with woody base, to 20 m long. Stems elongate, twining or prostrate, puberulent with coarse brown hispid hairs. Leaves of 3 leaflets; leaflets wide-ovate or rhomboidal, to 15 cm long, entire or with shallow lobes, densely pubescent beneath. Inflorescence racemes, densely many-flowered, axillary, nearly sessile or short-pedunculate, to 20 cm long. Flowers fragrant, reddish-purple, papilionaceous, standard usually eared at base. Fruit a linear, flat, dehiscent legume, hairy, to 10 cm long. Aug.

*Habitat.* Thickets and sparse woods.*Distribution.* Korea, Japan, China.

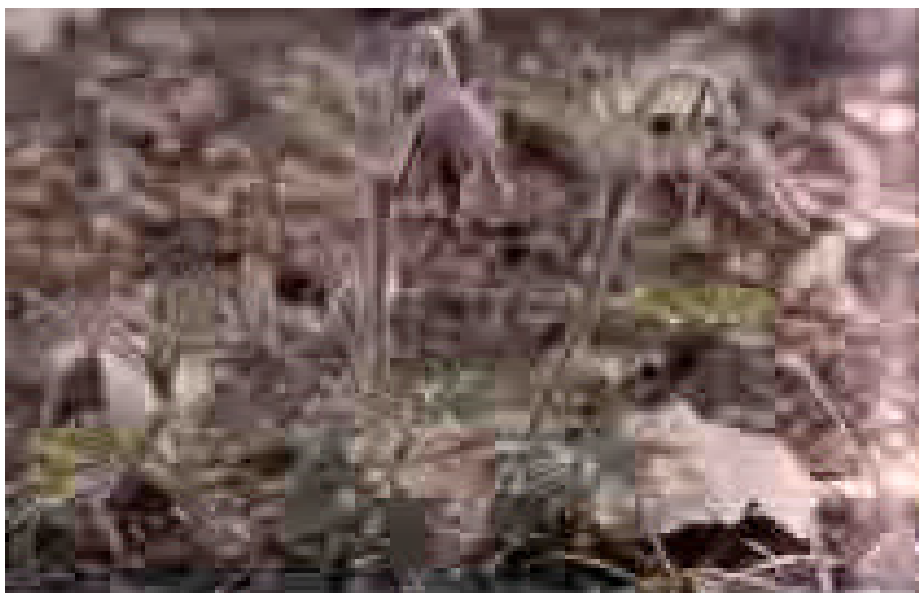
*Bio-Activities.* Antipyretic (1), anticonvulsive (2), spasmolytic (3), antihepatotoxic (4), increase of blood flow in coronary artery and brain, antihypertensive (5).

*Chemical components.* Flavonoids (6,7): daidzin, daidzein, puerarin, puerarin-7-xyloside, genistein, formononetin, kakkonein and puerarol. Allantoin, *D*-mannitol, miroestrol, starch. Sesquiterpenes, diterpenes, triterpene saponins.

*References.*

- (1) Noguchi, M. (1967) *Shoyakugaku Zasshi* **21**, 17.
- (2) Lu, X.-R. *et al.* (1980) *Yaoxue Xuebao* **15**, 218.
- (3) Lee, E.B. and Lee, Y.S. (1991) *Kor. J. Pharmacog.* **22**, 246.
- (4) Niho, Y. *et al.* (1990) *Yakugaku Zasshi* **110**, 604.
- (5) Zeng, G.-Y. *et al.* (1974) *Zhonghua Yixue Zazhi* **54**, 265.
- (6) Shibata, S. *et al.* (1959) *Yakugaku Zasshi* **79**, 757.
- (7) Ohshima, Y. *et al.* (1988) *Planta Med.* **54**, 250.

*Pueraria lobata* (Willd.) Ohwi

***Pulsatilla koreana* Nakai****Ranunculaceae**

Korean Name: Hal-me-kot

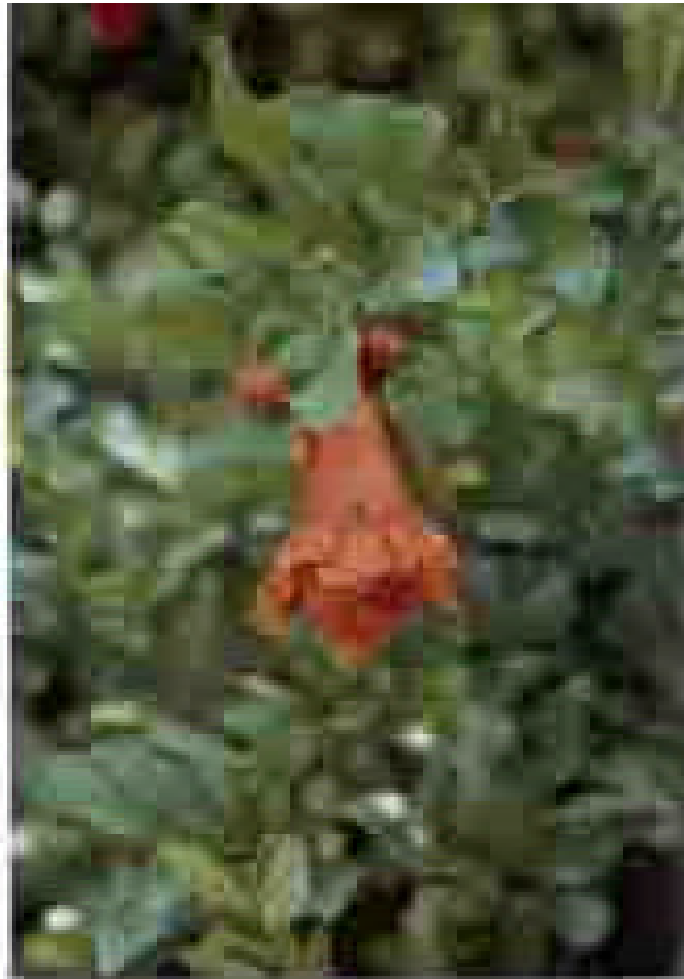
English Name: Korean pasque flower

*Parts used.* Root.*Traditional uses.* Leucorrhoea, dysentery, scrofula, antiparasitic, anti-inflammatory, contraceptive.*Description.* Hairy, tufted, perennial herb. Leaves long-stalked in a basal rosette, pinnately compound; leaflets 5, white-wooly pubescent beneath, 3-4 cm long, 2-3 lobed. Flowers solitary, terminal on peduncle 30-40 cm long, scapose, pendent; perianth campanulate, 35 mm long, 12 mm across, red-purple, segments 6, petal-like, exterior silky; stamens in a central boss surrounded by a ring of staminoids. Fruit heads with long feather styles. May.*Habitat.* Open wastelands and grassy places.*Distribution.* Korea.*Bio-Activities.* Anemonin is a cardiotoxin and cardiotonic. Antiamoebal, antitrichomonas, antibacterial (1).*Chemical components.* Protoanemonin, anemonin, saponins (1), hederagenin monodesmoside, hederagenin bisdesmoside (2).*References.*

- (1) Dictionary of Chinese Herbal Drugs. 1985, p. 2087, Shanghai Sci. Tech., Japanese Transl.
- (2) Kang, S.S. (1989) Arch. Pharm. Res. 12, 47.

*Pulsatilla koreana* Nakai



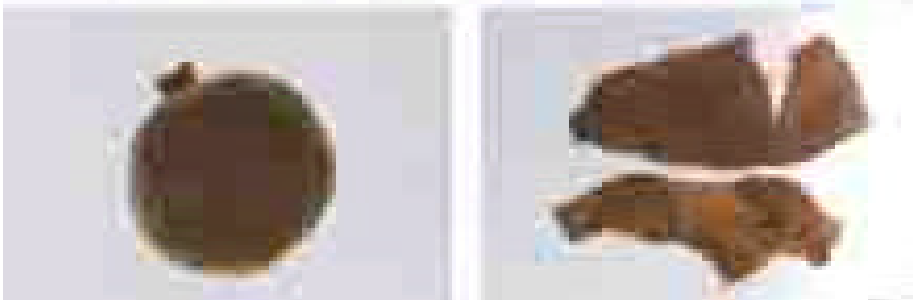
***Punica granatum* L.****Punicaceae**

Korean Name: Seog-ryu

English Name: Pomegranate

*Parts used.* Fruit, fruit skin.*Traditional uses.* Anthelmintic, phlegm, cholelithiasis, tineapedis, laryngitis.*Description.* Deciduous small tree, to 6 m tall, sometimes spiny. Leaves opposite, oblong to lanceolate, to 7 cm long, entire, glabrous, glossy. Flowers bisexual, to 4 cm across, solitary or clustered at ends of branchlets; tube campanulate; calyx purplish; petals crinkled, orange-red, with thick skin and persistent calyx; calyx lobes 6, persistent; petals 6, many stamens inserted on flower tube; ovary inferior, cells 3 in 2-series; style and stigma 1. Fruit a leathery-skinned berry, 6-8 cm in diameter; seeds many, each surrounded by juicy, edible, red-purple pulp. May - Jun. Fruit matured in Sep. - Oct.*Habitat.* Mostly planted in southern parts of Korea.*Distribution.* Southern Europe to Himalayas.*Bio-Activities.* Anthelmintic (1), antibacterial (2), anti-implantation (3), amoebicidal, estrogenic.*Chemical components.* Alkaloids (1): pelletierine, pseudo-pelletierine. Tannins: punicalagin, punicalin (4), punicalcortecins A, -D, punigluconin, cauariin (5). Betulinic acid, ursolic acid, asiatic acid (6). Flavonoids: cyanidin-3,5-diglucoside, delphinidin-3-glucoside.*References.*

- (1) Fayez, M.B.E. *et al.* (1963) *Planta Med.* **11**, 439.
- (2) Jimenez Misas, C.A. *et al.* (1979) *Rev. Cubana Med. Trop.* **31**, 29.
- (3) Prakash, A.O. *et al.* (1985) *Acta Eur. Fertil.* **16**, 441.
- (4) Mayer, W. *et al.* (1977) *Justus Liebigs Ann. Chem.* 1976.
- (5) Tanaka, T. *et al.* (1986) *Chem. Pharm. Bull.* **34**, 656.
- (6) Batta, A.K. *et al.* (1973) *Phytochemistry* **12**, 214.

*Punica granatum* L.



*Pyrrrosia lingua* (Thunb.) Farw.

***Pyrrrosia lingua* (Thunb.) Farw.**

**Polypodiaceae**

Korean Name: Seog-we

English Name: Tongue fern, Japanese felt fern

*Parts used.* Aerial part.

*Traditional uses.* Diuretic, haemostasis, bloody urine.

*Description.* Scandent, epiphytic fern. Rhizomes wide-creeping, 3 mm in diameter, covered with stalked scales. Stipes 5-25 cm long, straw coloured, densely brown stellate hairy while young. Blades leathery, simple, lanceolate or ovate-lanceolate, covered with stellate hairs beneath; the sterile ones 10-25 cm long, 2-7 cm wide; the fertile ones 10-20 cm long, 1.5-3 cm wide. Costa raised beneath, the veins and veinlets concealed. Sori covering lower surface of leaves, indusia lacking.

*Habitat.* Rocks and old tree trunks in mountains.

*Distribution.* Korea, Japan, China, Indochina.

*Bio-Activities.* Antibacterial, antitussive, expectorant, antiasthmatic (1), hypolipidaemic (chlorogenic acid) (2,3,4,5).

*Chemical components.* Diplotene, chlorogenic acid (2,3,4,5), isomangiferin (6,7), mangiferin (8,9).

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 306, Oriental Healing Art Institute, Long Beach, CA.
- (2) Takagi, S. *et al.* (1992) *Shoyakugaku Zasshi* **32**, 123.
- (3) Nishizawa, M. *et al.* (1988) *Chem. Pharm. Bull.* **36**, 87.
- (4) Park, S.S. *et al.* (1973) *Kor. J. Pharmacog* **4**, 185.
- (5) Kelley, C.J. *et al.* (1971) *J. Org. Chem.* **41**, 449.
- (6) Fujita, M. *et al.* (1981) *Phytochemistry* **20**, 2183.
- (7) Aritami, M. *et al.* (1969) *Tetrahedron Lett.* 941.
- (8) Fujita, M. (1977) *Tetrahedron Lett.* 4503.
- (9) Nett, P.E. *et al.* (1967) *Phytochemistry* **6**, 741.



***Rehmania glutinosa* (Gaertn.) Libosch.**

**Scrophulariaceae**

Korean Name: Ji-whang

English Name: Rehmania

*Parts used.* Root.

*Traditional uses.* Bleeding, spitting of blood, haematemesis, epistaxis.

*Description.* Hairy, perennial herb, to 25 cm tall. Leaves in a basal rosette, alternate on the erect flowering stems, obovate, irregularly crenate but not lobed. Flowers solitary in axils of the leaves; calyx 5-lobed, upper lobes longest; corolla obliquely funnelform, slightly swollen on lower side, about 4 cm long, dull purple-brown and creamy yellow, densely glandular-pubescent, 2-lipped, the upper lobes shorter than 3 lower lobes; tube with 2 ridges extending inside from sinuses of lower lip; stamens 4, borne near base of corolla, anthers not coherent, disc ringlike, poorly developed; ovary superior, stigma 2-lobed. Fruit a capsule. Jun. - Jul.

*Habitat.* Long cultivated in Korea.

*Distribution.* China.

*Bio-Activities.* Haemostatic (1), hypoglycaemic (2), cardiotoxic, diuretic (3), platelet aggregation inhibition (4).

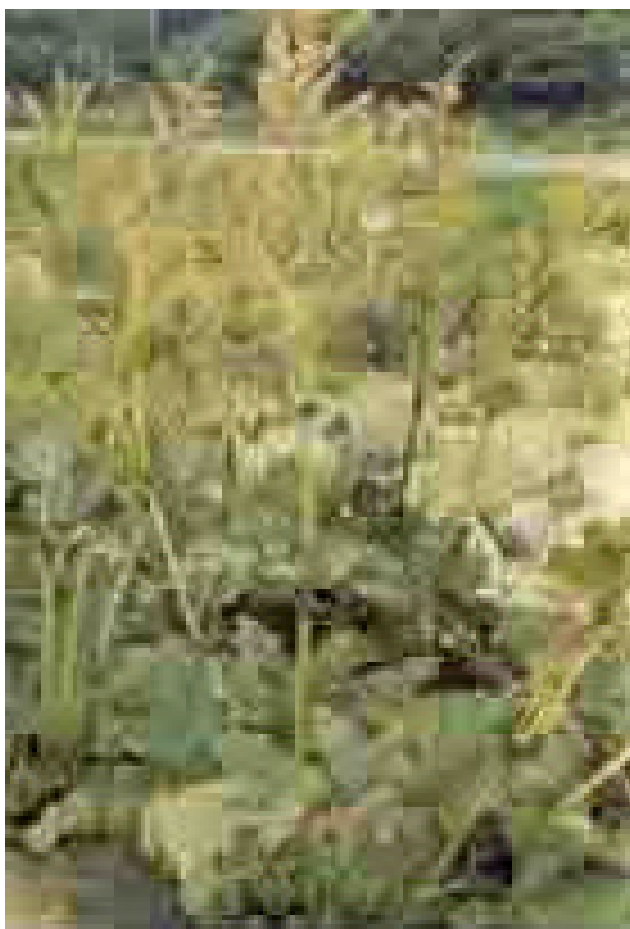
*Chemical components.* Iridoids (5): catalpol, rehmanosides, aucubin. Various sugars. Cerebroside, acetoside, mannitol (6).

*References.*

- (1) Matsuda, H. *et al.* (1986) *Shoyakugaku Zasshi* **40**, 182.
- (2) Oshio, H. *et al.* (1982) *Phytochemistry* **21**, 133.
- (3) Suzuki, Y. (1964) *Nippon Yakurigaku Zasshi* **60**, 550.
- (4) Yun-Choi, H.S. *et al.* (1985) *J. Nat. prod.* **48**, 363.
- (5) Kitagawa, I. *et al.* (1986) *Chem. Pharm. Bull.* **34**, 1399, 1403, 2294.
- (6) Tomoda, M. *et al.* (1971) *Chem. Pharm. Bull.* **19**, 1455, 2411.



*Rehmania glutinosa* (Gaertn.) Libosch.



*Rheum undulatum* L.

***Rheum undulatum* L.**

**Polygonaceae**

Korean Name: Dae-whang

English Name: Rhubarb

*Parts used.* Rhizome.

*Traditional uses.* Constipation, gastrointestinal disorders.

*Description.* Stout, perennial herb, to 1 m tall, with hollow stem. Leaves in basal clumps, with long petiole of purple tint, ovate, acute, cordate, margin undulate; leaves on flowering stems without petiole, wrapping stems, cordate. Flowers small, greenish, in paniced clusters on tall hollow stems; calyx 6-parted, arranged in 2 rows; stamens 9, styles 3. Fruit a achene with wings. Jul. - Aug.

*Habitat.* Wet places in grassy fields.

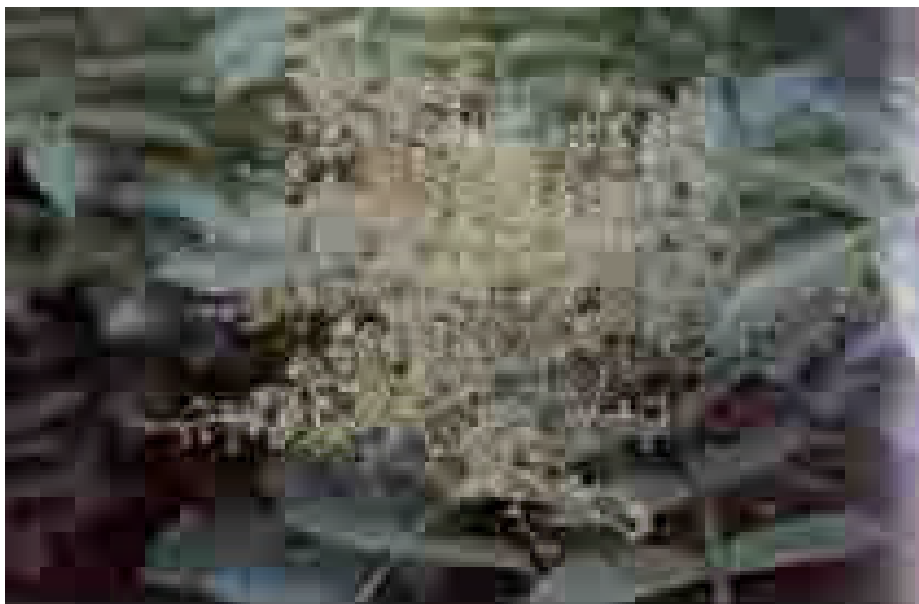
*Distribution.* Korea, China, Asia.

*Bio-Activities.* Purgative, bile and pancreatic secretory, antibacterial, astringent, anticarcinogenic, stomachic (1,2), -glycosidase inhibitory activity (rhaponticin) (3).

*Chemical components.* Anthraquinones; chrysophanol, emodin (4,5), aloe-emodin (6), rhein, physcion (7,8), citreorosin and their glucosides. Dianthraquinones; sennoside A, -F (9). Torachryson-8-glucoside. Stilbenes; rhaponticin (3), piceid, deoxyrhaponticin. 3,4',5-Trihydroxystilbene-glucoside, gallic acid, glucogallin, catechol, 4( -hydroxyphenyl)-2-butanone glucoside, cinnamic acid (1,2).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 92, Oriental Healing Art Institute, Long Beach, CA.
- (2) Takagi K. *et al.* (1982) The Pharmacology of Medicinal Herbs in East Asia, Tokyo, Nanzando.
- (3) Hara, K. *et al.* (1975) Yakugaku Zasshi **95**, 211.
- (4) Wagner, H. (1972) Tetrahedron Lett. 5013.
- (5) Coskun, M. (1990) Phytochemistry **29**, 2018.
- (6) Sydiskis, R.J. *et al.* (1991) Antimicrob. Agents Chemother. **35**, 2463.
- (7) Takido, M. (1958) Chem. Pharm. Bull. **6**, 397.
- (8) Yamaki, M. *et al.* (1991) Phytochemistry **30**, 2759.
- (9) Kashiwada, Y. *et al.* (1988) Chem. Pharm. Bull. **36**, 1545.



*Rhus chinensis* Mill.

***Rhus chinensis* Mill.**

**Anacardiaceae**

Korean Name: Book-na-moo

English Name: Nutgall tree

*Parts used.* Gallnut.

*Traditional uses.* Diarrhoea, cough, abnormal sweating, haemorrhage.

*Description.* Deciduous, dioecious shrub or small tree, to 8 m tall. Leaves pinnately compound, 40 cm long; leaflets 7-13, ovate, 5-12 cm long, 2.5-6 cm wide, commonly toothed, brownish-pubescent beneath; rachis and often the petioles winged. Flowers creamy-white, in large terminal panicles, 15-30 cm long, with glandular hairs; stamens 5; ovary 1-celled; styles 3. Fruit small, red, hairy, 1-seeded, drupaceous. Aug. - Sept.

*Habitat.* Thickets in foothills, lowlands and mountains.

*Distribution.* Korea, Japan, China, temperate east Asia.

*Bio-Activities.* Astringent, haemostatic, antibacterial, antifungal (1), antiviral (1,2).

*Chemical components.* Gallotannin (3,4), gallotannic acid, gallic acid, *m*-digallic acid (5).

*References.*

- (1) Ito, K. and Ota, N. (1952) Bull. Pharm. Res. Inst. Osaka Med. Coll. **3**, 13.
- (2) Zheng, M.S. (1988) J. Trad. Chin. Med. **8**, 203.
- (3) Armitage, R. *et al.* (1961) J. Chem. Soc. 1842.
- (4) Nishizawa, M. *et al.* (1986) Shoyakagaku Zasshi **40**, 413, 423.
- (5) Udea, Y. and Ishidana, K. (1926) J. Soc. Chem. Ind. Japan **29**, 557.



*Rosa multiflora* Thunb.

***Rosa multiflora* Thunb.**

**Rosaceae**

Korean Name: Chil-rae-kot

English Name: Baby rose, Japanese rose

*Parts used.* Fruit.

*Traditional uses.* Constipation, articular pain.

*Description.* Prickly climbing shrub, to 2 m tall. Stems densely prickly. Leaves alternate, odd-pinnate; leaflets 5-11, obovate to lanceolate, to 3 cm long; stipules pectinate. Flowers white, many, in large clusters, 2 cm across; petals 5; stamens many; petals and stamens inserted on a disc at the edge of the calyx tube; pistils many, borne on the inside of the deep hypanthium, styles glabrous. Fruit pea-size, red hip. May. Fruit ripening in Sep.

*Habitat.* In hills and mountains, often planted for ornamental purposes.

*Distribution.* Korea, Japan.

*Bio-Activities.* Purgative (1,2), antihyperglycaemic (3).

*Chemical components.* Flavonoid glycosides (1,4): multiflorin A, B, multinoside A, B, quercitrin, afzelin. Carotenoids: lycopin. Phenols: methyl gallate. Steroids (4).

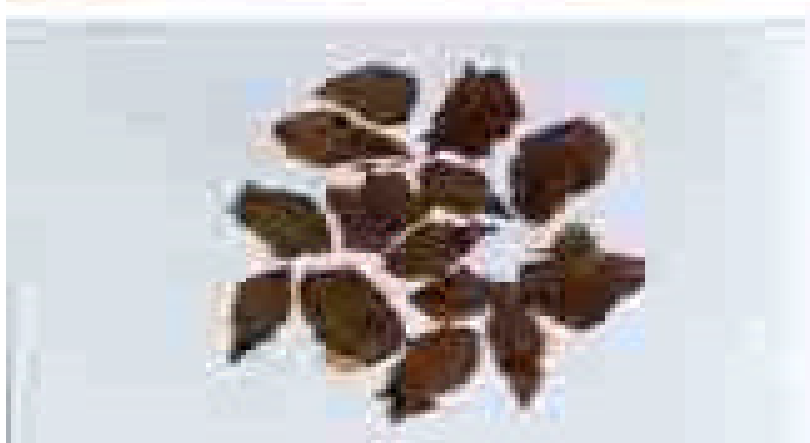
*References.*

(1) Tagaki, S. *et al.* (1976) *Yakugaku Zasshi* **96**, 284, 1217.

(2) Ando, S. (1912) *Kyoto Igakkashi* **9**, 91.

(3) Kim, C.J. *et al.* (1990) *Arch. Pharm. Res.* **13**, 371.

(4) Tagaki, S. *et al.* (1980) *Yakugaku Zasshi* **100**, 466.



*Rosa rugosa* Thunb.

***Rosa rugosa* Thunb.**

**Rosaceae**

Korean Name: Hae-dang-wha

English Name: Turkestan rose, Japanese rose

*Parts used.* Flower, fruit.

*Traditional uses.* Vomiting, diarrhoea, diabetes.

*Description.* Prickly shrub, to 2 m tall. Stems densely prickly and bristly, tomentose. Leaves alternate, odd-pinnate, stipules adnate to petioles; leaflets 5-9, elliptic, 2-5 cm long dark green and furrowed above; pedicels bristly. Flowers rose, solitary, 6-9 cm in diameter; petals 5; stamens many; petals and stamens inserted on a disc at the edge of the calyx tube; pistils many, borne on the inside of the deep hypanthium. Fruit a fleshy hip containing the hairy achenes, 2-2.5 cm in diameter, red at ripening. May - Jul.

*Habitat.* Near seashores.

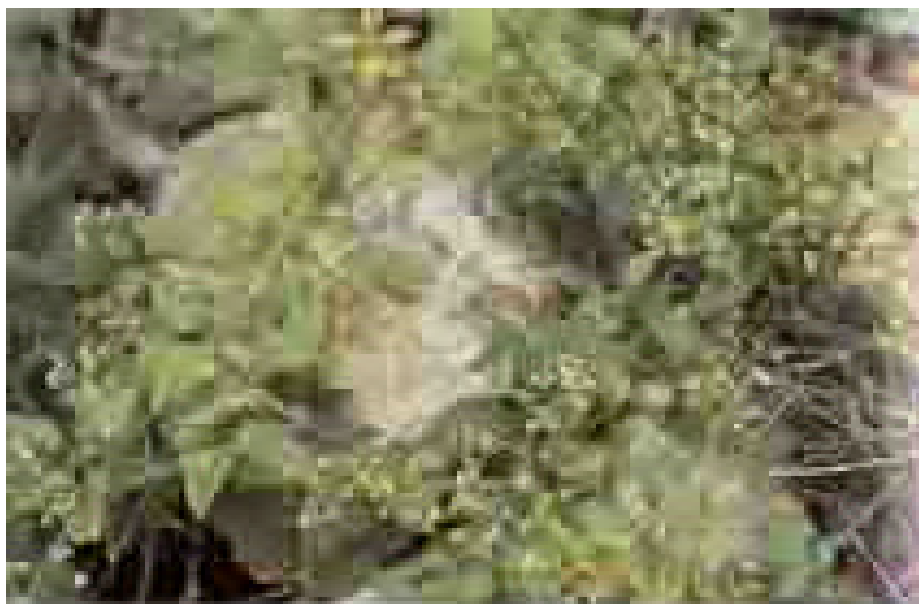
*Distribution.* Korea, Japan.

*Bio-Activities.* Antihypercholesterolaemic (1).

*Chemical components.* Ruleixanthine, locopene, catechol tannin (2). Flavonol glycosides (3): quercetin, apigenin 7-O-glucoside. Anthocyanidin, anthocyanoside (4). Tannins: gallic acid glucoside gallate, etc. (5). Essential oils (6): linalool, linalyl formate, citronellol, geraniol, etc. Sesquiterpenes.

*References.*

- (1) Yang, H.S. *et al.* (1988) *Yakhak Hoeji* **32**, 14.
- (2) Willstaedt, H. (1935) *Svensk Kim. Tids* **47**, 112.
- (3) Kaneta, M. and Hikichi, H. (1979) *Agr. Biol. Chem.* **43**, 657.
- (4) Tamas, M. and Stoleriu, S. (1976) *Stud. Cercet. Biochim.* **19**, 113.
- (5) Park, J.C. *et al.* (1993) *Kor. J. Pharmacog.* **24**, 319.
- (6) Saakov, S.G. and Senchenko, G.C. (1982) *Rastit. Resur.* **18**, 388.



*Rubia akane* Nakai

***Rubia akane* Nakai**

**Rubiaceae**

Korean Name: Cok-doo-seo-nee

English Name: Asian madder

*Parts used.* Root.

*Traditional uses.* Haemostatic, carbuncle, leucorrhoea, dysmenorrhoea, emmenagogue.

*Description.* Twining perennial herb, to 1 m tall. Stems angled, short spines along the edges. Leaves whorled, ovate to ovate-cordate, with 5 nerves from the base, 4, two of them stipules, 2-4 cm long, 1-2 cm wide, short spines on the ribs of the back side and margins. Flowers in terminal cyme, pale yellow, small, 3.5 cm in diameter, 5-merous; corolla slightly campanulate. Fruit fleshy, black; seeds few. Jul. - Aug.

*Habitat.* Thickets and edge of mountain woods.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Antitumour (1), aldose reductase inhibition (2).

*Chemical components.* Mecocyanin (3), pseudopurpurin (4), cyclic hexapeptides RA-III, -IV, -V, -VII (1,5), anthraquinones, triterpenes (6).

*References.*

- (1) Itokawa, H. and Mihara, K. (1983) Chem. Pharm. Bull. **31**, 2353.
- (2) Jeong, D.R. *et al.* (1993) Kor. J. Pharmacog. **24**, 58.
- (3) Hayashi, K. (1944) Acta Phytochim. **14**, 55.
- (4) Hayashi, K. *et al.*, (1950) Misc. Repts. Res. Inst. Nat. Resources **17-18**, 33.
- (5) Itokawa, H. and Takeya, K. (1983) Proc. Int. Cong. Chemother. 13th 16, 284/110.
- (6) Chung, M.I. *et al.* (1994) J. Nat. Prod. **57**,313.





*Rubus coreanus* Miq.

***Rubus coreanus* Miq.**

**Rosaceae**

Korean Name: Bok-boon-ja-tal-kee

English Name: Korean bramble

*Parts used.* Fruit.

*Traditional uses.* Impotence, spermatorrhoea, back pain, tonic.

*Description.* Deciduous, prickly shrub, to 3 m tall. Stems purplish red, covered with white powder, arching branches take roots at the recurving tip on the ground. Leaves alternate, pinnately compound; leaflets 5-7, ovate or elliptic, acute, 3-7 cm long, irregularly serrate, pubescent, at least on vein; petioles with prickles. Inflorescence corymbs at the terminals of branches. Flowers pink; sepals pubescent, ovate, lanceolate; petals shorter than sepals, obovate. Fruit an aggregate of small drupes, red at ripening, turned to black later. May - Jun.

*Habitat.* Thickets on mountain slopes.

*Distribution.* Korea.

*Bio-Activities.* Antibacterial (1), aldose reductase inhibition (2).

*Chemical components.* Polysaccharides, vitamin A-like substances. Triterpenoids: niga-ichigoside F1, F2, suavissimoside R1, coreanoside F1 (3,4,5), (+)-catechin, (-)-epicatechin, procyanidin B-4, sanguin H-4 (6).

*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 623, Oriental Healing Art Institute, Long Beach, CA.
- (2) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (3) Kim, E. and Kim, Y.C. (1987) *Kor. J. Pharmacog.* **18**, 188.
- (4) Ohtani *et al.* (1990) *Phytochemistry* **29**, 3275.
- (5) Kim, Y.H. and Kang, S.S. (1993) *Arch. Pharm. Res.* **16**, 109.
- (6) Lee, Y.A. and Lee, M.W. (1995) *Kor. J. Pharmacog.* **26**, 27.



*Sanguisorba officinalis* L.

***Sanguisorba officinalis* L.**

**Rosaceae**

Korean Name: O-ee-pool

English Name: Great burnet, burnet bloodwort

*Parts used.* Root.

*Traditional uses.* Eczema, diarrhoea, haematochezia, haemoptysis.

*Description.* Erect perennial herb. Stems to 1.5 m tall, simple or branched. Leaves pinnate; leaflets of lower leaves 7-17, lanceolate oblong to ovate, obtuse, coarsely serrate-dentate, 2.5-5 cm long, 1-2.5 cm wide; petiolules 6-30 mm long, with stipels. Flowers bracted, in dense terminal spikes; spikes dark-red, cylindrical, 1-2.5 cm long, 6-8 mm in diameter; sepals 4; stamens 4; pistils 1-3; stigma simple. Fruit an achene. Jul. - Sep.

*Habitat.* Thickets in hills and mountains.

*Distribution.* Eurasia.

*Bio-Activities.* Anticoagulant (1), astringent, haemostatic, antiemetic, antibacterial (2), antihemorrhagic (3), radical scavenging (4), PKC inhibition (5), antioxytocic (6).

*Chemical components.* Polysaccharides (1), saponins, tannins (7,8,9).

*References.*

- (1) Han, Y.N. *et al.* (1984) *Yakhak Hoeji* **28**, 69.
- (2) Kosuge, T. *et al.* (1984) *Chem. Pharm. Bull.* **32**, 4478.
- (3) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 512, Oriental Healing Art Institute, Long Beach, CA.
- (4) Masaki, H. *et al.* (1995) *Biol. Pharm. Bull.* **18**, 162.
- (5) Lee, H.S. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 142.
- (6) Lee, E.B. and Lee, Y.S. (1991) *Kor. J. Pharmacog.* **22**, 246.
- (7) Tanaka, T. *et al.* (1983) *Phytochemistry* **22**, 2575.
- (8) Nonaka, G. *et al.* (1982) *J. Chem. Soc., Perkin Trans. I.* 1067.
- (9) Nonaka, G. *et al.* (1982) *Chem. Pharm. Bull.* **30**, 2255.

**Schisandra chinensis Baill.****Schisandraceae**

Korean Name: O-mee-ja

English Name: Chinese magnolia vine

*Parts used.* Fruit.

*Traditional uses.* Cough, weakness.

*Description.* Deciduous, dioecious, twining shrub. Leaves simple, alternate, congested on short shoots, broad-elliptic or ovate, to 10 cm long, 3-5 cm wide, glossy above, denticulate or serrate; petioles 1.5-3 cm long. Flowers axillary, clustered on pedicels to 4 cm long, creamy with reddish tint; perianth segments 6-9, 5-10 mm long, ovate to long-elliptic; stamens 5; carpels many; receptacle to 5 cm long in fruit. Fruit berries 6-20, red, to 1.5 cm long. Jun - Jul.

*Habitat.* Thickets in mountains.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* CNS depression (1), antitussive, antiallergic, anti-inflammatory (2), antidepressant (3), antioxytocic (4).

*Chemical components.* Lignans: schizandrin (5), deoxyschizandrin, gomisins A-T and their angeloyl, tigloyl and benzoyl ester derivatives (6,7).

*References.*

- (1) Nagai, H. *et al.* (1989) *Planta Med.* **55**, 13.
- (2) Nagai, H. *et al.* (1990) *Wakan Iyaku Gakkaishi* **7**, 46.
- (3) Hancke, J.L. *et al.* (1986) *Planta Med.* 542.
- (4) Lee, E.B. and Lee, Y.S. (1991) *Kor. J. Pharmacog.* **22**, 246.
- (5) Kochetkov, N.K. *et al.* (1968) *Tetrahedron Lett.* 2483.
- (6) Taguchi, H. *et al.* (1975) *Chem. Pharm. Bull.* **23**, 3296.
- (7) Ikeya, Y. *et al.* (1988) *Chem. Pharm. Bull.* **35**, 3974.



*Sanguisorba officinalis* L.



*Scopolia japonica* Maxim.

***Scopolia japonica* Maxim.**

**Solanaceae**

Korean Name: Mee-chee-kwang-ee-pool

English Name: Japanese scopolia

*Parts used.* Rhizome.

*Traditional uses.* Pleurisy, sedative.

*Description.* Glabrous perennial herb with fleshy rhizome, 30-60 cm tall. Stems erect, sparsely branched in upper part. Leaves alternate, entire, narrowly oblong, 10-20 cm long, 3-7 cm wide, acute at both tips and base, petiolate. Flowers solitary in axil, pendent, 3-5 cm long, calyx unequally 5-lobed, accrescent; corolla campanulate, 2 cm long, purplish yellow, limb 5-lobed; stamens 5. Fruit globose, 1 cm in diameter, enclosed in the accrescent calyx. Apr. - May.

*Habitat.* Mountain woods.

*Distribution.* Korea, Japan.

*Bio-Activities.* Sedative (1).

*Chemical components.* Hyoscyamine, scopolamine, scopoletin (1,2).

*References.*

(1) Konoshima, M. *et al.* (1970) *Shoyakugaku Zasshi* **24**, 105.

(2) Hatakeyama, Y. *et al.* (1993) *Shoyakugaku Zasshi* **47**, 22.



*Scrophularia buergeriana* Miq.

***Scrophularia buergeriana* Miq.**

**Scrophulariaceae**

Korean Name: Hyun-sam

English Name: Buerger's figwort

*Parts used.* Root.

*Traditional uses.* Erysipelas, scrofula, goitre, phlegm.

*Description.* Perennial herb of 4-angled stem, glabrous, to 80-150 cm tall. Leaves opposite, simple, broad-ovate, acute, 5-10 cm long, 2.5-5 cm wide, serrate; petioles slightly winged or without wing. Flowers greenish-yellow, small, in terminal cymes arranged in panicles, 1-2 cm long; calyx 5lobed; corolla tube 6-7 mm long, urceolate, 2-lipped, lower one recurved backward; stamens 4; ovary superior, 2-celled. Fruit a round capsule. Aug. - Sep.

*Habitat.* Grassy areas in lowlands.

*Distribution.* Korea, Japan, China.

*Bio-Activities.* Vasodilating, hypotensive, anti-inflammatory, hypoglycaemic (1), antipyretic (2).

*Chemical components.* Iridoids (3); harpagoside, 8-(*o*-methylcoumaroyl)-harpagide. Oligosaccharides, -methoxycinnamic acid (2).

*References.*

(1) King, L.-P. *et al.* (1936) *Compt. Rend. Soc. Biol.* **123**, 1155.

(2) Woo, W.S. (1963) *Yakhak Hoeji* **7**, 55.

(3) Kitagawa, I. *et al.* (1967) *Chem. Pharm. Bull.* **15**, 1254.



*Scutellaria baicalensis* Georgi

***Scutellaria baicalensis* Georgi**

**Labiatae**

Korean Name: Whang-geum

English Name: Skullcap

*Parts used.* Root.

*Traditional uses.* Fever, jaundice, inflammation, common cold.

*Description.* Pubescent, perennial herb, 20-60 cm tall. Stems square in cross section, several arising from the base. Leaves opposite, simple, entire, lanceolate, ciliate; petioles 2 mm long. Flowers in a 1-sided raceme at the terminals, axillary, leaves present in inflorescence; calyx campanulate, 2-lobed; corolla tube bluish-purple, pubescent outside, 2-3 cm long, upper lip incurved. Fruit small tuberculate nutlets, globose, leathery. Jul. - Aug.

*Habitat.* Mostly cultivated in Korea.

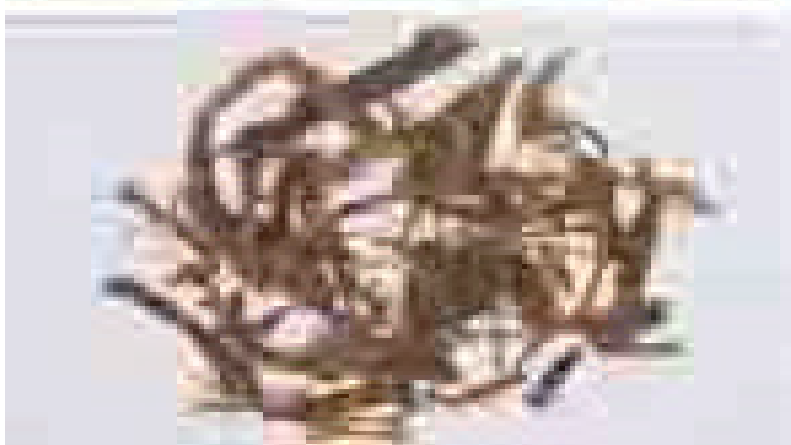
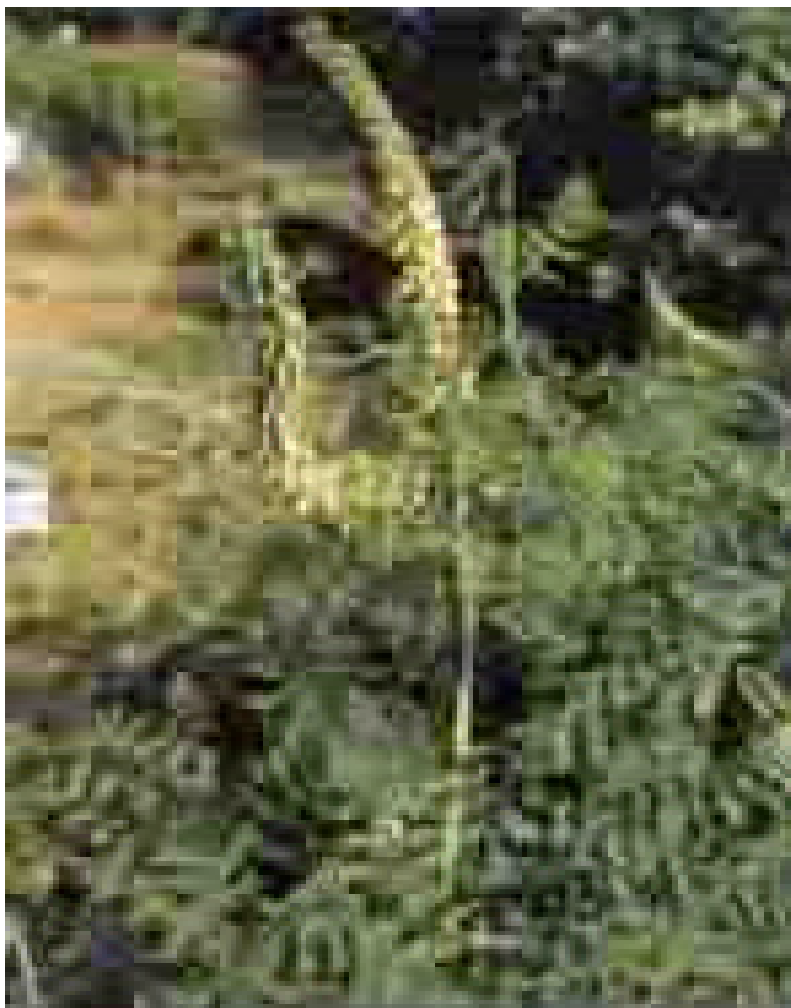
*Distribution.* Korea, China, Mongolia, Russia.

*Bio-Activities.* Choleric (1), laxative, antiarteriosclerotic (2), antiallergic (3), anti-inflammatory, antibacterial (4), hyperlipaemia lowering activities. Aldose reductase inhibition (5), bradykinin antagonistic (6), uterine relaxant.

*Chemical components.* Flavonoids (7,8): wogonin, baicalin (5), baicalein, scutellarin, skullcapflavone I, II (6).

*References.*

- (1) Miura, M. *et al.* (1987) *Yakugaku Zasshi* **107**, 992.
- (2) Aonuma, S. (1957) *Yakugaku Zasshi* **77**, 1303.
- (3) Nagai, H. *et al.* (1975) *Japan J. Pharmacol.* **25**, 763.
- (4) Kubo, M. *et al.* (1981) *Planta Med.* **43**, 194.
- (5) Shin, K.H. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 41.
- (6) Yun-Choi, H.S. *et al.* (1992) *Kor. J. Pharmacog.* **23**, 234.
- (7) Tomimori, T. *et al.* (1984) *Yakugaku Zasshi* **104**, 524, 529.
- (8) Konoshima, T. *et al.* (1992) *Chem. Pharm. Bull.* **40**, 531.



*Sophora flavescens* Ait.

***Sophora flavescens* Ait.**

**Leguminosae**

Korean Name: Go-sam

English Name: Yellow sophora

*Parts used.* Root.

*Traditional uses.* Diarrhoea, gastrointestinal disorders, pain.

*Description.* Perennial herb, to 1 m tall. Leaves alternate, long-petioled, odd-pinnately compound, 15-25 cm long; leaflets 15-39, long-elliptic or long-ovate, 2-4 cm long, 7-15 mm wide, pubescent at least beneath, entire. Flowers in terminal racemes, papilionaceous, 1.5-2 cm long, pale-yellow; calyx tube pubescent outside, 7-8 mm long, 5-lobed; stamens 10, separate. Fruit a long, cylindrical legume constricted between seeds, 7-8 cm long, 7-8 mm in diameter. Jun. - Aug.

*Habitat.* Open grassy areas in lowlands.

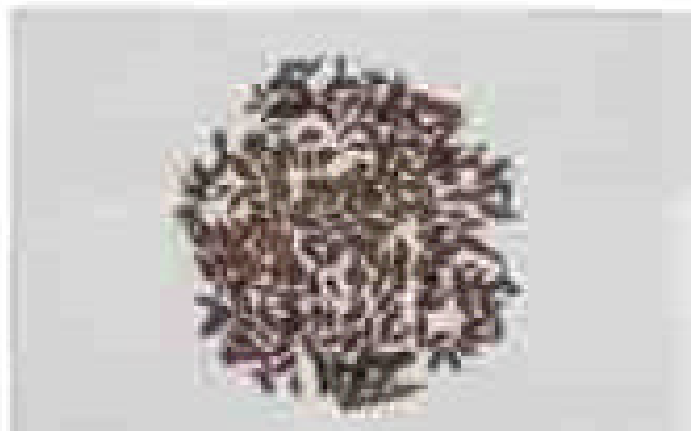
*Distribution.* Korea, Japan, China, Siberia.

*Bio-Activities.* Diuretic, antipyretic (1), antifungal (2), antiulcer (3), antibacterial (4), antidermatophytic (5).

*Chemical components.* Alkaloids (6): matrine, oxymatrine, sophoranol, anagyrine, isomatrine, *N*-methylcytisine, baptifoline. Flavonoids (7): trifolirhizin. Chromones (8).

*References.*

- (1) Cho, C.H. *et al.* (1986) *Planta Med.* **52**, 343.
- (2) Yagi, A. *et al.* (1989) *Shoyakugaku Zasshi* **43**, 343.
- (3) Yamahara, J. *et al.* (1990) *Chem. Pharm. Bull.* **38**, 1039.
- (4) Yamaki, M. *et al.* (1990) *Phytother. Res.* **4**, 235.
- (5) Honda, G. *et al.* (1982) *Planta Med.* **46**, 122.
- (6) Ueno, A. *et al.* (1975) *Chem. Pharm. Bull.* **23**, 2560.
- (7) Yoshikawa, M. *et al.* (1985) *Chem. Pharm. Bull.* **33**, 4267.
- (8) Ueno, A. *et al.* (1978) *Chem. Pharm. Bull.* **26**, 2407.



*Sophora japonica* L.

***Sophora japonica* L.**

**Leguminosae**

Korean Name: Hoe-wha-na-moo

English Name: Japanese pagoda tree, Chinese scholar tree

*Parts used.* Flower.

*Traditional uses.* Haematuria, haemorrhoid, hypertension.

*Description.* Round-headed, deciduous tree, to 30 m tall. Leaves alternate, odd-pinnate; leaflets in 3-8 pairs, ovate to lanceolate-ovate, glaucous beneath, to 5 cm long, acute. Flowers yellowish-white, 1.5-3 cm long, in loose terminal panicles to 30 cm long, papilionaceous; stamens 10, separate. Fruit a cylindrical legume constricted between seeds. Aug. Fruit matured in Oct.

*Habitat.* Commonly planted around towns.

*Distribution.* Korea, China, Japan.

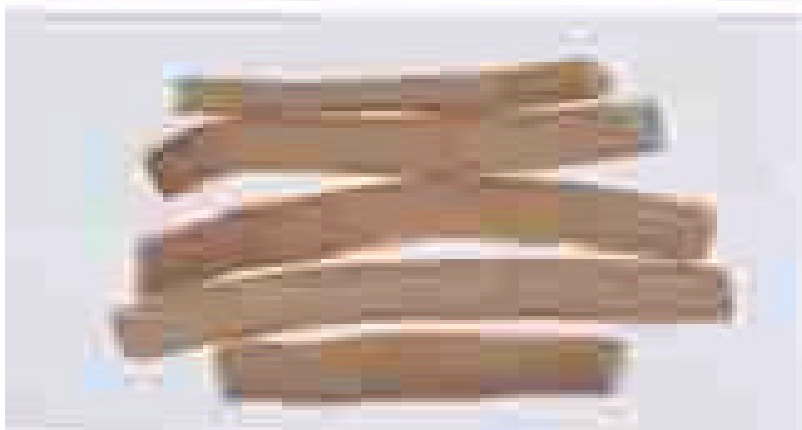
*Bio-Activities.* Antihemorrhagic (1), antifertility (2), antioxidant (3), inhibitory effect on 3H-ethylketocycloazocine receptors (puerol A) (4), antianaphylactic (5).

*Chemical components.* Sophoraside A, puerols A, B (4), kaikasaponins I, -III (6), anhydropisatin, rutin, irisolidone, biochanin A (7), lectins (8), quinolizidine alkaloids (9).

*References.*

- (1) Ishida, H. *et al.* (1989) *Chem. Pharm. Bull.* **37**, 1616.
- (2) Kong, Y.C. *et al.* (1986) *J. Ethnopharmacol.* **15**, 1.
- (3) Ohta, S. (1988) *Fragrance J.* **16**, 57.
- (4) Shirataki, Y. (1987) *Chem. Pharm. Bull.* **35**, 1637.
- (5) Kataoka, M. and Takagaki, Y. (1995) *Nat. Med.* **49**, 346.
- (6) Kitakawa, I. *et al.* (1988) *Yakugaku Zasshi* **108**, 538.
- (7) Komatsu, M. *et al.* (1976) *Yakugaku Zasshi* **96**, 254.
- (8) Ueno, M. *et al.* (1992) *J. Chromatogr.* **597**, 197.
- (9) Izaddoost, M. (1975) *Phytochemistry* **14**, 203.



***Tetrapanax papyrifer* K.Koch****Araliaceae**

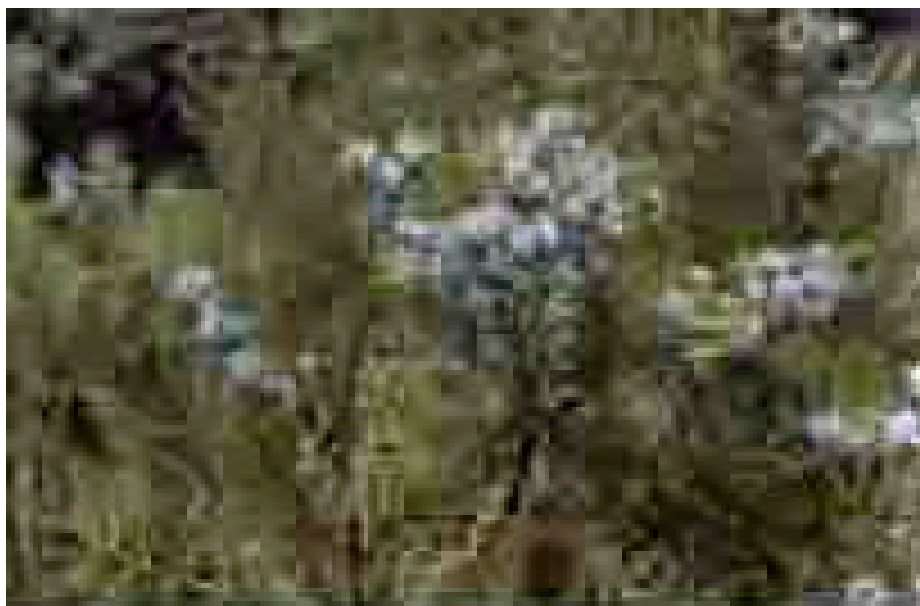
Korean Name: Tong-tal-mok

English Name: Rice-paper plant, Chinese rice-paper plant

*Parts used.* Medulla.*Traditional uses.* Diuretic, oedema.*Description.* Evergreen shrub, to 3 m tall. Leaves clustered at terminals, orbicular, 25-30 cm across, long-petioled, deeply-cut into 5-7 toothed lobes, each lobe divided again, densely tomentose beneath. Flowers in small, globose umbels arranged in large, terminal panicles, panicles to 45 cm across, woolly; petals 4, valvate; stamens 4; ovary 2-celled; styles 2, separate. Fruit a drupe; pyrenes 2, black. Oct.*Habitat.* Mostly cultivated in warm parts of Korea.*Distribution.* Southern part of Korea, southern China.*Bio-Activities.* Diuretic, lactogenic (1).*Chemical components.* Chikusaikosides I, II (2), tetrapanax papyriferus saponins R-3, R-1-a, R-4b (3,4), chikuetsusaponins I-B, IV (5), papyriogenins A, C, D, E (6,7), 16-epi-saikogenin C (8).*References.*

- (1) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 311, Oriental Healing Art Institute, Long Beach, CA.
- (2) Kimata, H. (1982) *Chem. Pharm. Bull.* **30**, 4373.
- (3) Takabe, S. *et al.* (1980) *Shoyakugaku Zasshi* **34**, 69.
- (4) Takabe, S. *et al.* (1985) *Chem. Pharm. Bull.* **33**, 4701.
- (5) Lin, T.D. *et al.* (1976) *Chem. Pharm. Bull.* **24**, 253.
- (6) Takai, M. *et al.* (1977) *J. Chem. Soc., Perkin Trans. I.* 1801.
- (7) Mirhom, Y.W. *et al.* (1990) *Z. Naturforsch. B.* **45**, 1111.
- (8) Hikino, H. *et al.* (1984) *J. Ethnopharmacol.* **12**, 231.

*Tetrapanax papyrifer* K.Koch



*Thuja orientalis* L.

***Thuja orientalis* L.**

**Cupressaceae**

Korean Name: Cheuk-bag-na-moo

English Name: Oriental arborvitae

*Parts used.* Leaf, seed.

*Traditional uses.* Leaf - acute bacillary dysentery, haematemesis, epistaxis. Seed - liver tonic, weakness of the body.

*Description.* Coniferous, evergreen, monoecious tree, to 25 m tall, 1m in diameter, but often densely branched shrub. Branchlet 2-ranked, in a vertical plane. Leaves scalelike, less than 3 mm long, glandular, grooved. Male cones at the terminals of branches of the last year, 2-2.5 mm long, with 10 scales. Female cones larger, erect, the 3-9 pairs of scales fleshy when young, becoming woody, strongly hooked at apex, 15-20 mm long; seeds wingless. Apr.

*Habitat.* Mountain thickets.

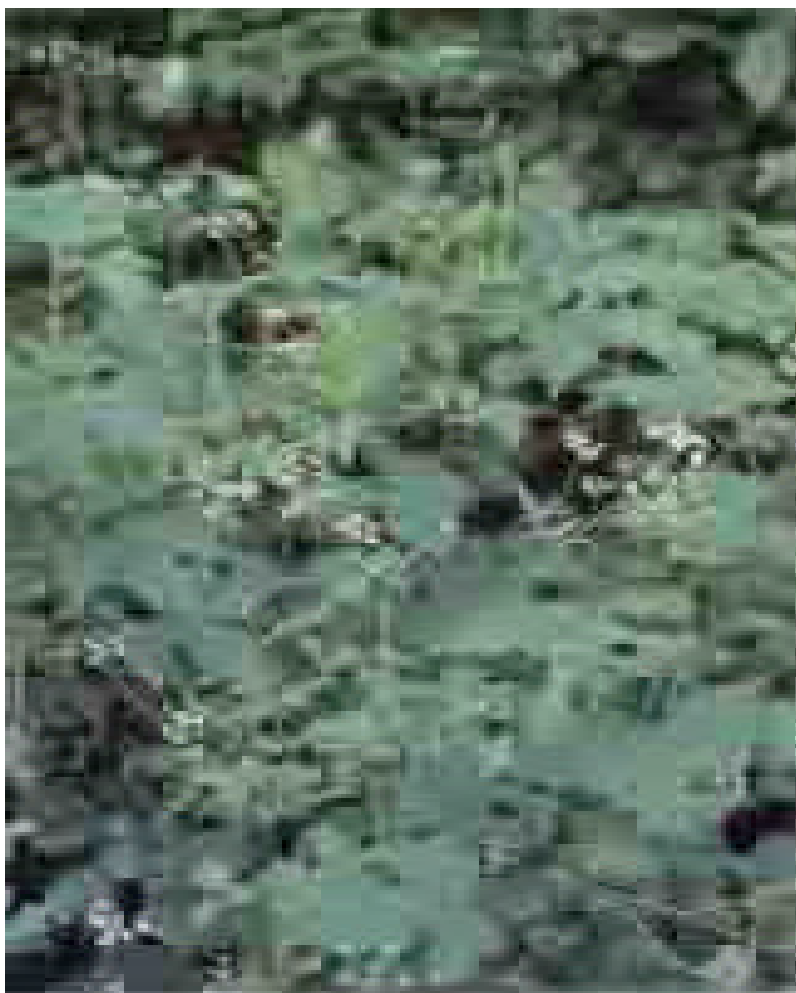
*Distribution.* Korea, China, cultivated in Japan.

*Bio-Activities.* Antiplatelet aggregation (1,2), topical anti-inflammatory (2), antitussive, expectorant, antiasthmatic, antibacterial (3), antifungal (thujaplicins) (4), haemostatic activities. Colony formation inhibition (5).

*Chemical components.* Terpenoids (1): pinusolide, pinusolidic acid, cedrol, totarol. Essential oil. Flavonoids (6,7): quercetin, myricetin, hinokiflavone, amentoflavone. Thujic acid (8).

*References.*

- (1) Han, B.H. *et al.* (1995) *Planta Med.* **61**, 37.
- (2) Han, B.H. *et al.* (1995) *Planta Med.* **61**, 519.
- (3) Wang, Y.S. *et al.* (1983) *Zhongao Yaoli Yu Yingyong* 690.
- (4) Berlin, J. *et al.* (1988) *Phytochemistry* **27**, 127.
- (5) Kosuge, T. *et al.* (1985) *Chem. Pharm. Bull.* **33**, 5565.
- (6) Natarajon, S. *et al.* (1970) *Phytochemistry* **9**, 575.
- (7) Pelter, A. *et al.* (1970) *Phytochemistry* **9**, 1897.
- (8) Grippenber, J. (1949) *Acta Chem. Scand.* **3**, 1137.



*Torilis japonica* (Houtt.) DC.

***Torilis japonica* (Houtt.) DC.**

**Umbelliferae**

Korean Name: Sa-sang-ja

English Name: Japanese torilis

*Parts used.* Fruit.

*Traditional uses.* Amnesia, pruritus, acidosis, scabies.

*Description.* Biennial herb with short setose hairs throughout, to 30-70 cm tall. Leaves ternately 2-pinnate, 5-10 cm long, acuminate; leaflets ovate to lanceolate, sharply serrate; petioles becoming wide at base to wrap stems. Umbels few, pedunculate; the involucrel bracts 4-8, linear, 1 cm long; the involucrel bractlets linear, appressed to the pedicels, rather unequal. Fruit 4-10, ovate, 2.5-3 mm long, covered with dense, short, slightly uncinuate prickles. Jun. - Aug.

*Habitat.* Open grassy places in lowlands.

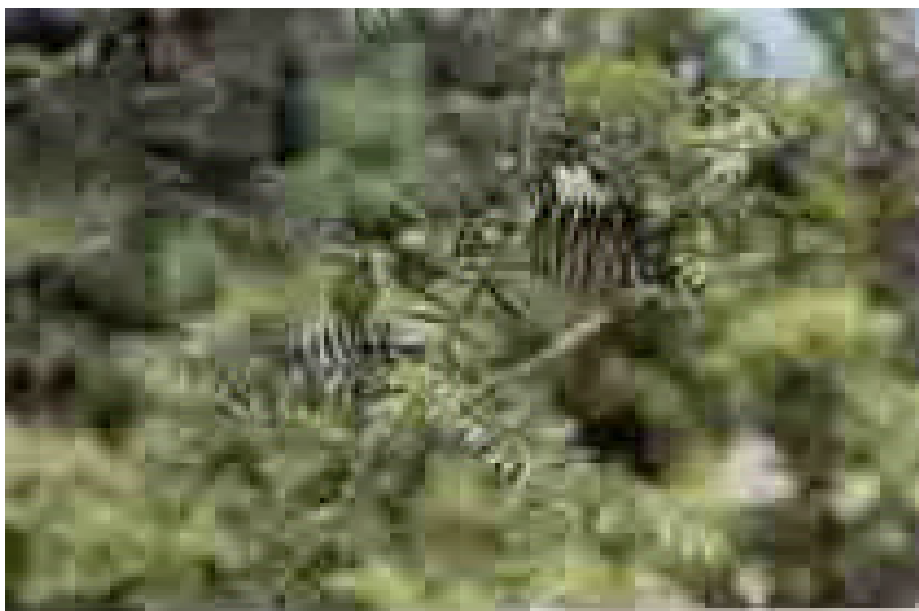
*Distribution.* Korea, Japan, China, Eurasia.

*Bio-Activities.* Antifungal, antiviral, anthelmintic, antitrichomonas, sex hormone-like activities (1).

*Chemical components.* Essential oil: -cadinene, torilin. Fatty oils: petroselin, linolein (1). Torilolide, oxytorilolide (2). (-)-Germacrene-D, germacra-4(15),trans-5, 10(14)-trien-1 -ol (3). Oppositane sesquiterpenes (4).

*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 740, 744, Oriental Healing Art Institute, Long Beach, CA.
- (2) Itokawa, H. *et al.* (1986) Chem. Pharm. Bull. **34**, 4682.
- (3) Itokawa, H. *et al.* (1983) Chem. Pharm. Bull. **31**, 1743.
- (4) Itokawa, H. *et al.* (1983) Chem. Lett. **8**, 1253.

**Torrey nucifera Siebold et Zucc.****Taxaceae**

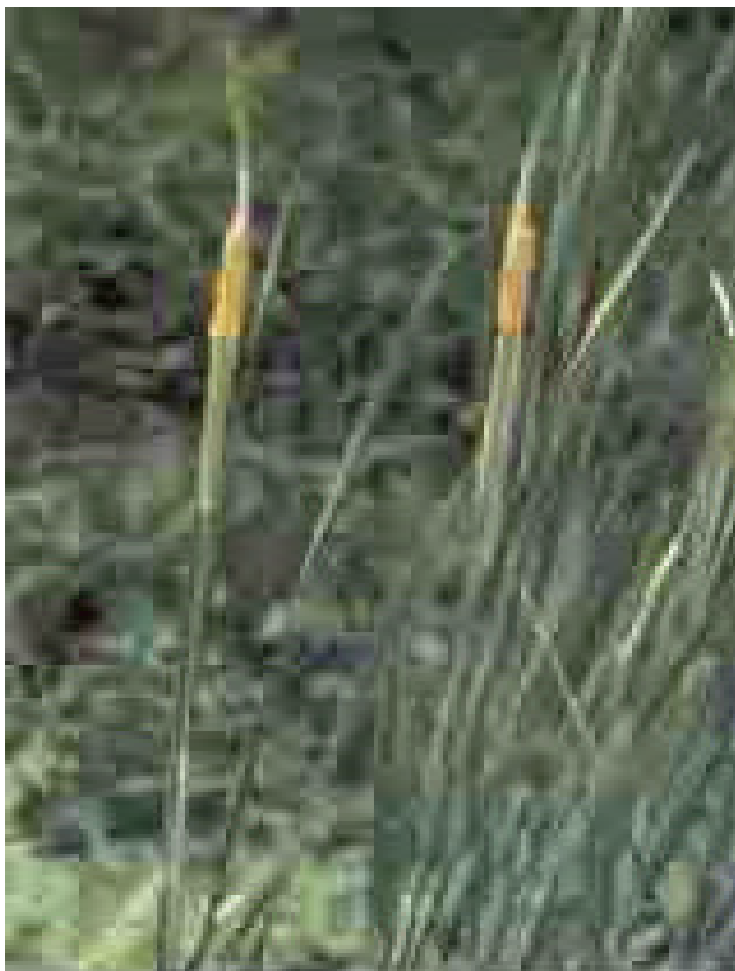
Korean Name: Bee-ja-na-moo

English Name: Japanese torreya

*Parts used.* Seed.*Traditional uses.* Parasites (Tapeworms, pinworms, hookworms, roundworms).*Description.* Evergreen, dioecious tree with widespreading brownish branchlets, to 15 m tall, 2 m in diameter. Leaves appearing 2-ranked, linear, 15-25 mm long, 3 mm wide, rigid, glabrous, dark-green above, midrib and 2 impressed stomatal bands beneath, petiole 3 mm long. Stamens clustered in 4-8 whorls, subtended with about 10 scales; anther 4-locular; ovule single or 2-3 in cluster, subtended with 5-6 scales, 6 mm long, surrounded by a fleshy aril. Seed narrowly ellipsoidal, 2.5 cm long, greenish, tinged with purple. Apr.*Habitat.* Mountains.*Distribution.* Korea, Japan.*Bio-Activities.* Anthelmintic activity (1), aldose reductase inhibition (2).*Chemical components.* Vitexin (3), kayaflavone (4), hinokiol (5), ferruginol, 18-hydroxyferruginol (6), 18-oxoferruginol (7), kayadiol (8).*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 749, Oriental Healing Art Institute, Long Beach, CA.
- (2) Shin, K.H. *et al.* (1993) *Fitoterapia* **64**, 130.
- (3) Wagner, H. *et al.* (1973) *Phytochemistry* **12**, 2548.
- (4) Ahmad, I.I. *et al.* (1981) *Phytochemistry* **20**, 1169.
- (5) Piovetti, L. *et al.* (1980) *Phytochemistry* **19**, 2772.
- (6) Fukushima, I. *et al.* (1968) *Agr. Biol. Chem.* **32**, 1103.
- (7) Harrison, L.J. *et al.* (1987) *Phytochemistry* **26**, 1211.

*Torrey nucifera* Siebold et Zucc.

***Typha orientalis* J.Presl****Typhaceae**

Korean Name: Boo-deul

English Name: Cat tail

*Parts used.* Pollen.*Traditional uses.* Hypercholesteraemia, angina, pectoris, haematemesis.*Description.* Monoecious perennial herb of wet places, with creeping rootstocks and tall, erect, unbranched stems, 1-1.5 m tall. Leaves long, linear, 0.5-1cm wide, flat, erect, parallel-veined. Flowers in a dense terminal spike, spike 3-5 cm long, male above, female below; male flowers with 2-5 united stamens; female flowers with ovary, superior, 1-celled, 1-ovuled, style and stigma 1. Fruit an achene, subtended by capillary bristles. Jul. - Aug.*Habitat.* River banks and ponds in lowlands.*Distribution.* Korea, Japan, China, Philippines, Ussuri.*Bio-Activities.* Unknown.*Chemical components.* -Cadinene (1,2). Alkanes.*References.*

- (1) Vig, O.P. *et al.* (1970) Indian J. Chem. **8**, 29.
- (2) Sakurai, H. *et al.* (1983) Tetrahedron **39**, 883.

*Typha orientalis* J.Presl

***Ulmus macrocarpa* Hance****Ulmaceae**

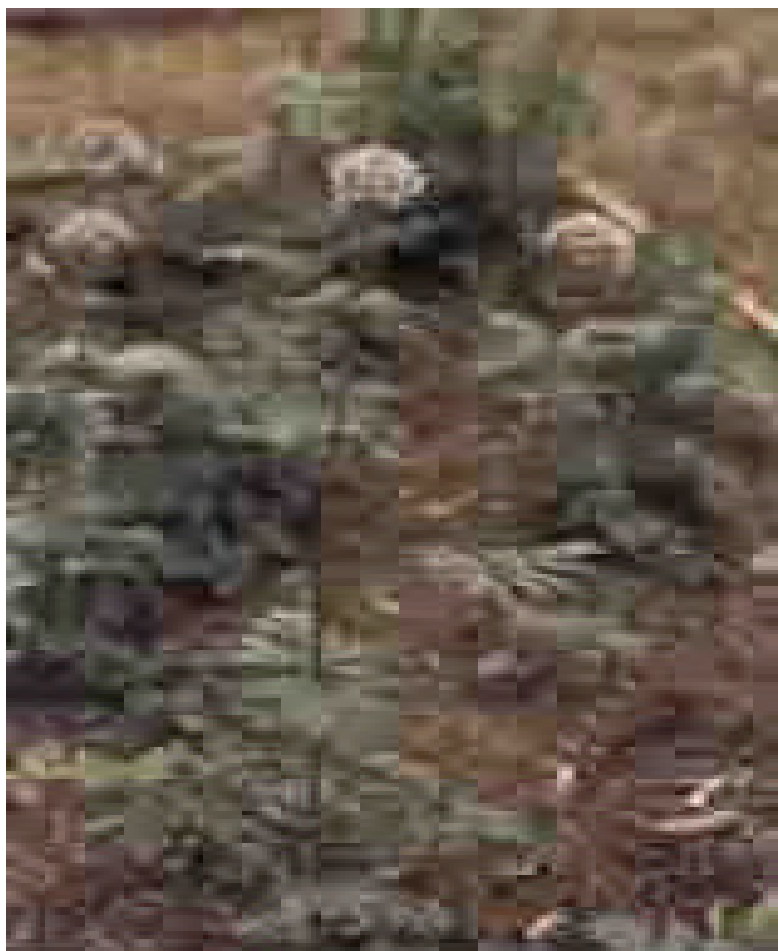
Korean Name: Wang-neu-reub-na-moo

English Name: Elm

*Parts used.* Bark.*Traditional uses.* Chronic diarrhoea, antiparasites.*Description.* Deciduous small tree. Branches well corky, young branches pubescent. Leaves alternate, simple, toothed, obovate, acute, asymmetrical at base, 3.5-15.5 cm long, 2-9 cm wide, coarse on both sides; petioles, 2-3 cm long, pubescent. Flowers inconspicuous, appearing before leaves in spring in axils of leaves. Fruit a flat, 1-celled, 1-seeded samara with the wings surrounding the nutlet and notched at apex, maturing in May.*Habitat.* Mountain woods.*Distribution.* Korea, northern China.*Bio-Activities.* Antimicrobial (1), nematocidal (2).*Chemical components.* Tannic acid, sugars (1). Fatty acids (3).*References.*

- (1) Hsu, H.-Y. (1986) Oriental Materia Medica, p. 749, Oriental Healing Art Institute, Long Beach, CA.
- (2) Kiuchi, F. (1995) Nat. Med. **49**, 364.
- (3) Tsuda, T. *et al.* (1991) Shoyakugaku Zasshi **45**, 270.

*Ulmus macrocarpa* Hance



*Valeriana fauriei* Briq.

***Valeriana fauriei* Briq.**

**Valerianaceae**

Korean Name: Jui-o-zoom-pool

English Name: Faurie's valerian

*Parts used.* Root.

*Traditional uses.* Antispasmodic, sedative.

*Description.* Perennial herb with strong-smelling taproots, to 40-80 cm tall. Leaves opposite, pinnatifid to pinnate; segments 5-7, oblong-lanceolate to oblanceolate, 2-5 cm long, 7-15 mm wide. Flowers small, pink, in clustered cymes, calyx inrolled at first, becoming pappuslike in fruit; corolla rotate, 5-7 mm long, with slender long tube; stamens 3, long-exserted; ovary inferior, 3-celled at base. Fruit an achene lanceolate 4 mm long, crowned by persistent calyx. May - Jul.

*Habitat.* Wet, shaded places in woods and thickets.

*Distribution.* Korea, Japan, northern China.

*Bio-Activities.* Antidepressant ( -kessyl alcohol) (1).

*Chemical components.* Essential oils (2), sesquiterpenes, iridoid glycosides (3,4).

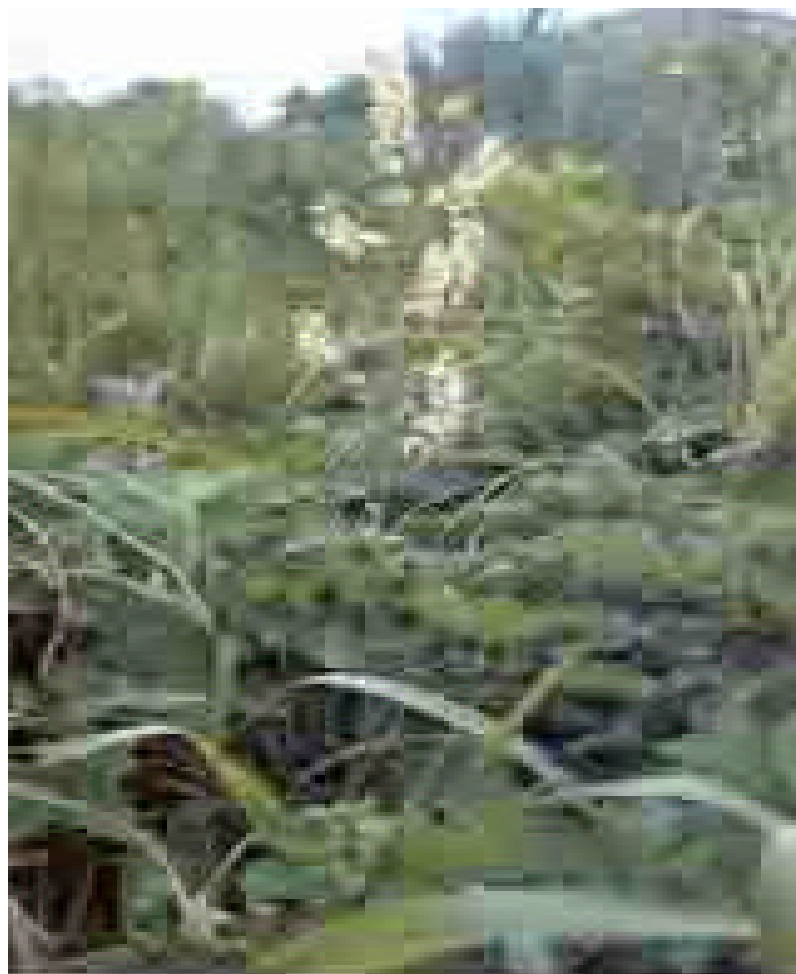
*References.*

(1) Oshima, Y. *et al.* (1995) *Chem. Pharm. Bull.* **43**, 169.

(2) Lee, J.C. and Kim, Y.H. (1995) *Kor. J. Pharmacog.* **26**, 175.

(3) Nishiya, K. *et al.* (1992) *Phytochemistry* **31**, 3511.

(4) Nishiya, K. *et al.* (1994) *Phytochemistry* **36**, 1547.

***Veratrum maackii* var. *japonicum* T. Shimizu****Liliaceae**

Korean Name: Yeo-ro

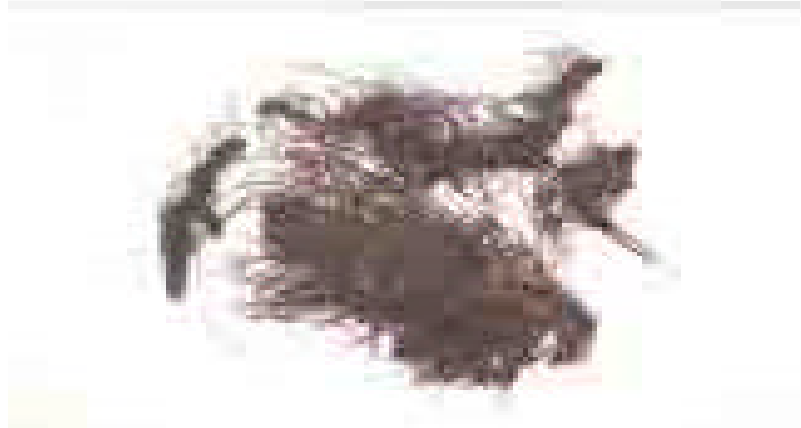
English Name: Japanese hellebore

*Parts used.* Root.*Traditional uses.* Mucosal irritation, nausea, vomiting.*Description.* Erect perennial herb with thick rhizomes, to 40-100 cm tall. Stems stout, leafy. Leaves alternate, radical and lower cauline, glabrous, narrowly oblong to linear-lanceolate, 20-35 mm long, 3-5 cm wide, gradually tapered towards the base. Inflorescence 15-50 cm long, branched, slender, the bracts shorter than the branches. Flowers loosely arranged, brown-purple, 10 mm across; pedicels 47 mm long; sepals broadly lanceolate, subobtuse, twice as long as the stamens. Capsules elliptic, 12-15 mm long. Jul. - Sep.*Habitat.* Mountain woods.*Distribution.* Korea, Japan.*Bio-Activities.* Antibacterial, teratogenic (1,2), hypotensive (3,4), insecticide against cockroaches (4).*Chemical components.* Jervine (1,2), germerine (3,4), verazine (5), 15-O-(2-methylbutanoyl)germine, verussurinine, germidine (4).*References.*

- (1) Atta-ur-Rahman *et al.* (1992) *J. Nat. Prod.* **55**, 565.
- (2) Jacobs, W.A. *et al.* (1947) *J. Biol. Chem.* **170**, 635.
- (3) Myers, G.S. *et al.* (1952) *J. Am. Chem. Soc.* **74**, 3198.
- (4) Zhao, W. *et al.* (1991) *Chem. Pharm. Bull.* **39**, 549.
- (5) Adam, G. *et al.* (1967) *Tetrahedron* **123**, 167.

*Veratrum maackii* var. *japonicum* T. Shimizu



***Veronicastrum sibiricum* (L.) Pennell****Scrophulariaceae**

Korean Name: Nang-cho

English Name: Blackroot

*Parts used.* Root.*Traditional uses.* Common cold, liver tonic.

*Description.* Tall perennial herb, to 50-90 cm tall. Stems simple or sparsely branched in upper part. Leaves whorled, 3-8, sessile, simple, long-elliptic or elliptic, acute, 6-17 cm long, 2-4 cm wide, serrate. Inflorescence terminal; spikes erect, 20-30 cm long, densely flowered; calyx deeply 5 lobed; the lobes lanceolate, slightly unequal; corolla tube 7-8 mm long, shallowly 4lobed, purple, pubescent inside; stamens 2, exerted; ovary 2 celled; style exerted, white, glabrous. Fruit ovate-conical capsule. Jul. - Aug.

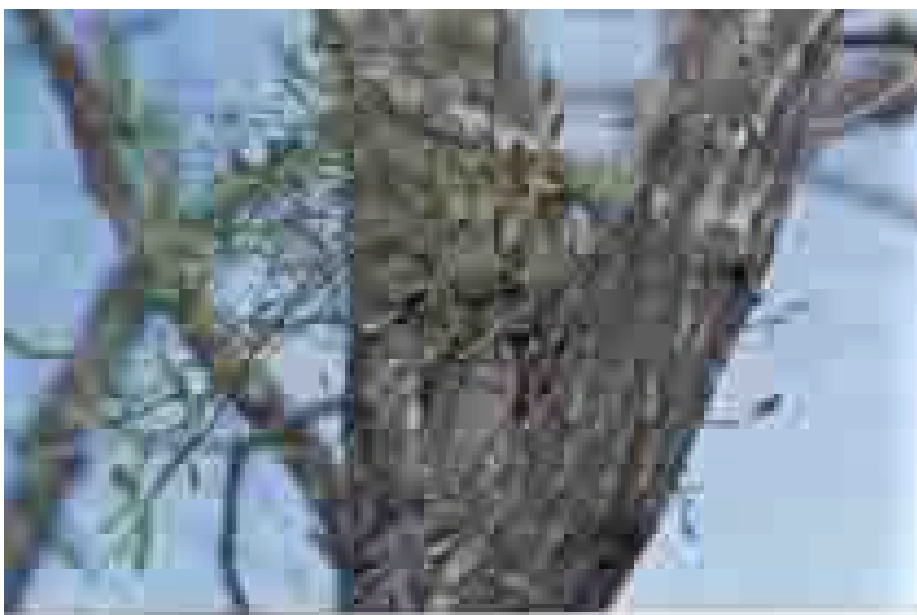
*Habitat.* Grassy areas in mountains and lowlands.*Distribution.* Korea, Japan, China, Siberia*Bio-Activities.* Antimicrobial (minecoside) (1).

*Chemical components.* Mannitol, luteolin-7-b-neohesperidoside, luteolin-7-b-glucoside. Iridoids: minecoside, 6-O-veratryl catalpol ester, catalpol, aucubin, 6-deoxy-8-isoferuloyl herpagide (2,3). Phenylpropanoids (4).

*References.*

- (1) Chi, H.J. *et al.* (1985) Kor. J. Pharmacog. **16**, 262.
- (2) Lee, S.Y. *et al.* (1987) Kor. J. Pharmacog. **18**, 168.
- (3) Lee, S.Y. *et al.* (1988) Kor. J. Pharmacog. **19**, 34.
- (4) Lin, W.H. *et al.* (1995) Acta Pharm. Sinica **30**, 752.

*Veronicastrum sibiricum* (L.) Pennell

***Viscum album* var. *coloratum* (Kom.) Ohwi****Loranthaceae**

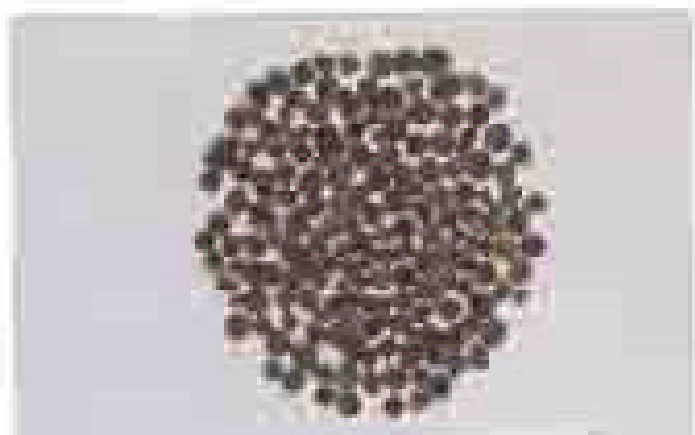
Korean Name: Gyeo-woo-sal-ee

English Name: Mistletoe

*Parts used.* Leaf, stem.*Traditional uses.* Antihypertension, stomach cancer.*Description.* Tufted, parasitic, evergreen shrub. Branches to 1 m tall, dichotomously branched, terete, glabrous, jointed, thickened at nodes. Leaves thick, opposite, oblanceolate, 3-6 cm long, 6-12 mm wide, rounded to obtuse, sessile. Flowers dioecious, terminal on branchlets, sessile, yellow; the bracteoles cup-shaped; the perianth campanulate, 4-lobed. Fruit a yellow, globose berry with sticky pulp, about 6 mm in diameter. Feb. - Mar.*Habitat.* Parasitic on trees such as oaks and birches.*Distribution.* Korea, Japan, China*Bio-Activities.* Immunoregulatory activity, IL-1, TNF- $\alpha$  inducing activity (1), hypotensive, diuretic, antibacterial, antiviral (2), cell proliferation inhibition (3).*Chemical components.* Oleanolic acid, inositol, 4,5-dihydroxy-3,7-dimethoxyflavone (2). Flavonoids (4).*References.*

- (1) Yoon, T.J. *et al.* (1994) *Kor. J. Pharmacog.* **25**, 132.
- (2) Hsu, H.-Y. (1986) *Oriental Materia Medica*, p. 591, 592, Oriental Healing Art Institute, Long Beach, CA.
- (3) Yoon, T.J. *et al.* (1995) *Chem. Lett.* **97**, 83.
- (4) Fukunaga, T. *et al.* (1989) *Chem. Pharm. Bull.* **37**, 1300.

*Viscum album* var. *coloratum* (Kom.) Ohwi



*Vitex rotundifolia* L.f.

***Vitex rotundifolia* L.f.**

**Verbenaceae**

Korean Name: Soon-bee-gi-na-moo

English Name: Round-leaf vitex

*Parts used.* Fruit.

*Traditional uses.* Common cold, headache, migraine, sore eyes.

*Description.* Evergreen, procumbent or ascending shrub densely covered with short hairs throughout. Stems slightly 4-angled. Leaves opposite, simple, ovate to broad-elliptic, 2-5 cm long, 1.5-3 cm wide, rounded or abruptly acute at base, thinly puberulent above, densely grayish puberulent beneath. Inflorescence panicles at terminal, densely flowered, 4-7 cm long, short-pediceled; corolla purple, subbilabiate, 13 mm across; stamens 4, exerted, didymous; style bifid, 1.5 cm long. Fruit globose, 5-7 mm in diameter. Jul. - Sep.

*Habitat.* Sandy areas by the sea.

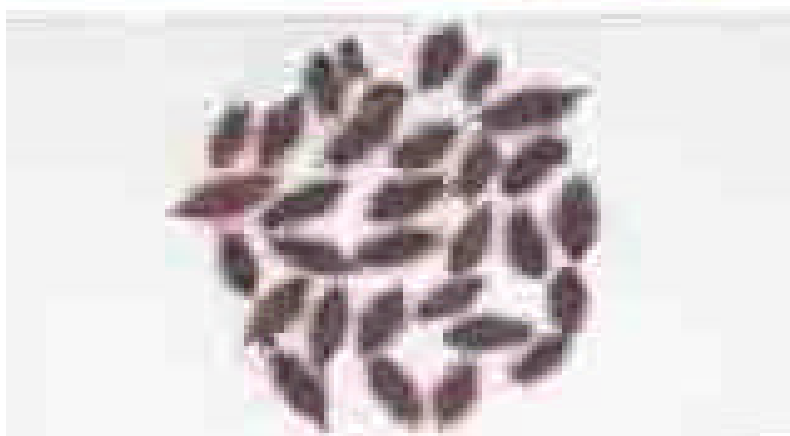
*Distribution.* Korea, Japan, southeast Asia to Australia.

*Bio-Activities.* Antibacterial, antioxidant (1), antianaphylactic (2), aldose reductase inhibition (3).

*Chemical components.* Camphene, pinene. Diterpenes (4): rotundifuran, prerotundifuran, vitexilactone, previtexilactone. Flavones (4): vitexicarpin, luteolin, artemetin. -Hydroxybenzoic acid, vanillin, vitricine (alkaloid). Glycosides (5): agnuside, eurostoside.

*References.*

- (1) Kim, S.Y. *et al.* (1994) J. Amer. Oil Chem. Soc. **71**, 633.
- (2) Kataoka, M. and Takagaki, Y. (1995) Nat. Med. **49**, 346.
- (3) Shin, K.H. *et al.* (1993) Fitoterapia **64**, 130.
- (4) Kondo, Y. *et al.* (1986) Chem. Pharm. Bull. **34**, 4829.
- (5) Kouno, I. *et al.* (1988) Phytochemistry **27**, 611.



*Xanthium strumarium* L.

***Xanthium strumarium* L.**

**Compositae**

Korean Name: Do-ko-ma-ri

English Name: Sheepburr, clotburr, bottomburr

*Parts used.* Fruit.

*Traditional uses.* Headache, arthritis, dermatopathy.

*Description.* Short-pubescent, annual herb, to 1 m tall. Leaves alternate, petiolate, coarsely dentate, ovate-deltoid, 5-15 cm long, often 3-lobed, with 3 prominent veins, scabrous on both sides. Heads unisexual. Staminate heads densely aggregated, terminal, globose; involucral bracts 1-seriate, oblong-lanceolate, receptacle cylindrical, scaly; corolla tubular, 5-toothed, filaments and anthers free. Pistillate heads fasciculate in leaf-axils; outer involucral bracts oblong-lanceolate, small, inner ovoid, sharply prickly, 2-beaked utricle enclosing 2 florets, corolla absent. Utricles sessile, oblong, elliptic, 10-18 mm long, 6-12 mm wide, densely puberulent, 2-beaked; the prickles 1.5-2 mm long, hooked at the end. Aug. - Sep.

*Habitat.* Waste ground, along roads in lowlands.

*Distribution.* Korea, Japan, China, to Europe, naturalized in North America.

*Bio-Activities.* Hypoglycaemic (1), antitussive (2), antibacterial (3), stomachic, antifungal. Antimalarial (4), cytotoxic (5).

*Chemical components.* Glycosides (2): xanthostrumarin, atractyloside, carboxyatractyloside. Phytosterols, xanthanol, isoxanthanol, hydroquinone (6). Xanthatin (5). Xanthanolides (7).

*References.*

- (1) Shong, Z.Y. *et al.* (1962) *Yaoxue Xuebao* **9**, 678.
- (2) Wang, S.X. *et al.* (1983) *Zhongcaoyao* **14**, 1.
- (3) Wang, Y.S. *et al.* (1983) *Zhongyao Yaoli Yu Yingyong* 509.
- (4) Badam, L. *et al.* (1988) *Ind. J. Med. Res.* **87**, 379.
- (5) Roussakis, C. *et al.* (1994) *Planta Med.* **60**, 473.
- (6) Kuzel, N.R. *et al.* (1950) *J. Am. Pharm. Ass. (Sci. Ed.)* **36**, 202.
- (7) Malik, M.S. *et al.* (1993) *Phytochemistry* **32**, 206.



*Zanthoxylum piperitum* DC.

***Zanthoxylum piperitum* DC.**

**Rutaceae**

Korean Name: Cho-pea-na-moo

English Name: Japan pepper

*Parts used.* Fruit.

*Traditional uses.* Tuberculosis, stomachic, dyspepsia, anthelmintic.

*Description.* Deciduous, small, compact tree or shrub with aromatic bark, to 3 m tall. Branchlets with paired spines at base of leaves. Leaves alternate, odd-pinnate, to 15 cm long; leaflets 9-19, broad-lanceolate to ovate, 1-3.5 cm long, obtusely toothed, glandular-dotted. Inflorescence paniculate-cymose, terminal on short branchlets. Flowers greenish yellow, small, unisexual; calyx 5-lobed, small, imbricate; stamens 5; carpels free. Fruit a 2-valved follicle. May - Jun.

*Habitat.* Thickets and woods in hills and mountains.

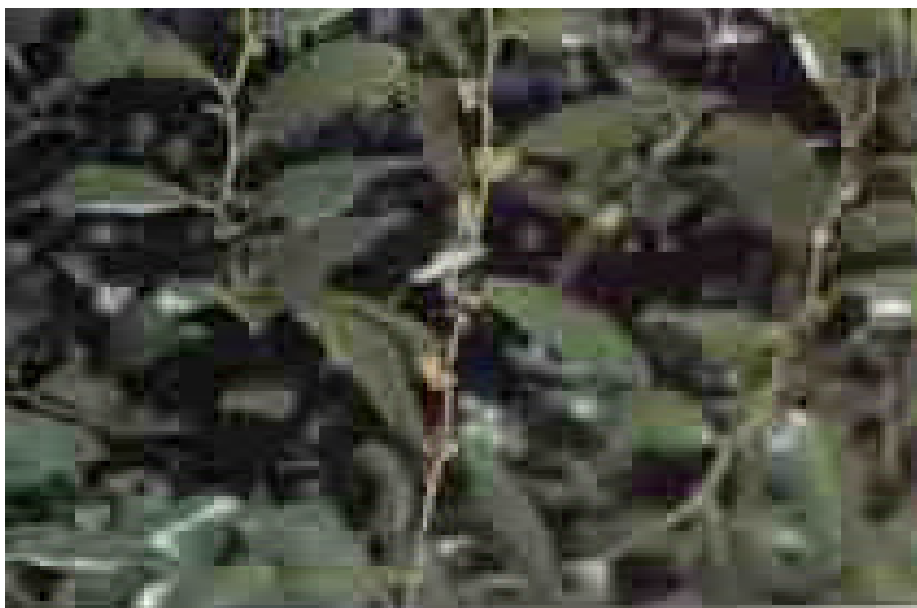
*Distribution.* Korea, Japan, China.

*Bio-Activities.* Anthelmintic (1), antifungal (2), CNS toxic (xanthotoxin). Prostaglandin synthesis inhibition (3), nematocidal (4), antibacterial (5).

*Chemical components.* Essential oil (6): dipentene, citronellal, -phellandrene, geraniol, citronellol, citral. Acid amides (7): -sanshools, sanshoamide. Flavonoids: quercitrin, afzelin, hesperidin. Isoquinoline alkaloids (8).

*References.*

- (1) Kiuchi, F. *et al.* (1989) *Shoyakugaku Zasshi* **43**, 279.
- (2) Jain, S.R. *et al.* (1972) *Planta Med.* **22**, 136.
- (3) Kiuchi, F. *et al.* (1983) *Chem. Pharm. Bull.* **31**, 3391.
- (4) Kiuchi, F. (1995) *Nat. Med.* **49**, 364.
- (5) Choe, T.Y. (1986) *Kor. J. Pharmacog.* **17**, 302.
- (6) Yasuda, I. *et al.* (1982) *Shoyakugaku Zasshi* **36**, 301.
- (7) Yasuda, I. *et al.* (1982) *Phytochemistry* **21**, 1295.
- (8) Abe, F. *et al.* (1973) *Yakugaku Zasshi* **93**, 624.

**Zizyphus jujuba Mill. var. jujuba****Rhamnaceae**

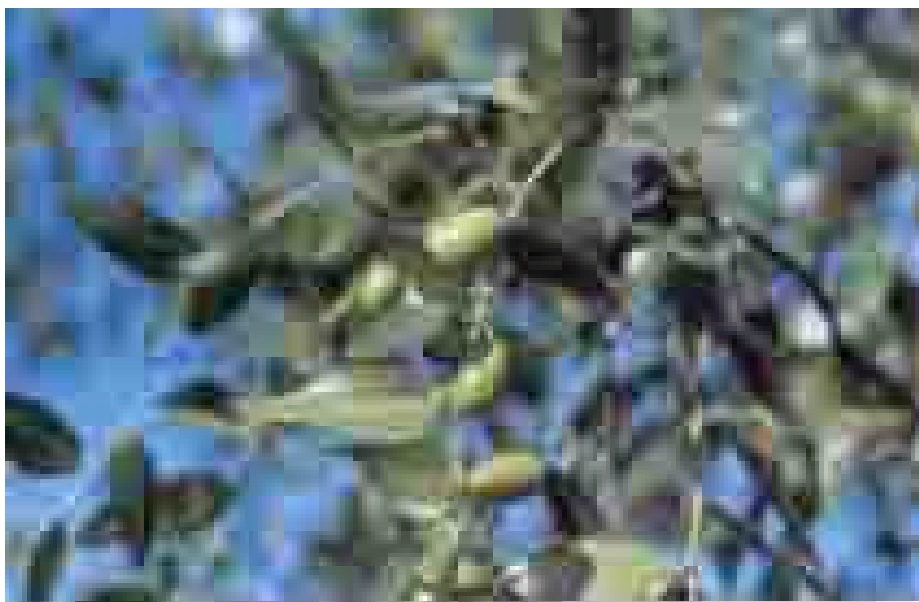
Korean Name: Moet-dae-choo

English Name: Common jujube, Chinese date, Chinese jujube

*Parts used.* Seed.*Traditional uses.* Insomnia, irritability, neurasthermia.*Description.* Small deciduous shrub, slightly pubescent on the nerves of leaves beneath and the tips of branchlets. Leaves alternate, ovate, lustrous, 2-6 cm long, 1-2.5 cm wide, short-petiolate, serrulate, stipular spines, strongly 3-nerved from the base. Flowers bisexual, 5merous, greenish yellow, small, 5-6 mm across, in axillary cymes. Fruit a fleshy drupe, ellipsoidal to gobose, 1.5-2.5 cm in diameter, lustrous, dark-red or reddish brown. May - Jun.*Habitat.* Commonly cultivated.*Distribution.* South Asia, southeast Europe, cultivated in Korea, Japan, and China.*Bio-Activities.* Sedative, hypnotic (1), antiarrhythmic (2), myocardium protecting activities (3). CNS depressant (4).*Chemical components.* Saponins (5,6): jujubosides A, B, B1, XI. Triterpenes (7): betulin, betulinic acid, jujubogenin. Alkaloids: sanjoinines A-J (cyclopeptides) (1), aporphine, tetrahydro-benzylisoquinoline alkaloids (8). Spinosins (flavonoids) (4).*References.*

- (1) Han, B.H. *et al.* (1989) Pure Appl. Chem. **61**, 443.
- (2) Xu, S.R. *et al.* (1987) Zhongcaoyao **18**, 18.
- (3) Chen, X.J. *et al.* (1990) Zhongguo Yaoli Xuebao **11**, 153.
- (4) Woo, W.S. *et al.* (1980) Kor. J. Pharmacog. **11**, 141.
- (5) Kawai, K. *et al.* (1974) Phytochemistry **13**, 2829.
- (6) Shibata, S. *et al.* (1970) Phytochemistry **9**, 677.
- (7) Maurya, S.K. *et al.* (1989) Fitoterapia **60**, 468.
- (8) Han, B.H. *et al.* (1989) Arch. Pharm. Res. **12**, 263.

*Zizyphus jujuba* Mill. var. *jujuba*

***Zyzyphus jujuba* var. *inermis* Rehder****Ramnaceae**

Korean Name: Dae-choo

English Name: Common jujube, Chinese date, Chinese jujube

*Parts used.* Fruit.*Traditional uses.* Pain, cough, pharyngitis, bronchitis, anorexia, dysosmia, cholelithiasis, sedative, corn of foot.*Description.* Similar to *Z. jujuba* var. *jujuba*, but stipular spines absent; fruit larger, 2.5-3.5 cm long, ovoid.*Habitat.* Commonly cultivated in Korea.*Distribution.* South Asia, southeast Europe, cultivated in Korea, Japan, and China.*Bio-Activities.* Antiallergic, complement activity inhibition (1), central inhibiton (2), liver protective, anti-stress ulcer.*Chemical components.* Saponins: zizyphus saponins I, II, III, jujuboside B (3,4). Triterpenoids (3,4): betulinic acid, maslinic acid. Alkaloids: stepharine, asimilobine. Cyclopeptide alkaloids (5), daechualkaloid-A (pyrrolidine alkaloid) (6).*References.*(1) Yamada, H. *et al.* (1985) Carbohydr. Res. **144**, 101.(2) Li, S.Z. *et al.* (1983) Zhongcaoyao **14**, 39.(3) Yagi, A. *et al.* (1978) Chem. Pharm. Bull. **26**, 1798, 3075.(4) Okamura, *et al.* (1981) Chem. Pharm. Bull. **29**, 676, 3507.(5) Han, B.H. *et al.* (1989) Pure Appl. Chem. **61**, 443.(6) Han, B.H. *et al.* (1987) Tetrahedron Lett. **28**, 2957.*Zyzyphus jujuba* var. *inermis* Rehder

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