

Chapter 10

Medicinal Angiosperms of Rutaceae



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This chapter introduces 42 species of medicinal plants from 1 family, mainly including *Acronychia pedunculata*, *Atalantia buxifolia*, *Boenninghausenia albiflora*, *Citrus aurantium*, *Citrus grandis*, *Citrus grandis* var. *tomentosa*, *Citrus limonia*, *Citrus medica*, *Citrus reticulata*, *Clausena dunniana*, *Clausena lansium*, *Dictamnus dasycarpus*, *Evodia lepta*, *Evodia rutaecarpa*, *Fortunella hindsii*, *Glycosmis parviflora*, *Murraya paniculata*, *Murraya exotica*, *Poncirus trifoliata*, *Ruta graveolens*, *Toddalia asiatica*, *Zanthoxylum armatum*, *Zanthoxylum nitidum*, and *Zanthoxylum schinifolium* of Rutaceae.

This chapter introduces the scientific names, medicinal names, morphologies, habitats, distributions, acquisition and processing methods of these medicinal plants, the content of medicinal properties, therapeutic effects, and usage and dosage of these medicinal plants and includes unedited color pictures and pictures of part herbal medicines of each species.

10.1 Family: Rutaceae

10.1.1 *Acronychia pedunculata*

Chinese Name(s): jiang zhen xiang, shan you gan, shan ju.

Source: This medicine is made of the roots, heartwoods, leaves, and fruits of *Acronychia pedunculata* (*Acronychia pedunculata* (Linn.) Miq.).

Morphology: The plant is a tree, 5–15 m in height. The barks are gray-white to gray-yellow, smooth, uncracked, endothelia being yellowish, with orange smell when peeled off. The annual shoots are usually hollow. The leaves are slightly irregularly opposite sometimes, 1-foliolate. The leaflet blades are elliptic to oblong, or

obovate to obovate-elliptic, 7–18 cm long and 3.5–7 cm wide, or smaller, entire at margins. The petioles are 1–2 cm long, basally pulvinate. The flowers are bisexual, yellow-white, 1.2–1.6 cm in diameter. The petals are narrowly long-elliptic, the margins of two sides and the apices of which are slightly incurved at the beginning of flowering, and outcurved and slightly drooping when blooming, pubescent inside. The ovaries are sparsely or densely pubescent, rarely glabrous. The inflorescences are pendent. The fruits are yellowish, **translucent**, subglobose and slightly angulate, 1–1.5 in diameter, apically flat, central retuse, with 4 shallow grooves, rich in moisture, and sweet, with 4 stones that have 1 seed per stone. The seeds are obovate, 4–5 mm long and 2–3 cm thick, coats being brown-black, bony, **endosperm** small. The flowering period is from April to August. The fruiting period is from August to December.

Habitat: It grows on hillsides or flatland weed forests at an altitude below 600 m.

Distribution: It is distributed in the provinces of Hong Kong, Guangdong, Hainan, Fujian, Taiwan, Guangxi, and Yunnan, as well as in Vietnam, India, and the Philippines.

Acquisition and Processing: The roots, heartwoods, leaves, and fruits are harvested in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is sweet in taste and neutral in property.

Functions: The roots, heartwoods, and leaves function in expelling wind and promoting blood circulation, regulating Qi, and relieving pain and are often used for the treatment of rheumatic lumbago and leg pain, bruise, bronchitis, stomachache, and hernia. The fruits function in invigorating the spleen and promoting digestion and are often used for the treatment of anorexia and dyspepsia.

Use and Dosage: 15–30 g per dose for roots and heartwood, 9–15 g per dose for fruits, decocted in water for oral use.





10.2 Family: Rutaceae

10.2.1 *Atalantia buxifolia*

Chinese Name(s): jiu bing le, dong feng ju, zhen zai le, niu shi ju, gou ju ci.

Source: This medicine is made of the roots and leaves of *Atalantia buxifolia* (*Atalantia buxifolia* (Poir.) Oliv. ex Benth.).

Morphology: The plant is a shrub, up to 2.5 m in height. The branches are numerous. The lower ones are drooping, the twigs are green, and the older ones are gray-brown, with appanate internodes, with dense spines, erect, up to 4 cm in length, apically red-brown, rarely unarmed. The leaf blades are hard leathery, with orange smell, adaxially dark green, abaxially pale green, ovate, obovate or sub-rounded, 2–6 cm long, rarely up to 10 cm, 1–5 cm wide, apically rounded or obtuse, retuse or emarginate, midveins being slightly raised adaxially, lateral veins being numerous and nearly parallel to each other, margins being with arched veins, with oil glands. The petioles are 1–7 mm long, sturdy. The flowers are (1- or) several-fasciculate, axillary, subsessile. The sepals and petals are 5-merous. The petals are white, 3–4 mm long, with oil glands. There are 10 stamens. The filaments are white, distinct or a few basally connate sometimes. The styles are nearly as long as the ovaries, green. The fruits are globose, slightly flat or subelliptic, 8–12 cm in diameter. The pericarps are smooth, with slightly prominent oil glands, blue-black at maturity. The fruit calyxes are persistent in the fruit pedicels, with several stemless juice cells. The juice cells are oblate, polygonal, translucent, close to the cell wall, mucilaginous. There are 1 or 2 seeds. The seed coats are thin membranous. The cotyledons are thick, fleshy, green, with many oil glands. The seeds are 1 (or 2) embryos. The embryo roots are extremely short, glabrous. The flowering period is from May to December. The fruiting period is from September to December.

Habitat: It grows on hills and in the empty bushes of dry land on a flat, shady place.

Distribution: It is distributed in the provinces of Guangdong, Hong Kong, Hainan, Taiwan, Fujian, and Guangxi, as well as in the Philippines and Vietnam.

Acquisition and Processing: The roots and leaves are dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and warm in property.

Functions: Expelling wind and relieving exterior symptoms, resolving phlegm and relieving cough, regulating qi, and relieving pain, it is often used for the treatment of cold, headache, cough, bronchitis, malaria, stomachache, rheumatoid arthritis, lumbago, and leg pain.

Use and Dosage: 15–30 g per dose for roots, 9–15 g per dose for leaves, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: cough, bronchitis: *Atalantia buxifolia* leaf, *Microcos paniculata* leaf, *Eupatorium chinense* root, Asiatic plantain, 15 g each, decocted in water for oral use.
2. Clinical diagnoses and symptoms: malaria: *Atalantia buxifolia* root 30–60 g, decocted in water for oral use. Take 4 hours before the attack for three to five continuous days.





10.3 Family: Rutaceae

10.3.1 *Atalantia kwangtungensis*

Chinese Name(s): guang dong jiu bing le, wu ci dong feng ju, wu ci jiu bing le.

Source: This medicine is made of the roots of *Atalantia kwangtungensis* (*Atalantia kwangtungensis* Merr.).

Morphology: The plant is a shrub, 1–2 m in height. The young branches are green, slightly applanate, longitudinally ridged. The leaves are simple, elliptic, lanceolate or oblong, rarely obovate-elliptic, 11–21 cm long and 3–6 cm wide, rarely up to 10 cm in length, apical at both ends, with margin veins that are slenderer than lateral veins, margin being undulate, and oil glands being pellucid and conspicuous, greenish, abaxially gray-brown when dry. The inflorescences are axillary, 5 mm or less, with 3 to several flowers in peduncles, which are 5 mm or less in length. The sepals and petals are 4-merous, and the petals are 3–5 mm long, white. There are 8 stamens, monadelphous or the filaments being connate in phalanges. The styles are nearly as long as the ovaries, with slightly expanded stigmas. The fruits are

long-oval when young, broadly oval or ellipsoid, rarely globose at maturity, red, 1.3–1.8 cm long and 0.7–1 cm in diameter, and the globose ones are up to 1.5 cm in diameter, pericarps being ca. 0.5 mm thick, with large oil glands, with 1–3 seeds per fruit. The seeds are long-ovate, 1–1.5 cm long, seed coats being thinly membranous. The flowering period is from June to July. The fruiting period is from November to January of the following year.

Habitat: It grows in [montane broadleaved evergreen forests](#) at the altitude of 100–400 m.

Distribution: It is distributed in the provinces of Guangdong, Hainan, and Guangxi, as well as in Vietnam.

Acquisition and Processing: The roots are dug up in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is slightly bitter and pungent in taste and warm in property.

Functions: Expelling wind, relieving external symptoms, resolving phlegm and relieving cough, and promoting Qi to relieve pain, it is often used for the treatment of malaria, cold, headache, cough, rheumatism, stomachache, toothache, etc.

Use and Dosage: 9–15 g per dose, decocted in water for oral use.





10.4 Family: Rutaceae

10.4.1 *Boenninghausenia albiflora*

Chinese Name(s): chou jie cao, song feng cao, bai hu cao, chou cao, yan jiao cao, da ye shi jiao.

Source: This medicine is made of the whole plants of *Boenninghausenia albiflora* (*Boenninghausenia albiflora* (Hook.) Reichb.).

Morphology: The plants are evergreen herbs, with numerous branches and branchlets. The branches and leaves are gray-green, rarely purple-red. The young branches are hollow. The leaflet blades are thinly papery, obovate, rhombus, or elliptic, 1–2.5 cm long and 0.5–2 cm wide, abaxially gray-green, usually brown-red when old. The inflorescences are with numerous flowers in slender branches and with leaflets basally. The sepals are ca. 1 mm long. The petals are white, sometimes pink at the apex, oblong or obovate-oblong, 6–9 mm long, with transparent oil glands. There are 8 stamens, alternating the longer one with the shorter one. The filaments are white, and the anthers are red-brown. The ovaries are green, with fine stalks at the base. The mericarps are ca. 5 mm long. The gynophores are 4–8 mm in fruits. There are 4 seeds per mericarp, rarely 3 or 5, which are brown-black, with fine verrucose. The flowering and fruiting period is from July to November.

Habitat: It grows in the Limestone Mountains at higher altitudes.

Distribution: It is distributed in the provinces of the south of the Yangtze River Basin, including Taiwan, as well as in Myanmar, Nepal, India, and Bhutan.

Acquisition and Processing: The whole plants are harvested in spring and summer and dried in the sun.

Natural Taste and Meridian Tropism: It is pungent and bitter in taste and warm in property.

Functions: Relieving external symptoms, curing malaria, activating blood circulation, removing blood stasis, and detoxicating, it is often used for the treatment of

malaria, cold, fever, bronchitis, and injury, as well as for external treatment of traumatic bleeding, carbuncle, and sore.

Use and Dosage: 9–15 g per dose, decocted in water for oral use or soaked in wine. For external treatment, the products are mashed for application.

Prescription Example(s):

1. Clinical diagnoses and symptoms: malaria: *Boenninghausenia albiflora*, *Bupleurum chinense*, *Artemisia apiacea*, Folium artemisiae argyi, 9 g each, decocted in water. Take 4 hours before the attack. Or, fresh *Boenninghausenia albiflora* only, mashed and applied to Dazhui point 2 hours before the attack.
2. Clinical diagnoses and symptoms: cold of wind-cold type: *Boenninghausenia albiflora*, scandent hedyotis herb, *Litsea pungens*, 9 g each, decocted in water for oral use.
3. Clinical diagnoses and symptoms: *Boenninghausenia albiflora* 15 g, soaked in proper amounts of wine. Take a small cup each time.





10.5 Family: Rutaceae

10.5.1 *Citrus aurantium*

Chinese Name(s): zhi ke.

Source: This medicine is made of the immature fruits of *Citrus aurantium* (*Citrus aurantium* Linn.).

Morphology: The plant is a small tree, evergreen. The crowns are usually umbellate, dense. The branches are prickly, ridged. The leaves are alternate, digitate. The leaf blades are thin leathery, broadly ovate or broadly elliptic, 7–12 cm long and 4–7 cm wide, apically mucronate or sometimes nearly acuminate, usually obtuse, basally broadly truncate or subrounded, entire or with slightly undulate teeth at margins, glabrous on both surfaces, with transparent oil glands. The pinnae are often joint with leaf blades, usually obovate or triangular-obovate, 8–30 mm long and 4–15 mm wide, apically truncate or slightly concave, basally attenuate. The flowers are bisexual or polygamous, white, solitary or in small fascicles, axillary. The calyxes are cup-shaped, slightly expanded after flowering, 5-lobed, lobes being broadly triangular, subglabrous. There are 5 petals, which are suboblong, 1.5–2 cm long, slightly outcurved at the upper part. The stamens are about 20-merous or more, and the filaments are connate into bundles. The hesperidia are subglobose, ca. 5–7 cm in diameter, orange, pericarps being thick, difficult to peel off, rough outside, with large oil cells. There are 10–13 sarcocarps, which are acidic and bitter. The flowering period is from April to July. The fruiting period is from September to November.

Habitat: It is cultivated.

Distribution: It is cultivated in the South of the Yangtze River Basin and is native to the subtropical or tropical region of Southeast Asia.

Acquisition and Processing: The immature fruits that have not yet turned yellow are picked and cut into two equal halves at the end of summer and the beginning of autumn and dried over fire or in the sun.

Medicinal Properties: This product is hemispherical in shape, about 3–5 cm in diameter. The exocarp is often brown on the outside, with granular protrusion and concave oil chamber at the apex of the protrusion. The mericarps are yellowish white, smooth and slightly protuberant, 0.4–1.3 cm thick. The pulp sac usually consists of 7–13 petals, and the juice sac is brown to tan after drying, hard and difficult to break. It is fragrant in odor, bitter, and slightly sour in taste. The products big, with thick peel, solid in quality, and strong aromatic are better in quality.

Natural Taste and Meridian Tropism: It is bitter, pungent, and sour in taste and slightly cold in property, belonging to the meridians of the spleen and stomach.

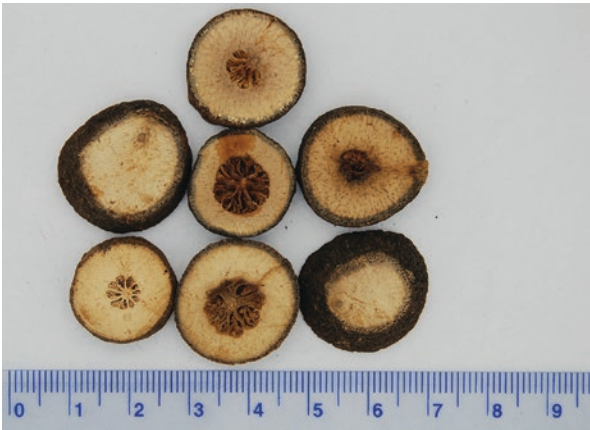
Functions: Regulating Qi and promoting digestion to relieve stagnation and distention, it is often used for the treatment of qi stagnation of chest and flank, fullness and pain, abdominal distention and pain, food accumulation, phlegm and drink stoppage, gastroptosis, anorectal prolapse, and uterine prolapse.

Use and Dosage: 3–10 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: mild uterine prolapse: a. stir-fried *Citrus aurantium* 90 g, decocted in water and divided into 2 portions, 1 portion for internal use, and the other for external application, 1 dose per day, 8 days as a course of treatment. b. *Citrus aurantium* 30 g, *Leonurus heterophyllus*, Radix Astragali Preparata 15 g, rhizoma cimicifugae 6 g, decocted in water for oral use.
2. Clinical diagnoses and symptoms: distention of chest and abdomen: *Citrus aurantium* 18 g, White atractylodes rhizome 9 g, and *Cyperus rotundus* 9 g, *Areca catechu* 6 g, decocted in water for oral use.
3. Clinical diagnoses and symptoms: food accumulation, phlegm stagnation, chest and abdomen distention: *Citrus aurantium* 90 g, stir-fried *Atractylodes macrocephala* 180 g, ground into powder, added with water to make small pills (Zhizhu pill). Take 6–9 g per dose with warm water.
4. Clinical diagnoses and symptoms: dampness and heat of spleen and stomach, chest tightness and abdominal pain, food stagnation, and diarrhea: *Citrus aurantium* 9 g, White atractylodes rhizome, *Scutellaria baicalensis*, Rhizoma alismatis and medicated Leaven, each 9 g, *Rheum officinale* 6 g, decocted in water for oral use.

Annotations: The immature fruits of *Citrus aurantium* Linn. Cv. *Daidai* and *Poncirus trifoliata* (Linn.) Raf. could also be processed into Zhike. The former is called Daidaihua zhike, the latter is called Gouju zhike. The young fruit of this product is called Fructus aurantii, which has the effect of breaking Qi and eliminating accumulation, dissolving phlegm, and dispersing accumulation. It can be used instead of *Citrus aurantium* and has stronger effect.





10.6 Family: Rutaceae

10.6.1 *Citrus grandis*

Chinese Name(s): you, you zi, qi gan, zhu luan, wen dan, di you.

Source: This medicine is made of the peels, roots, and leaves of *Citrus grandis* (Linn.) Osbeck.

Morphology: The plant is a tree. The young branches, the abaxial surface of leaves, peduncles, calyxes, and ovaries are pilose. The leaves are usually dark purple-red when young. The young branches are flat and ridged. The leaf blades are broadly ovate or elliptic, thick, dark green, together with winged petiole 9–16 cm long and 4–8 cm wide, or bigger, apically obtuse or rounded, sometimes acute, basally rounded. The winged petioles are 2–4 cm long and 0.5–3 cm wide, very narrow rarely. The inflorescences are racemes, or sometimes mixed with axillary solitary flowers. The buds are pale purple-red, rarely milky white. The sepals are irregularly 5–3-lobed. The petals are 1.5–2 cm long. There are 25–35 stamens, which are sometimes mixed with some abortive ones. The styles are long and thick, and the stigma is slightly larger than ovaries. The fruits are globose, oblate, pyriform or broadly conical, usually above 10 cm cross diameter, yellowish or yellow-green, but some hybrids are vermilion. The pericarps are extremely thick or thin, spongy, with large prominent oil glands. The fruit cores are solid but loose. The sarcocarps are with 10–15 (–19) segments, juice cells being white, pink or red, rarely with milky yellow. The seeds are zero to 200 in number, irregular in shapes, usually nearly rectangle, thin and usually truncate at the upper part, plumped at the lower part, often mixed with abortive ones, with conspicuously longitudinal ridges, cotyledons being milky white, nonembryonic. The flowering period is from April to May. The fruiting period is from September to December.

Habitat: It is cultivated.

Distribution: It is cultivated in South of the Yangtze River Basin and is native to the subtropical or tropical regions of Southeast Asia.

Acquisition and Processing: The peels, roots, and leaves are harvested in autumn and winter and dried in the sun.

Natural Taste and Meridian Tropism: The peels are pungent and sweet in taste and neutral in property.

Functions: The peels function in relieving epigastric distention and regulating Qi, resolving phlegm, and relieving coughing. They are often used for the treatment of Qi stagnation, abdominal distention, stomachache, cough, asthma, and hernia. The leaves function in detoxicating and relieving swelling. They are often used for the treatment of mastitis and tonsillitis.

Use and Dosage: 9–15 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: asthma and cough in children: *Citrus grandis* peel 9 g and *Folium artemisiae argyi* 9 g, licorice 3 g, decocted in water for oral use.
2. Clinical diagnoses and symptoms: Qi stagnation and abdominal distention: *Citrus grandis* peel, *Paederia scandens*, *Gonostegia hirta* root, *Cynanchum wilfordii*, each 9 g, decocted in water for oral use.
3. Clinical diagnoses and symptoms: breast carbuncle: 4–7 *Citrus grandis* leaves, *pericarpium citri reticulatae viride* 30 g, dandelion 30 g, decocted in water for oral use.
4. Clinical diagnoses and symptoms: pregnant morning sickness: *Citrus grandis* peel 9 g, decocted in water for oral use.





10.7 Family: Rutaceae

10.7.1 *Citrus grandis* var. *tomentosa*

Chinese Name(s): ju hong, hua zhou ju hong, mao ju hong.

Source: This medicine is made of the peels of *Citrus grandis* (*Citrus grandis* (Linn.) Osbeck var. *tomentosa* Hort.).

Morphology: The plant is a small tree, 5–8 m in height. The branches are slightly appanate, pubescent, and aculeate. The leaves are alternate, broadly ovate or ovate-elliptic, 8–20 cm long and 5–8 cm wide, apically obtuse or usually retuse, basally rounded, with shallow obtuse teeth at margins, adaxially glabrous or subglabrous, abaxially pubescent along main veins. The lateral veins are usually conspicuous. The basal articulated part to leaf blade is usually narrow and long, with broad wings at both sides to form obcordate, up to 3.5 cm in length, 3 cm in width, pubescent. The flowers are bisexual, white, axillary, solitary or 2–3 in small fascicles. The sepals are ca. 1 cm wide, 4-lobed. The petals are usually 5-merous, oblong. There are 20–25 stamens, anthers being large and linear. The ovaries are globose, densely pubescent, with one cylindrical style and a large stigma. The fruits are large, globose, yellow to yellow-green before maturity, densely pubescent, 10–15 cm in diameter at maturity, orange, apically obtuse and retuse. The pericarps are ca. 2 cm in thickness, with thick albedo, hard to separate from the pulps. The sarcocarps are with 16 segments, extremely acidic. The seeds are numerous, long-elliptic, ca. 2 cm long, white. The flowering period time is spring, and the fruiting period is autumn and winter.

Habitat: It is cultivated.

Distribution: It is cultivated in Guangdong and Hainan, and a few are cultivated in Guangxi, Sichuan, and Hunan.

Acquisition and Processing: The fruits are picked in autumn when they mature and dried in air or in the sun after the exocarps have been peeled off.

Natural Taste and Meridian Tropism: The peels are bitter and pungent in taste and warm in property.

Medicinal Properties: The product is in the shape of half-folded seven-pointed or flat five-pointed star, and a single piece is in the shape of willow leaf. After flattening, it is 15–28 cm in diameter and 2–5 mm in thickness if intact. The outer surface is yellowish green, densely hairy, with wrinkles and small oil chambers. The inner surface is yellowish white or yellowish brown, with venation. It is brittle, easy to break, irregular on cross sections. There is a row of irregular concave oil chambers on the outer margin, and the inner side is slightly soft and elastic. It is fragrant on odor and bitter and pungent in taste.

Functions: Regulating Qi and resolving phlegm, drying dampness, and eliminating food, it is often used for the treatment of cough due to wind-cold and asthma due to phlegm and food accumulation.

Use and Dosage: 3–6 g per dose, decocted in water for oral use.





10.8 Family: Rutaceae

10.8.1 *Citrus limonia*

Chinese Name(s): ning meng, li meng.

Source: This medicine is made of the fruits and roots of *Citrus limonia* (*Citrus limonia* Osbeck).

Morphology: The plant is a small tree, 1–6 m in height. The branches are aculeate and ridged when young. The leaf blades are oblong or elliptic, 8–12 cm long and 3–5 cm wide, apically rounded or obtuse, basally broadly cuneate or obtuse, crenate at margins, usually dark brown or brown yellow when dry, abaxially usually shiny. The basal articulated part to leaf blade is usually extremely narrow or only a remnant. There are joints between petioles and leaf blades. The flowers are bisexual, axillary, solitary or 2–3-fasciculate. The buds are pale purple-red. The calyxes are shallowly cup-shaped, ca. 2 mm long, 5-lobed. There are 5 petals, which are abaxially pale purple-red, adaxially white, 13–15 cm long. There are 20–25 stamens, which are irregularly connate to 5 bundles at the lower part or the base of filaments, sometimes a few free. The disks are annulus, conspicuously salient. The ovaries are ovoid to subglobose, slightly narrow at the base, the styles being 2–3 times as long as ovaries, and the stigma being subequal to ovaries in thickness. The fruits are subglobose or oblate, 4–5 cm in diameter, orange or vermilion, rarely yellow-green, slightly smooth, sometimes papillose at the apexes. The pericarps are thin, easy to separate from pulps, and the sarcocarps are 8–10 segments, lemon acidic. The seeds are small, ovate, smooth, cotyledons being green, usually polyembryony. The flowering period is spring. The fruiting period is autumn.

Habitat: It is cultivated in mountains and open lands.

Distribution: It is cultivated in South of the Yangtze River Basin, more in Sichuan province, as well as in Vietnam, Laos, Cambodia, Myanmar, and Northeast of India.

Acquisition and Processing: The fruits and roots are harvested in autumn and winter and dried in the sun.

Natural Taste and Meridian Tropism: The fruits are sour and sweet in taste and neutral in property, and the roots are pungent and bitter in taste and warm in property.

Functions: The fruits function in resolving phlegm and relieving cough, promoting secretion of saliva, and strengthening stomach and are often used for the treatment of bronchitis, pertussis, anorexia, vitamin C deficiency, heatstroke, and thirst. The roots function in relieving pain, coughing, and asthma and are often used for the treatment of stomachache, hernia, orchitis, cough, and asthma.

Use and Dosage: 30–60 g per dose for roots, decocted in water for oral use. 15–30 g per dose for fresh fruits, brewed in water to take.





10.9 Family: Rutaceae

10.9.1 *Citrus medica*, *Citrus wilsonii*

Chinese Name(s): xiang yuan, gou yuan.

Source: This medicine is made of the fruits and roots of *Citrus medica* (*Citrus medica* Linn.) or *Citrus wilsonii* (*Citrus wilsonii* Tanaka).

Morphology: A. *Citrus medica*. The plant is a shrub or a small tree, 1.5–5 m in height. The branches are dark purple-red, and with axillary spines that are hard and up to 4 cm in length. The leaves are alternate, simple, without pinnae, thinly leathery or hard papery, oblong, elliptic or slightly ovate, 6–12 cm long and 3–6 cm

wide, apically rounded or obtuse, basally rounded or broadly cuneate, with rounded teeth at margins, oil glands being conspicuous. The petioles are short. The flowers are usually pale purple, bisexual or sometimes mixed with male flowers. There are 3–12 flowers, which are clustered in sparse racemes, or 1 to a few of which axillary. The calyxes are 3–5 mm long, with 5 triangular lobes. There are 5 petals, which are oblong or obovate-oblong, 1.5–2 cm long. There are 30–50 stamens, often 30–40. The filaments are connate irregularly, usually mixed with a few free, or sometimes all free. The ovaries are 10–13 loculus. The fruits are long ellipsoid or ovoid, sometimes subglobose, 10–25 cm long, pericarps being thick, pale yellow outside, rough, with oil cells, white inside, hard to peel off. The sarcocarps are tiny, with 10–15 segments. There are numerous seeds with smooth coats. The flowering period is from April to May. The fruiting period is from October to November.

Habitat: It is cultivated mainly.

Distribution: It is cultivated throughout China, mainly produced in Sichuan, Guangdong, Guangxi, and Yunnan, as well as in Vietnam, Laos, Thailand, Myanmar, and India.





Morphology: *B. Citrus wilsonii*. The plant is an evergreen tree, up to 11 m in height, densely branched, stems being ribbed, glabrous, aculeolate. The digitate compound leaves are alternate. The winged petioles are obcordate, 1.5–3 cm long and 0.4–1.2 cm wide. The leaf blades are thinly leathery or hard papery, long elliptic, 6–12 cm long and 3–4.5 cm wide, apically shortly or obtusely acuminate, retuse, basally obtuse, margin being entire or with undulate teeth. The flowers are white, axillary, solitary or in small fascicles. There are about 25 stamens. The ovaries are oblate. The fruits are globose, ellipsoid or oblate, 4–8 cm in diameter, orange-yellow, with conspicuous style marks at the apexes, usually surrounding by one circular ring, especially rough at surfaces, fragrant. The flowering period is summer. The fruiting period is autumn and winter.

Habitat: It is cultivated mainly.

Distribution: It is distributed in the provinces of Jiangsu, Anhui, Zhejiang, Jiangxi, Hubei, and Sichuan.



Acquisition and Processing: The fruits are picked in autumn when about to mature, cut into slices while fresh, or cut into four portions and dried in the sun.

Medicinal Properties: *Citrus medica*: The product is round or oblong thin sheet, 4–10 cm in diameter and 0.15–0.2 cm in thickness, with rough, green, yellowish green, or yellow exocarps and slightly repand margins, uneven surface, and scattered concave oil cells. The fruit is 2–3.5 cm thick, yellow or yellowish white, with reticulately raised vascular bundles. The pulp sac is thin, 1–3 cm in diameter, brownish yellow. 10–13 pulps arranged in wheel shape, with 1–2 remaining triangular seeds inside. It is flexible in quality, fragrant in odor, sweet at first and then bitter and slightly sour in taste. The products thinly sliced, yellow and white, soft and strong aromatic are better in quality.

Citrus wilsonii: The product is spherome or round slice, 4–7 cm in diameter. It is grayish green or yellowish brown on surface, relatively rough, densely covered with small oil spots. There are residual mark of style and a circle like ring, which is often called “money ring” on the top, and carpopodium marks on the base. It is hard, with obvious oil spots on the margins of the cross section. The mesocarp is about 0.5 cm in thickness, and the pulp sac is 9–12, brown or light brown, with yellow and white seeds inside. It is aromatic, sour and bitter in taste. The products big, with thick peels, black and green, and strongly fragrant are better in quality.

Natural Taste and Meridian Tropism: It is bitter, pungent, and sour in taste and warm in property, belonging to the meridians of the liver, spleen, and lungs.

Functions: Soothing the liver and regulating Qi, relieving pain, and resolving phlegm, it is often used for the treatment of Qi stagnation of liver and stomach, chest and costal pain, chest tightness, vomiting due to reversal of Qi, cough due to phlegm in lungs, distention, and pain of stomach and abdomen.

Use and Dosage: 4.5–9 g per dose for roots, decocted in water for oral use.

10.10 Family: Rutaceae

10.10.1 *Citrus medica* var. *sarcodactylis*

Chinese Name(s): fo shou, fo shou gan, shou gan.

Source: This medicine is made of the fruits of *Citrus medica* (*Citrus medica* Linn. var. *sarcodactylis* (Noot.) Swingle).

Morphology: The plant is a shrub or a small tree. The new twigs, buds, and flower buds all are dark purple-red. The branches are armed with dense pricks, which are up to 4 cm in length. The leaves are simple, rarely mixed with digitate compound leaves, with nodes but no winged-petioles. The petioles are short. The leaf blades are elliptic or ovate-elliptic, 6–12 cm long and 3–6 cm wide, or larger, apically rounded or obtuse, rarely mucronate, margin with shallowly obtuse teeth at margins. The racemes are made of up to 12 flowers, and sometimes they are mixed with axillary solitary flowers. The flowers are bisexual, with unisexual flowers tendency by pistilodes. There are 5 petals, which are 1.5–2 cm long. There are 30–50 stamens. The

ovaries are cylindrical, styles being thick and long, stigmas being capitate, ovaries dividing after detaching of the styles, lobes developing into finger-shaped flesh twigs when fruition. The pericarps are thick, usually without seeds. The flowering period is from April to May. The fruiting period is from October to November.

Habitat: It is cultivated.

Distribution: It is cultivated in South of the Yangtze River Basin, as well as in Vietnam, Laos, Myanmar, and India.

Acquisition and Processing: The fruits and roots are harvested in autumn and winter and dried in the sun.

Natural Taste and Meridian Tropism: The fruits are sour and sweet in taste and neutral in property, and the roots are pungent and bitter in taste and warm in property.

Functions: The fruits are picked in autumn when the peel turns yellowish, planed into palm-like slices, spread flat, and dried in the sun. If it does not dry to nearly 100% in one day, it will change color. Therefore, the fruit should be picked on sunny days. It should be noticed that when the *Citrus medica* is fresh, it will rot when contacted with wine.

Medicinal Properties: The products are sub-elliptical slices in different sizes. It has several finger-shaped lobes on the top and a round bottom with marks of carpopodium. It is 6–14 × 4–7 cm, orange yellow on the edge, with yellowish white soft pulps, and uneven point or line-like vascular bundles, no seeds. It is fragrant, sweet, and slightly bitter in taste. The products large and thin sliced, palm shaped, with golden margins and white pulps, and strong aromatic are better in quality.

Natural Taste and Meridian Tropism: It is pungent, bitter, and sour in taste and warm in property, belonging to the meridians of the liver, spleen, lungs, and stomach.

Functions: Regulating Qi and relieving pain, harmonizing stomach, promoting digestion, and resolving phlegm, it is often used for the treatment of liver and stomach qi stagnation, chest and abdomen fullness, inappetence, stomachache, vomiting, cough, and asthma.

Use and Dosage: 3–9 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: inappetence: *Citrus medica* 3 g, *Citrus aurantium* 3 g, ginger 3 g, *Coptis chinensis* 0.9 g, decocted in water for oral use. Take 1 dose per day.
2. Clinical diagnoses and symptoms: pain caused by stagnation of liver and stomach Qi (including chronic gastritis, stomach neuralgia, etc.): fresh *Citrus medica* 12–15 g (dry product 6 g), brewed in water and taken instead of tea. Or, *Citrus medica*, *Corydalis tuber*, 6 g each, decocted in water for oral use.
3. Clinical diagnoses and symptoms: cough due to phlegm in the lungs (including chronic tracheitis): *Citrus medica*, Rhizoma Pinelliae, 6 g each, sugar 12 g, decocted in water for oral use.

Annotations: The flowers of *Citrus medica* are also used as medicine, which is called the Bergamot flower. It is pungent, slightly bitter in taste, and warm in property, with the function of soothing the liver and regulating qi, harmonizing the stomach, and relieving pain.





10.11 Family Rutaceae

10.11.1 *Citrus reticulata*

Chinese Name(s): chen pi, gan ju, ju he, ju luo, ju ye, qing pi, gan.

Source: This medicine is made of the pericarps, seeds, and tangerine piths of *Citrus reticulata* (*Citrus reticulata* Blanco).

Morphology: The plant is a small tree. The branches are aculeate. The leaf blades are lanceolate or elliptic, 4–8 cm long and 2–3.5 cm wide, bigger sometimes, apically narrow and obtuse, usually retuse, basally cuneate, with usually conspicuous lateral veins. The basal articulated part to leaf blade is usually narrow or only a remnant, up to 3 mm in width or wider. The flowers are axillary, solitary or 2–3-fasciculate, bisexual, white. The sepals are shallowly cup-shaped, 2–3 mm long, irregularly 5-lobed, lobes being triangular. The petals are white, long-elliptic, 9–12 cm long. There are 20–25 stamens, which are irregularly connate to 5 bundles. The fruits are oblate or subglobose, 5–10 cm in diameter, orange-yellow to red. The pericarps are usually rough, easily separated with sarcocarps. The vascular bundles on the outer wall of sarcocarps are usually close to each other. The oil cells are conspicuous. The fruits are rounded or concave at the apex, usually with radial longitudinal short ribs around the top, with protruding stalks usually. The sarcocarps are with 9–13 segments, and the central columns of them are large and loose. The fruit fleshes are sweet. There are several seeds, which are ovate, apically sharp, cotyledons being milky white, rarely milky green, polyembryonic. The flowering period is in spring and autumn. The fruiting period is in autumn and winter.

Habitat: It is cultivated on hillsides or open lands.

Distribution: It is cultivated in South of Qingling Mountains, native to subtropical and tropical regions of Southeast Asia.

Acquisition and Processing: The mature fruits are harvested after Frost's Descent to spring of the next year. Split the fruits vertically into 3 or 4 crisscross segments, peel and dry the peel and set aside. The seeds are harvested in autumn and winter, dried, and set aside. The fallen immature fruits are scalded with boiling water, cut crisscross vertically into 4 segments, and dried after removing the pulp. The product is called *Pericarpium citri reticulatae viride*.

Natural Taste and Meridian Tropism: The pericarps are bitter and pungent in taste and warm in property. The seeds are bitter in taste and neutral in property. The tangerine piths are bitter in quality and neutral in property. The leaves are bitter in quality and neutral in property. The *Pericarpium citri reticulatae viride* (immature fruit pericarps) are bitter and pungent in taste and warm in property.

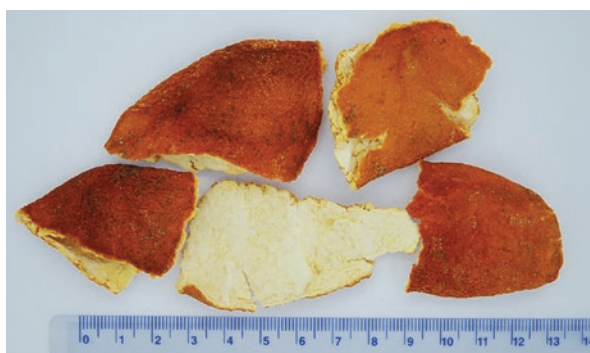
Functions: *Citrus reticulata* functions in regulating Qi and strengthening stomach, drying dampness, and resolving phlegm and is often used for the treatment of stomach and abdominal distention, vomiting and hiccup, coughing, and phlegm. The seeds function in regulating Qi and relieving pain and are often used for the treatment of mastitis, colic, testicular swelling, and pain. The tangerine piths function in unblocking circulation tracts and dissipating phlegm and are often used for the treatment of coughing, phlegm, chest, and flank pain. *Pericarpium citri reticulatae viride* (tender fruits) function in breaking the Qi and dispersing the stagnation, soothing the liver and relieving pain, promoting digestion, and relieving food accumulation and are often used for the treatment of chest and abdominal distention, hypochondriac pain, mastitis, and hernia.

Use and Dosage: 3–9 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: cough with phlegm: *Citrus reticulata* 9 g, *Pinellia ternate* 9 g, *Poria cocos* 6 g, and *Liquiritia glycyrrhiza* 6 g, decocted in water for oral use.
2. Clinical diagnoses and symptoms: vomiting and hiccup: *Citrus reticulata* 9 g, *Caulis bambusae* 9 g, ginger 6 g, licorice 6 g, and 5 jujubes, decocted in water for oral use.
3. Clinical diagnoses and symptoms: acute mastitis: *Citrus reticulata* 30 g, forsythia, *Bupleurum chinense*, 9 g each, honeysuckle 4.5 g, *Liquiritia glycyrrhiza* 6 g, decocted in water for oral use. Take 1–2 doses per day.
4. Clinical diagnoses and symptoms: mastitis: 20–30 *Citrus reticulata* seeds are mashed and decocted in water. Take it once a day. The medicine can be used to prevent engorged breasts from developing into mastitis. If the mastitis is close to suppurate, it needs to be treated with other traditional Chinese medicine or antibiotics.
5. Clinical diagnoses and symptoms: testicular swelling and pain: *Citrus reticulata* seeds 9 g, seaweed 9 g, Sichuan chinaberry 9 g, peach kernel 6 g and akebia 6 g, and banksia rose 12 g, decocted in water for oral use.
6. Clinical diagnoses and symptoms: food accumulation, abdominal pain, and fullness: *Pericarpium citri reticulatae viride* 9 g, hawthorn, Medicated Leaven and malt 9 g each, *Amomum tsao-ko* 6 g, decocted in water for oral use.

7. Clinical diagnoses and symptoms: Qi stagnation and stomachache: *Pericarpium citri reticulatae viride*, the root of three-nerved spicebush, in equal amounts, mixed and ground into powder. Take 4.5 g per dose, twice a day.





10.12 Family: Rutaceae

10.12.1 *Clausena dunniana*

Chinese Name(s): chi ye huang pi.

Source: This medicine is made of the root and leaves of *Clausena dunniana* (*Clausena dunniana* Lévl.).

Morphology: The plant is a small tree, 2–5 m in height. The branches, the rachises, the abaxial midveins, and the peduncles are all with prominent oil glands. The leaves are 5–15-foliolate. The leaflet blades are ovate to lanceolate, 4–10 cm long and 2–5 cm wide, rarely larger, apically acute or acuminate, usually obtuse, retuse sometimes, basally asymmetric, with rounded or obtuse teeth at margins, rarely undulate, glabrous at both surfaces, or sparsely pubescent on the veins of young leaves. The petiolules are 4–8 mm long. The inflorescences are terminal, or

axillary in the subapical branchlets. The buds are globose. The pedicels are glabrous. The calyx lobes and petals are 4-merous, rarely 5-merous. The calyx lobes are broadly ovate, no more than 1 mm in length. The petals are oblong, 3–4 mm long. There are 8 stamens, rarely 10. The filaments are acuminate apically, geniculate at the middle, styles being shorter than the ovaries. The ovaries are subglobose. The styles are subequal to the stigmas in thickness, slightly 4-rowed. The disks are slender and small. The fruits are globose, 10–15 mm in diameter, dark yellow at first, red later, blue-black at maturity, with 1–2 seeds, rarely more. The flowering period is from June to July. The fruiting period is from October to November.

Habitat: It grows in the bushes of Limestone Mountains.

Distribution: It is distributed in the provinces of Hunan, Guangdong, Guangxi, Guizhou, Sichuan, and Yunnan, as well as in Vietnam.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is slightly pungent and bitter in taste and warm in property.

Functions: Dispelling wind and relieving exterior syndrome, promoting Qi flow and dissipating blood stasis, and diminishing dampness and swelling, it is often used for the treatment of cold, measles, asthma, edema, stomachache, rheumatism arthralgia, eczema, sprain, and fracture.

Use and Dosage: 6–12 g per dose, decocted in water for oral use. For external treatment, fresh products are mashed and applied to the affected areas.





10.13 Family: Rutaceae

10.13.1 *Clausena excavata*

Chinese Name(s): jia huang pi, chou huang pi, chou ma mu, wu shu ye, da guo, hei ji dan, ye huang pi.

Source: This medicine is made of the root and leaves of *Clausena excavata* (*Clausena excavata* Burm. f.).

Morphology: The plant is a shrub, 1–2 m in height. The branchlets and the rachises are covered with densely upcurved pubescence and with some scattered salient oil glands. The leaves are 21–27-foliolate, but up to 41-foliolate on young plants, sometimes only 15-foliolate near the inflorescences. The leaflet blades are extremely asymmetry, oblique-ovate, oblique-lanceolate or rhomboid, 2–9 cm long and 1–3 cm wide, rarely larger or smaller, undulate at margins, pubescent at both surfaces or only on veins, glabrescent when old. The petiolules are 2–5 mm long. The inflorescences are terminal. The buds are globose. The bracts are opposite, slender and small. The petals are white or pale yellow-white, ovate or obovate, 2–3 mm long and 1–2 mm wide. There are 8 stamens, alternating the longer one with the short one, attached to inner petals when budding, overtopped the petals when peak flowering. The filaments are linear above the middle, geniculate at the middle, dilated below the middle. The anthers are with 1 oil gland above the connective. The ovaries are with 1 oil gland around the upper corners, densely gray-white villous, the styles being short and thick. The fruits are elliptic, 12–18 mm long and 8–15 mm wide, pubescent at first, then glabrescent and changing from dark yellow to pale red to vermilion at maturity, with 1–2 seeds. The flowering period is from April to May, and July to August, rarely to October (Hainan). The fruiting period is from August to October.

Habitat: It grows in the bushes or sparse forests of hillsides at low altitudes.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Taiwan, Fujian, Guangxi, and Yunnan, as well as in Vietnam, Laos, Cambodia, Thailand, Myanmar, and India.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and warm in property.

Functions: Dispelling wind and relieving exterior syndrome, promoting Qi flow and diminishing dampness, and preventing attack of malaria, it is often used for the treatment of upper respiratory tract infection, influenza, malaria, acute gastroenteritis, and dysentery, as well as external treatment for eczema.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. Or, take 3–6 g of powder ground from dry products per dose with water. For external treatment, the leaves are decocted and the affected areas are washed with them.



10.14 Family: Rutaceae

10.14.1 *Clausena lansium*

Chinese Name(s): huang pi he.

Source: This medicine is made of the mature seeds of *Clausena lansium* (*Clausena lansium* (Lour.) Skeels).

Morphology: The plant is an evergreen small tree, 5–10 m in height. The odd-pinnately compound leaves are alternate and with 5–11 leaflets. The leaf blades are papery, broadly ovate to ovate-oblong, 6–13 cm long and 2.5–6 cm wide, apically mucronate or shortly acuminate, basally broadly cuneate to rounded, asymmetric partly, repand or crenulate at margins, glabrous at both surfaces or sparsely puberulent at the back. The flowers are arranged in terminal panicles, white, fragrant, bisexual, and the buds are subglobose, with 5 obtuse angles. The sepals are adnate at the base, with 5 lobes, no more than 1 mm in length. There are 5 petals, no more than 5 mm in length, with yellow pubescence on both surfaces. There are 10 stamens, which are lined up into 2 whorls. The outer stamens are opposite to the sepals, but the inner stamens are opposite to the petals and longer than the outer ones, inserted on the disks. The berries are globose, ovate, obpyriform or elliptic, 1.2–3 cm long and 1–2 cm in cross diameter, yellow or dark yellow, with densely or sparsely pubescent. There are 1–3 seeds, rarely 5. The flowering period is from April to May. The fruiting period is from July to August.

Habitat: It is cultivated.

Distribution: It is cultivated throughout South and Northwest of China.

Acquisition and Processing: The mature seeds are harvested in summer, washed, steamed, and dried in the sun.

Medicinal Properties: The product is ellipsoid, slightly compressed, 1–1.8 × 0.6–0.8 cm, basally obtuse, apically acute and bent to one side, smooth on surface, obviously divided into two colors, grayish yellow on the upper 1/3, and yellow and blue on the lower part. Most of the testae had fallen off; therefore, most of the products are kernels. There are 2 cotyledons that are thick. It is solid in quality, yellowish white in the sections, and bitter, astringent, and pungent in tastes. The products intact and yellowish green are better in quality.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and slightly warm in property, belonging to the meridians of the liver, kidneys, and stomach.

Functions: Regulating Qi, killing pain, relieving depression, and detoxicating, it is often used for the treatment of abdominal distention, gastralgia, hernia, and testicular swelling, as well as external treatment for children's furuncle, centipede bite, and wasp sting.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, the fresh products are mashed and applied to the affected areas.





10.15 Family: Rutaceae

10.15.1 *Dictamnus dasycarpus*

Chinese Name(s): bai xian pi, ba gu niu, shan mu dan, bai shan, bai yang xian.

Source: This medicine is made of the root barks of *Dictamnus dasycarpus* (*Dictamnus dasycarpus* Turcz.).

Morphology: The herb is perennial, with a specific irritating smell, lignified at the base, up to 1 m in height. The roots are overgrown and clustered, with a strong goaty flavor, pale yellow-white, and with densely bubbly oil glands. The stems are erect, near woody at base, usually glabrous. The odd-pinnately compound leaves are alternate, with 5–13 leaflets, without petioles, opposed on leaf axes. The leaflet blades are ovate to elliptic, 3.5–9 cm long and 2–4 cm wide, apically acute, with fine teeth at margins. The rachises and pedicels are with white or black piloglands mixedly. The flowers are white or pale red. There are 5 sepals, which are 6–8 mm long and 5–8 cm wide. There are 5 petals, which are oblanceolate, 2–2.5 cm long and 5–8 cm wide. There are 10 stamens, which are overtopping petals in length. The capsules are 5-lobed. The lobes are with a long beak at the apex, and with densely brown oil glands and piloglands at surfaces. The flowering period is May. The fruiting period is from August to September.

Habitat: It grows on hillsides and in forests.

Distribution: It is distributed in the provinces of Northeast China, Hebei, Shandong, Henan, Anhui, Jiangsu, Jiangxi, Sichuan, Guizhou, Shaanxi, Gansu, and Inner Mongolia.

Acquisition and Processing: The roots can be dug up in spring or autumn, especially in spring. After being dug out, the roots are cleaned by removing the soil by rubbing each other to remove the thick skin or scraping off the thick skin, then cut longitudinally when fresh, and dried in the sun after removing the heartwoods.

Medicinal Properties: The root barks are in the shape of a roll or two rolls of 5–15 cm in length, 1–2 cm in diameter, and 0.2–0.5 cm in thickness. It is grayish white or grayish yellow on surface, with longitudinal wrinkles, lateral root marks, and often protruding granular dots. The inner surface is light yellow or almost white, with fine longitudinal lines. It is light and brittle, with uneven and slightly flaky sections of almost white. It has the smell of mutton and tastes slightly bitter. The products dry, fleshy, grayish white, flaky on section, and without heartwood are better in quality.

Natural Taste and Meridian Tropism: It is bitter in taste and cold in property, belonging to the meridians of spleen, stomach, and bladder.

Functions: Clearing heat and dampness, dispelling wind, and detoxicating, it is often used for the treatment of sore of heat and dampness, impetigo, eczema, rubella, scabies, rheumatoid arthralgia, jaundice, hematuria, etc.

Use and Dosage: 4.5–9 g per dose, decocted in water for oral use. For external treatment, the products are decocted to wash the affected areas or mashed to powder for application.

Prescription Example(s):

1. Clinical diagnoses and symptoms: traumatic bleeding: proper amounts of *Dictamnus dasycarpus* are ground to powder and applied to the affected area.
2. Clinical diagnoses and symptoms: lymphadenitis: appropriate amount of *Dictamnus dasycarpus* are ground to powder, added with sorghum steamed rice, mashed, and applied to the affected areas.
3. Clinical diagnoses and symptoms: eczema of scrotum: *Dictamnus dasycarpus* 60 g decocted in water to wash the affected areas.





10.16 Family: Rutaceae

10.16.1 *Evodia lepta*

Chinese Name(s): san ya ku, xiao huang san, ji gu shu, san zhi qiang, san cha hu.

Source: This medicine is made of the tender branches and leaves of *Evodia lepta* (*Evodia lepta* (Spreng.) Merr.).

Morphology: The plant is a shrub or a small tree, 2–5 m in height. The barks are gray-white. The compound leaves are alternate, fragrant when curling, membranous, 3-foliolate. The leaflet blades are narrowly elliptic or oblong, 6–15 cm long and 2–5 cm wide, apically long acuminate, basally narrowing, and with transparent oil glands. The panicles are axillary, and the flowers are unisexual, yellow. The bracts are triangular. There are 4 sepals, which are oblong, no more than 1 mm in length, pubescent. There are 4 petals, which are ovate, no more than 1.5 mm in length. There are 4 stamens in male flowers, which is 1 time over than petals in length. The ovaries are superior, 4-lobed, pubescent, styles being pubescent, stigmas being 4-lobed. The fruits consist of 4 free carpels, 4–6 mm in diameter at maturity. The seeds are black, rounded, ca. 3 mm in diameter, shiny. The flowering period is from April to June. The fruiting period is from July to October.

Habitat: It grows on hills, plains, and riversides, along sparse forest margins or in bushes.

Distribution: It is distributed in the provinces of Taiwan, Hainan, Guangdong, Fujian, Jiangxi, Guangxi, Yunnan, and Guizhou, as well as in Vietnam, Laos, and Thailand.

Acquisition and Processing: The tender branches and leaves are harvested in summer and autumn and dried in the sun.

Medicinal Properties: The product is cylindrical or rectangular columnar, with a diameter of 0.3–1 cm. It is usually greenish gray, with straight lines, hard and brittle, easy to break. The leaves are ternately compound, opposite, and the leaflets are mostly shrunk or broken. The intact leaflets are lanceolate-oblong, 6–15 cm long, adaxially brownish green, abaxially pale green, glabrous and lustrous on both surfaces, with transparent gland spots. It is slightly fragrant in odor and extremely bitter in taste. The products with tender branches and green leaves are better in quality.

Natural Taste and Meridian Tropism: It is bitter in taste and cold in property, belonging to the meridians of the liver, lungs, and stomach.

Functions: Clearing heat and detoxicating, dispersing blood stasis, and relieving pain, it is often used for the treatment of cold, fever, sore throat, cough, tonsillitis, laryngitis, pneumonia, rheumatoid arthritis, sciatica, stomachache, and icteric hepatitis, as well as for prevention and treatment of influenza, epidemic cerebrospinal meningitis, epidemic encephalitis B, and heatstroke, and external treatment for sprain, insect bite and snakebite, carbuncle, furuncle, eczema, and dermatitis.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, proper amounts of fresh leaves are mashed for application or decocted to wash the affected areas. Besides, the fresh leaves could also be dried in shades, ground to powder, and made into an ointment for smearing.

Prescription Example(s):

1. Clinical diagnoses and symptoms: cold and fever: *Evodia leptota* roots or stems 100 g, *Schefflera octophylla* roots or stems 100 g, decocted in water, filtered, and concentrated to 200 ml. Take 60 ml each time, once or twice a day.
2. Clinical diagnoses and symptoms: prevention of influenza, epidemic cerebrospinal meningitis, and epidemic encephalitis B: *Evodia leptota* 20 g, *Chrysanthemum indicum* and honeysuckle 15 g each, added with 500 ml of water, decocted to 300 ml. Take the decoctum once a day, for 3–5 continuous days.
3. Clinical diagnoses and symptoms: pruritus of vulva: *Evodia leptota* leaves, *Schefflera octophylla* leaves, *Ficus microcarpa* air roots, Chinese tallowtree leaf, each 30 g, mint leaves 15 g, decocted in water and used to wash the affected areas.
4. Clinical diagnoses and symptoms: carbuncle, boils: 2 portions of *Evodia leptota* leaves, 1 portion of red psychotria leaf, 1 portion of *Wikstroemia indica* root barks and leaves, 1 portion of melothria, mashed, soaked with 45% ethanol, and applied to the affected areas. Change the dressing once a day. In severe cases, Chinese herbal medicines for clearing heat and detoxicating should be taken orally in addition to external application.





10.17 Family: Rutaceae

10.17.1 *Evodia rutaecarpa*

Chinese Name(s): wu zhu yu, cha la, wu yu, wu jiao, chou la zi, chi you zi.

Source: This medicine is made of the submature fruits of *Evodia rutaecarpa* (*Evodia rutaecarpa* (Juss.) Benth.).

Morphology: The plant is an evergreen small tree, 3–5 m tall in height. The branchlets are brown or slightly purple, with lenticles, rusty villous when young. The odd-pinnately compound leaves are opposite, with 5–9 leaflets, rachis being rusty villous. The leaflet blades are papery, elliptic to ovate, 5–15 cm long and 2.5–7 cm wide, apically cuspidate or mucronate, basally rounded or broadly cuneate, entire or with inconspicuous rounded teeth at margins, villous at both surfaces, with conspicuous oil glands. The lateral veins are inconspicuous. The flowers are yellow-white, extremely small, dioecious, arranged in terminal panicles, with tomentose rachis and peduncles. There are 5 sepals, which are broadly ovate. There are 5 petals. The stamens are inserted on the disks, filaments being thick and short, anthers being elliptic, basifixed, and the staminodes in female flowers are scaly. The capsules are oblate, ca. 6 mm in diameter, purple-red, with thick and big oil glands, 5-carpelled at maturity. There are 5 seeds, which are black. The flowering period is from April to June. The fruiting period is from August to November.

Habitat: It is wild or cultivated, and it usually grows on mountain villages, at forest margins, or in sparse forests.

Distribution: It is distributed in the provinces of Shaanxi, Gansu, Anhui, Zhejiang, Fujian, Hubei, Hunan, Sichuan, Guizhou, Yunnan, Guangdong, and Guangxi, as well as in Japan.

Acquisition and Processing: The fruits are harvested in autumn when about to mature and indehiscent and dried over fire or in the sun after removing the carpodium.

Medicinal Properties: The product is a pentagonal oblate ball with a diameter of 2–3 mm and sometimes 4–5 mm. It is dark brown or green brown, rough, with many protuberant oil cells on surface, stellate 5-lobed at the apex, calyxes and tomentose carpodia at base. It is solid and has 1 seed per petal after broken. It is strong aromatic, spicy and bitter in taste. The products plump, dark brown, indehiscent, and strong aromatic are better in quality.

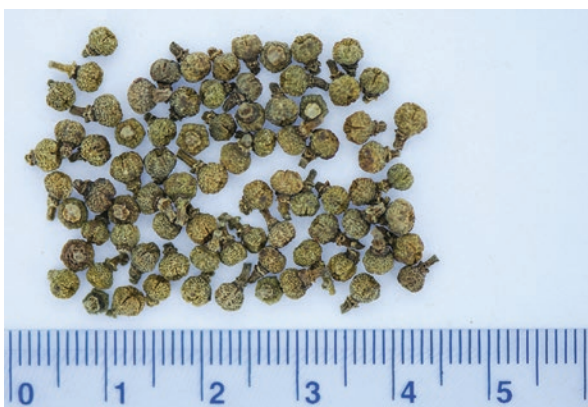
Natural Taste and Meridian Tropism: It is pungent and bitter in taste, hot in property, and a little toxic, belonging to the meridians of the liver and stomach.

Functions: Warming the middle Jiao to dispersing cold, drying dampness, soothing the liver to relieve pain, and stopping vomiting, it is often used for the treatment of Jue-yin headache, cold pain of stomach and abdomen, nausea and vomiting, beriberi, dysmenorrhea, sour regurgitation and belching, diarrhea, and pinworm disease, as well as for external treatment of hypertension and eczema.

Use and Dosage: 1.5–4.5 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: eczema: stir-fried *Evodia rutaecarpa* 30 g, cuttlebone 21 g, sulfur 6 g, ground to fine powder. Spray dry powder on the eczema affected area for cases with much exudate, and for those without exudate, mix the medicinal powder with castor oil or lard and smear to the affected areas, once every other day, wrap with gauze afterward.
2. Clinical diagnoses and symptoms: hypertension: proper amounts of *Evodia rutaecarpa* are ground to the powder. Mix the powder with vinegar for application to the soles of both feet every night, and remove it in the next morning.





10.18 Family: Rutaceae

10.18.1 *Evodia rutaecarpa* var. *officinalis*

Chinese Name(s): shi hu, ye wu yu.

Source: This medicine is made of the submature fruits of *Evodia rutaecarpa* (*Evodia rutaecarpa* (Juss.) Benth. var. *officinalis* (Dode) Huang).

Morphology: The plant is a shrub or a small tree, 2–5 m tall. The shoots are dark purple-red, with gray-yellow or rusty tomentum as well as the buds. The pinnately compound leaves are with 5–11 leaflets, and the leaflet blades are papery, ovate,

elliptic or lanceolate, 6–18 cm long and 3–5 cm wide, abaxially villous densely, with large oil glands. The inflorescences are terminal, and the flowers are separated with each other in male, but concentrated in female. In male, the petals are 3–4 mm long, adaxially crinite and the pistillodes are 4–5-cleft, white villous at the lower part as well as the filaments, and the stamens are outstretched of petals. In female, there are 4 petals, 5 mm long, which are adaxially pubescent, and the staminodes are scaly or short linear, and the ovaries and the lower part of styles are villous sparsely. The infructescences are 3–12 cm wide. The fruits are less and arranged loosely, dark purple-red, with large oil glands, and have 1 seed per mericarp. The seeds are sub-globose, adaxially slightly flat, 4–5 mm long, brown-black, shiny. The flowering period is from April to June. The fruiting period is from August to November.

Habitat: It grows in mountain forest margins or shrubs at low altitudes.

Distribution: It is distributed in South of the Yangtze River and East and Central of North of the Five Ridges.

Acquisition and Processing: The fruits are harvested in autumn when about to mature and dried in the sun after removing the carpodium.

Natural Taste and Meridian Tropism: It is pungent and bitter in taste, hot in property, and a little toxic, belonging to the meridians of the liver and stomach.

Functions: Dispersing cold and relieving pain, lowering the adverse flow of Qi and stopping hiccup, and invigorating Yang and stopping diarrhea, it is often used for the treatment of Jue-yin headache, hernia and abdominal pain of cold syndrome, beriberi, dysmenorrhea, abdominal distention, vomiting and sour regurgitation, diarrhea, aphthous ulcer, and hypertension.

Use and Dosage: 6–9 g per dose, decocted in water for oral use.





10.19 Family: Rutaceae

10.19.1 *Evodia trichotoma*

Chinese Name(s): niu jiu wu zhu yu, niu jiu shu, wu chu ye, cha la, shu you zi.

Source: This medicine is made of the fruits and leaves of *Evodia trichotoma* (*Evodia trichotoma* (Lour.) Peirre).

Morphology: The plant is a small tree, rarely up to 10 m in height. The barks are gray-brown or gray. The branches are dark purple-red at spring. The leaves are 5–11-foliolate, rarely 3-foliolate. The leaflet blades are elliptic, oblong or lanceolate, usually ovate at the base of rachises, 6–15 cm long and 2.5–6 cm wide, apically acuminate, basally mucronate, usually asymmetric, entirely glabrous or scattered pubescent at young branches and leaflets, brown-black when dry, with visible oil glands in magnascope. The inflorescences are terminal, with numerous flowers. The sepals and petals are 4-merous. The sepals are broadly ovate, acute at the apex, no more than 1 mm in length. The petals are valvate, white, 3–4 mm long. There are 4 stamens in male flowers, which are slightly longer than petals, filaments being with several white long hairs. The pistillodes are clavate, slightly shorter than petals, undivided. The staminodes in female flowers are scaly. The styles and ovaries are greenish, petals being larger than in male flowers. The fruits are vermilion to dark

purple-red, dark brown when dry, with scattered slightly salients and dark oil glands, with cross wrinkles, usually with 1–2 dark brown-black and small sterile carpels at the base. There is 1 seed per pericarp. The seeds are dark brown, subglobose and adaxially slightly flat, apically slightly acute, basally broadly rounded, axially fine ribbed, 6–7 mm long and 5–6 mm wide. The flowering period is from June to July. The fruiting period is from September to November.

Habitat: It grows in the thickets of streams or both sides of rivers.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Guangxi, Yunnan, and Guizhou, as well as in Vietnam, Laos, and Thailand.

Acquisition and Processing: The fruits are harvested in autumn when they mature, and the leaves are harvested in summer and autumn and then dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and warm in property.

Functions: The fruits function in regulating Qi and relieving pain and are often used for the treatment of stomachache, abdominal pain, diarrhea, cold, and coughing. The leaves function in dispelling wind and dampness and are often used for the external treatment of rheumatoid arthritis, urticaria, eczema, and skin sores.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external use, the fresh products are mashed for application to the affected areas or decocted for washing.





10.20 Family: Rutaceae

10.20.1 *Fortunella hindsii*

Chinese Name(s): shan ju, jin dou, hou zi gan, shan jin ju.

Source: This medicine is made of the roots and fruits of *Fortunella hindsii* (*Fortunella hindsii* (Champ. ex Benth.) Swingle).

Morphology: The plant is a shrub, 3 m in height. The branches are numerous and aculeolate. The leaves are unifoliolate or sometimes mixed with several simples ones, with linear or conspicuous wings. The leaflet blades are elliptic or obovate-elliptic, 4–6 cm long and 1.5–3 cm wide, apically rounded, rarely mucronate or obtuse, basally rounded or broadly cuneate, margins being serrulate nearly apices, rarely entire, slightly thick. The petioles are 6–9 mm long. The flowers are solitary or several clustered in leaf axils, pedicels being extremely short. The calyxes are 5- to 4-lobed. There are 5 petals, which are no more than 5 mm in length. The stamens are about 20-merous, filaments connate to 4 or 5 bundles, shorter than petals, styles being equal to ovaries in length, ovaries being 3–4-lobed. The fruits are globose or slightly oblate, rarely above 1 cm in diameter. The pericarps are orange-yellow or vermilion, smooth, spicy, and slightly bitter. The fruit fleshes are acidic.

There are 3–4 seeds, which are broadly ovate, plumped, apically mucronate, smooth and ribless, cotyledons being green, polyembryony. The flowering period is from April to May. The fruiting period is from October to December.

Habitat: It grows on the moist place of valley forests, bushes, or sunny slopes.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Taiwan, Fujian, Jiangxi, Guangxi, Hunan, and Anhui.

Acquisition and Processing: The fruits are harvested in autumn when they mature, and the roots are harvested in summer and autumn and then dried in the sun.

Natural Taste and Meridian Tropism: The roots are pungent and bitter in taste and warm in property, and the fruits are pungent, sour, and sweet in taste and warm in property.

Functions: Activating the spleen and promoting the circulation of Qi, relieving epigastric distention, resolving phlegm, and lowering adverse Qi, it is often used for the treatment of coughing due to wind-cold, stomachache, food accumulation, abdominal distention, and hernia.

Use and Dosage: 15–30 g per dose for roots, 9–15 g per dose for fruits, decocted in water for oral use.





10.21 Family: Rutaceae

10.21.1 *Fortunella margarita*

Chinese Name(s): jin ju, ju zi, jin zao, niu nai ju.

Source: This medicine is made of the roots and fruits of *Fortunella margarita* (*Fortunella margarita* (Lour.) Swingle).

Morphology: The plant is a shrub, no more than 3 m in length. The branches are prickly. The leaf blades are thick, dark green, ovate-lanceolate or long-elliptic, 5–11 cm long and 2–4 cm wide, apically slightly sharp or obtuse, basally broadly cuneate or subrounded. The petioles are up to 1.2 cm in length, and their wings are extremely narrow. The flowers are solitary or 2–3-fasciculate, with 3–5 mm long pedicels. The calyxes are 4–5-lobed. There are 5 petals, which are 6–8 mm long. There are 20–25 stamens. The ovaries are elliptic. The styles are slender and long and usually 1.5 times than ovaries in length, and the stigmas are slightly expanded. The fruits are elliptic or ovate-elliptic, 2–3.5 cm long, orange-yellow to orange-red, pericarps being sweet, about 2 mm in thickness and usually with slightly prominent oil cells, sarcocarps being 5 or 4 segments and acidic, with 2–5 seeds. The seeds are ovate, sharp at the tips, cotyledon and embryo being green, monoembryonic or polyembryonic sometimes. The flowering period is from March to May. The fruiting period is from October to December. Potted flowers bloom many times, and the farmhouse retains its flowering period from July to August. It matures on the eve of the Spring Festival in fruit.

Habitat: It is cultivated.

Distribution: There are potted plants in cities and towns in North and South China.

Acquisition and Processing: The roots are harvested in summer and autumn, and the fruits are harvested in autumn when they mature and then dried in the sun.

Natural Taste and Meridian Tropism: The roots are pungent and bitter in taste and warm in property, and the fruits are pungent, sour, and sweet in taste and warm in property.

Functions: Activating the spleen and promoting the circulation of Qi, relieving epigastric distention, resolving phlegm, and lowering adverse Qi, it is often used for the treatment of coughing due to wind-cold, stomachache, food accumulation, abdominal distention, and hernia.

Use and Dosage: 15–30 g per dose for roots, 9–15 g per dose for fruits, decocted in water for oral use.





10.22 Family: Rutaceae

10.22.1 *Glycosmis parviflora*

Chinese Name(s): shan xiao ju, shan gan ju, ye sha gan, jiu bing mu.

Source: This medicine is made of the roots and leaves of *Glycosmis parviflora* (*Glycosmis parviflora* (Sims) Little [*G. citrifolia* (Willd.) Lindl.]).

Morphology: The plant is a shrub or a small tree, 1–3 m in height. The leaves are 2–4-foliolate, rarely 5- or 1-foliolate. The petiolules are 1–3 mm long. The leaflet blades are elliptic, oblong or lanceolate, obovate-elliptic sometimes, 5–19 cm long and 2.5–8 cm wide, apically mucronate or acuminate, obtuse sometimes, basally cuneate, glabrous, entire, irregularly lightly undulate when dry, and dark without

shiny. The adaxially midveins are flat or slightly salient, or retuse at lower segments, and the lateral veins are very obvious. The panicles are axillary or terminal, usually 3–5 cm, rarely shorter, but the terminal ones are up to 14 cm. The rachis, pedicels, and sepals are usually caducous brown-rusty villous. The sepals are ovate, obtuse at ends, about 1 mm wide. The petals are white, ca. 4 mm long, long-elliptic, detached later, turning pale brown when dry, pale yellow at margins. There are 10 stamens, rarely 8. The filaments are slightly unequal in length, broad at the upper part, slightly narrow at the lower part, abruptly mucronate at the junction with anthers, connectives being with 1 oil gland at the apex. The ovaries are broadly ovate to oblong, with not inconspicuous oil glands, styles being extremely short, stigma being slightly expanded, gynophore being slightly ascending. The fruits are globose or elliptic, 10–15 mm in diameter, pale yellowish white but turning reddish to dark vermilion, with conspicuous translucent oil glands, with 2–3 seeds, rarely 1. The flowering period is from March to May. The fruiting period is from July to September.

Habitat: It grows on hills, slopes, sparse forests, or bushes.

Distribution: It is distributed in the provinces of Guangdong, Hong Kong, Hainan, Taiwan, Fujian, Guangxi, Yunnan, and Guizhou, as well as in Vietnam.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn, and the fruits are harvested in autumn when they mature and then dried in the sun.

Natural Taste and Meridian Tropism: It is pungent and sweet in taste and neutral in property, and the fruits are pungent, sour, and sweet in taste and warm in property.

Functions: Expelling phlegm and relieving cough, regulating qi and eliminating accumulation, dispersing blood stasis, and reducing swelling, it is often used for the treatment of cold, coughing, dyspepsia, anorexia, abdominal pain, and hernia, as well as for external treatment of bruise, swelling, and blood stasis caused by knocks and falls.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, fresh leaves are mashed and applied to the affected areas.







10.23 Family: Rosaceae

10.23.1 *Micromelum falcatum*

Chinese Name(s): da jian, ye huang pi, ju luan huang.

Source: This medicine is made of the roots and leaves of *Micromelum falcatum* (*Micromelum falcatum* (Lour.) Tanaka).

Morphology: The plant is a shrub, 1–3 m in height. The branchlets, petioles, and rachises are hirsute. The leaflet blades are abaxially covered with dense hairs, only pubescent on the veins, rarely glabrous. The pinnately compound leaves are

5–11-foliolate. The petiolules are 3–7 mm long. The leaflet blades are alternate, facillform-lanceolate, sometimes ovate at the lower part of rachises, 4–9 cm long and 2–4 cm wide, apically oblique bending to form long acuminate, basally rounded at one side, but oblique at another, extremely asymmetric at both sides, teeth or undulate at margins. There are 5–7 lateral veins on each side, being an acute angle to the midvein and obliquely spreading upward to the margins, usually slightly impressed after drying. The inflorescences are terminal. The flowers are numerous, white. The buds are rounded or elliptic. The calyxes are shallowly cup-shaped, and the sepals are broadly triangular, no more than 1 mm in length. The petals are oblong, about 4 mm long, pubescent outside, recurved at blooming. There are 10 stamens, longer ones alternating with the shorter ones. The longer ones are subequal to the petals in length, and 5 other ones are equal to the ovaries in height. The styles are cylindrical, longer than ovaries. The ovaries are covered with densely long hairs. The stigmas are capitate. The disks are slender and small. The berries are elliptic or obovate, 8–10 mm long and 7–9 mm thick, green to orange yellow at maturity, finally vermilion, with scattered transparent oil glands on the pericarps, and with 1–2 seeds. The budding period is from October to December. The flowering period is from January to April. The fruiting period is from June to August.

Habitat: It grows in bushes or secondary forests at low altitudes.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Guangxi, and Yunnan, as well as in Vietnam, Laos, Cambodia, and Thailand.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and warm in property.

Functions: Dispersing blood stasis and promoting Qi flow, relieving pain, and promoting blood circulation, it is often used for the treatment of snakebite, chest obstruction, bruise, and sprain.

Use and Dosage: 9–15 g per dose for roots, 6–12 g per dose for leaves, decocted in water for oral use.





10.24 Family: Rosaceae

10.24.1 *Micromelum integerrimum*

Chinese Name(s): xiao yun mu, ye huang pi, lai ha ma die da, ji shi mu, shan huang pi, ban bian feng.

Source: This medicine is made of the roots and leaves of *Micromelum integerrimum* (*Micromelum integerrimum* (Buch.-Ham.) Wight & Arn.).

Morphology: The plant is a small tree, up to 8 m in height, 10–15 cm in DBH. The barks are gray and smooth. The annual shoots, leaf rachises, and inflorescence rachises are green and densely covered with short appressed hairs. The sepals and petals are pubescent on the abaxial surfaces. The leaves are pubescent, 7–15-foliolate. The leaflet blades are alternate to subopposite, both surfaces dark green, flat, oblique ovate-elliptic, oblique lanceolate, oblique ovate sometimes, smaller at the base of rachis, ca. 4 cm long, and the ones at the upper part are up to 20 cm in length and 8 cm in width, entire at margins, but undulate, asymmetric at both sides, rounded on one side, but cuneate on another. The lateral veins are slightly impressed, unbranched. The petioles are thicker at base. The petiolules are 2–5 cm long. The buds are pale green, long elliptic. The petals are pale yellow-white when flowering. The sepals are shallowly cup-shaped, with 1-mm-long lobes. The petals are 5–10 mm long, outcurved when blooming. There are 10 stamens. The longer one is next to the shorter one and subequal with petals in length. The ovaries are covered with erect pubescence at first, glabrous after flowering, with conspicuous prominent disk at the base. The styles are nearly equal or longer to ovaries in length. The stigmas are capitate. The gynophores are elongated, extremely conspicuous at fruiting. The fruits are elliptic or obovate, 10–15 mm long and 7–12 mm wide, orange yellow to vermilion at maturity, with 1–2 seeds. The seed coats are thin membranous, and the cotyledons are green, with oil glands. The flowering period is from February to April. The fruiting period is from July to September.

Habitat: It grows in mountain sparse forests or secondary forests.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Guangxi, Yunnan, Guizhou, and Tibet, as well as in Vietnam, Laos, Cambodia, Thailand, Myanmar, India, and Nepal.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and pungent in taste and warm in property.

Functions: Dispelling wind and relieving exterior syndrome, dispersing blood stasis, and relieving pain, it is often used for the treatment of cold, cough, stomachache, rheumatism, and bone pain, as well as for external treatment of bruise, swelling, and fracture.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, proper amounts of fresh leaves are mashed or roots are ground to powder, mixed with wine for application to the affected areas. Pregnant women should use it with caution.



10.25 Family: Rutaceae

10.25.1 *Murraya paniculata*, *Murraya exotica*

Chinese Name(s): jiu li xiang, qi jing tong.

Source: This medicine is made of the tender branches and leaves of *Murraya paniculata* (*Murraya paniculata* (Linn.) Jack.) or *Murraya exotica* (*Murraya exotica* Linn.).

Morphology: A. *Murraya paniculata*. The plant is a shrub or a small tree, which is evergreen, 1.5–5 m in length, up to 8 m sometimes. The odd-pinnately compound leaves are alternate, without wings at petioles. The leaflets are 3–7, alternate, elliptic, 4.5–8 cm long, broadest below middle, apically acuminate, obtuse and usually retuse, basally cuneate, with dense gland points, which are brown-black when dry, pubescent along midveins adaxially sometimes. The cymes are terminal or axillary, 3- to several-flowered. The flowers are 3–4 cm in diameter, white, fragrant, rarely solitary. There are 5 sepals, which are ovate-triangular and connected at base. There are 5 petals, oblanceolate to narrow elliptic. There are 10 stamens, with 5 being longer and 5 shorter. The stigmas are thick. The berries are spindle or olivary, largest above the middle part, 12–20 mm long and 5–10 mm in diameter, red. The flowering period is from April to August, sometimes after autumn. The fruiting period is from September to December.

Habitat: It grows as a dry sandy shrub in the coast and sporadically wild, and it is cultivated everywhere.

Distribution: It is distributed in the provinces of South of Hainan, Guangdong, Guangxi, Hunan, Guizhou, and Yunnan, as well as in Indo-China Peninsula and Malay Peninsula.





Morphology: *B. Murraya exotica*. *Murraya exotica* and *Murraya paniculata* are similar in morphology, but leaflets of *Murraya exotica* broadest above the middle part, while *Murraya paniculata* broadest below the middle part.

Habitat: It grows on the flatlands, slopes, and in the hill bushes near the coast.

Distribution: It is distributed in the provinces of South of Taiwan, Fujian, Guangdong, Hainan, and Guangxi, as well as in North Vietnam.

Acquisition and Processing: It can be harvested all year round and dried in shades after removing the old branches.



Medicinal Properties: *Murraya paniculata*: the twigs are cylindrical with a diameter of 1–4 mm. It is dark green and hairy on surfaces, tough, not easy to break, and uneven on the sections. The leaves are imparipinnate, 3–7 foliolate. The leaflets alternate and are mostly curled or broken. The intact ones are ovate to nearly diamond shaped after flattening, 2–7 cm long, dark green on both surfaces, with transparent glands, short or sessile petioles. It is brittle and fragile. There are

sometimes cymes, and the flowers are about 4 cm in diameter. It is aromatic, bitter, and pungent in taste, numbing the tongue. The products with many leaves, green colored, and strong fragrant are better in quality.

Murraya exotica: The widest part of *Murraya exotica* leaves is above the middle, while the widest part of *Murraya paniculata* leaves is below the middle.

Natural Taste and Meridian Tropism: It is pungent and bitter in taste, warm in property, and a little toxic, belonging to the meridians of the liver, spleen, and stomach.

Functions: It is used as an agent in anesthesia, tranquilization, detoxification, detumescence, dispelling wind, and activating collaterals. It is often used for the treatment of bruise, rheumatism, stomachache, toothache, tetanus, and epidemic encephalitis B, as well as for external treatment of insecticide and snakebite and as local anesthesia.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, proper amounts of fresh leaves are mashed for application.

Notes: People with Yin deficiency should use it with caution.

Prescription Example(s):

1. Clinical diagnoses and symptoms: bruise and swelling caused by knocks and falls: fresh *Murraya exotica* leaves, fresh *Hypericum japonicum*, fresh phellandrium, fresh *Gardenia* leaves in equal amounts, mashed and stir-fried with wine and applied to the affected areas.
2. Clinical diagnoses and symptoms: rheumatic bone pain: 15 g of *Murraya exotica* roots, common lantana roots and *Bauhinia championii* roots, each 15 g, stewed with pork bone or soaked in wine to take.
3. Clinical diagnoses and symptoms: stomachache: a: 2 portions of *Murraya exotica* leaf powder, 2 portions of *Zanthoxyli* powder, 1 portion of thick leaf croton root powder, and 1 portion of pollen pini, mixed well, then added with adhesive to make pills. Take 10–15 pills per dose, three times a day. b: *Murraya exotica* leaf 9 g, ark shell (calcined) 30 g, ground to powder. Take 3 g each time, three times a day.
4. Clinical diagnoses and symptoms: epidemic encephalitis B: fresh *Murraya exotica* leaf 15–30 g, fresh *Bidens bipinnata* 30–90 g, decocted in water, and taken 2–3 times (or nasal feeding). In cases of high fever, add with 30 g of isatis leaf, and in cases of frequent convulsion and excessive phlegm, take another 15–30 g of fresh *Murraya exotica* leaf, mash thoroughly, and take them with cold water.

10.26 Family: Rutaceae

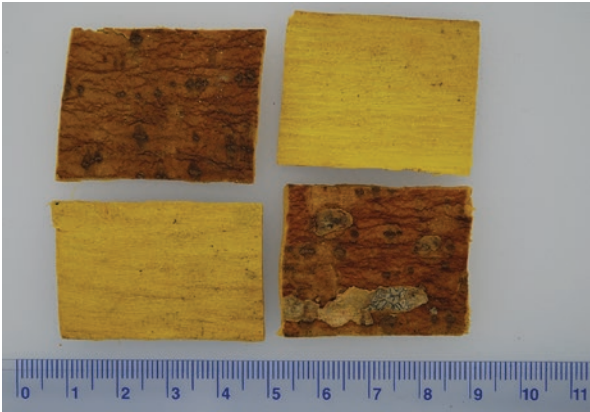
10.26.1 *Phellodendron chinense*, *Phellodendron chinense* *var. glabriusculum*

Chinese Name(s): huang bai, huang bo, bo pi, chuan huang bai.

Source: This medicine is made of the barks of *Phellodendron chinense* and *Phellodendron chinense* var. *glabriusculum* (*Phellodendron chinense* Schneid, or *Phellodendron chinense* Schneid. var. *glabriusculum* Schneid.).

Morphology: A. *Phellodendron chinense*. The plant is a tree, up to 15 m in height. The adult trees have the phellem layers with thick and longitudinal cracks and have yellow endodermis. The branchlets are robust, dark purple-red, and glabrous. The leaf rachises and petioles are robust, and usually rust-colored tomentose. The leaves are 7–15-foliolate. The leaflet blades are papery, oblong-lanceolate or ovate-elliptic, 8–15 cm long and 3.5–6 cm wide, apically mucronate or acuminate, basally broadly cuneate to rounded, usually slightly asymmetric, entire or with shallowly undulate at margins, villous abaxially or at least on veins, pubescent adaxially on midveins or thinly on young leaves. The petiolules are 1–3 mm long, tomentose. The inflorescences are terminal, usually dense, and the peduncles are robust, pubescent. The fruits are usually clustered in groups, slightly narrow elliptic or subglobose at the apices, ca. 1 cm in diameter, or up to 1.5 cm, blue-black, with 5–8 (10) **pyrenes**. There are 5–8 seeds, rarely 10, which are 6–7 mm long and 4–5 mm thick, slightly sharp at one end, with fine reticulation. The flowering period is from May to June. The fruiting period is from September to November.





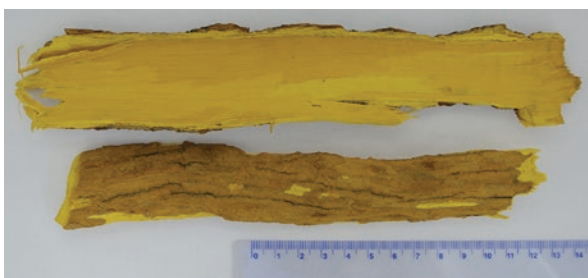


Morphology: *B. Phellodendron chinense* var. *glabriusculum*. The plant is a deciduous tree, up to 10 m in height. The barks are thin and cracked, and the exoderms are dark gray-brown, but the testae are yellow. The odd-pinnately compound leaves are alternate, with 7–13-foliolate. The leaflet blades are lanceolate-oblong to long ovate, 6–9 cm long or longer, apically acute, basally broadly cuneate or rounded, glabrous at both surfaces, or only tomentose on veins, usually green-gray at back, entire at margins. The flowers are opening in summer, unisexual, thyrses terminal. There are 5 ochroleucous petals. The drupes are subglobose, about 8 mm in diameter, black. The flowering period is from May to June. The fruiting period is from September to November.

Habitat: It grows in slightly moisture shady slopes above 900 m.

Distribution: It is distributed in provinces of Shaanxi, Gansu, Hubei, Hunan, Jiangsu, Zhejiang, Fujian, Guangdong, Jiangxi, Taiwan, Guangxi, Guizhou, Sichuan, and Yunnan.





Acquisition and Processing: Generally, the barks should be harvested between May and June. The trees should be cut crosswise first and then lengthwise, the barks are peeled, the rough skin is scraped off, and then they are flattened and dried.

Medicinal Properties: The product is in the shape of a sheet or light groove, with different lengths and widths. It is dark yellow or light yellowish brown when

the rough skin on the surface has mostly been scraped off. The old barks are relatively flatter, about 0.3–0.7 cm thick, and the tender barks are thinner, in the shape of shallow groove, with irregular shallow cracks. The inner surface is dark yellow with fine longitudinal ridges. It is light and hard, dark yellow on sections, multifibrous, slight odor and bitter in tastes. It is sticky and slippery when chewing and can dye saliva yellow. The products thick, dark yellow, and solid are better in quality.

Natural Taste and Meridian Tropism: It is bitter in taste and cold in property, belonging to the meridians of kidneys and bladder.

Functions: Clearing heat and detoxicating, drying dampness, purging fire, and strengthening stomach, it is often used for the treatment of dysentery, diarrhea, strangury hemorrhoids, hematochezia, eczema, night sweating, spermatorrhea, sore of mouth and tongue, impetigo, icteric hepatitis, conjunctivitis, stomatitis, otitis media, and rheumatoid arthritis, as well as for external treatment of boils and furuncles.

Use and Dosage: 5–10 g per dose, decocted in water for oral use. For external treatment, proper amounts of products are mashed into powder for application to the affected areas.

10.27 Family: Rutaceae

10.27.1 *Poncirus trifoliata*

Chinese Name(s): lv yi zhi shi, jian zhi shi.

Source: This medicine is made of the tender fruits of *Poncirus trifoliata* (*Poncirus trifoliata* (Linn.) Raf.).

Morphology: The plant is a deciduous shrub or a small tree, with thick and up to 7 cm long spines. The branchlets are thick, curved, slightly flat, and dark green. The leaves are alternate, trifoliate. The petioles are winged, 1–3 cm long. The terminal leaflet blades are leathery, ovate or elliptic, 1.5–6 cm long and 0.7–6 cm wide, apically rounded or retuse, basally cuneate. The lateral leaflet blades are smaller, elliptic-ovate, slightly oblique at base, with small teeth at margins, and with pilose midveins when young. The flowers are white, fragrant, pedicellate, 1 or 2, axillary. There are 5 sepals, which are subovate to subtriangular, 5–6 mm long. There are 4 petals, which are obovate-spatulate, up to 3 cm in length and 1.5 cm in width. There are 8–20 stamens, filaments being unequal in length. The ovary is hairy, 6–9-loculed. The hesperidia are globose, 2–5 mm in diameter, orange yellow at maturity, with dense short tomentose, and many oil cells. The gynophores are short and persistent in branches. The flowering period is from May to June, and the fruiting period is from October to November.

Habitat: It was cultivated.

Distribution: It is distributed in the provinces of Shandong, Henan, Shaanxi, Gansu, Anhui, Jiangsu, Zhejiang, Hubei, Hunan, Guangdong, Guangxi, Guizhou, and Yunnan.

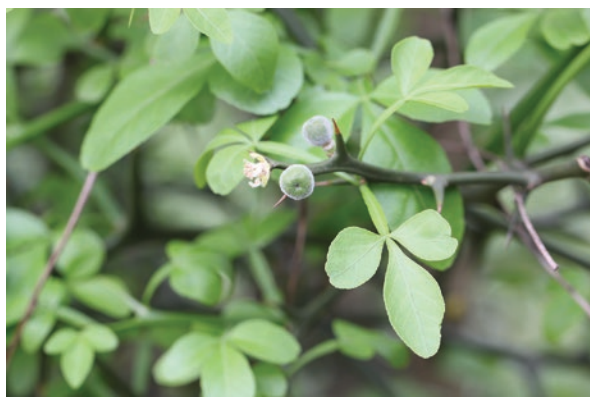
Acquisition and Processing: The young fruits are picked up in summer, cut crosswise into two equal parts, and dried in the sun.

Medicinal Properties: The product is hemispherical, about 8–13 mm in diameter of sections. It is grayish green or grayish black on the outside, with longitudinal wrinkles, densely brownish green trichomes and oil cells. The pericarp is 3–6 mm in thickness, and the pulp is small, usually with 7–9 segments, arranged radially. It is solid in quality, not easy to break, fragrant in odor, bitter and sour in taste. The products small, greyish green, with thicker pericarps, smaller pulp, and solid are better in quality.

Natural Taste and Meridian Tropism: It is bitter, pungent, and sour in taste and slightly cold in property, belonging to the meridians of spleen and stomach.

Functions: Breaking Qi and eliminating accumulation, resolving phlegm, and relieving distention, it is often used for the treatment of food stagnation, fullness of abdomen, diarrhea and tenesmus, constipation, phlegm and Qi obstruction, thoracic obstruction, gastroptosis, and prolapsed anus and uterine.

Use and Dosage: 3–10 g per dose, decocted in water for oral use.





10.28 Family: Rutaceae

10.28.1 *Ruta graveolens*

Chinese Name(s): yun xiang, chou cao.

Source: This medicine is made of the whole plants of *Ruta graveolens* (*Ruta graveolens* Linn.).

Morphology: The plant is a herb, up to 1 m in height, with strong and specific smell. The leaves are bipinnate or tripinnate, 6–12 cm long. The terminal lobes are short spatulate or narrow oblong, 5–30 mm long and 2–5 mm wide, apically obtuse, basally cuneate, gray-green or blue-green at both surfaces. The flowers are gloden yellow, ca. 2 cm in diameter, with 4 sepals and 4 petals. There are 8 stamens, of which the 4 stamens opposite to petals are attached to the petals at the beginning of flowering, and the other 4 stamens that opposite to sepals are obliquely spread and exserted, longer. All stamens stand together when blooming, and are erect and equal in length. The styles are short, the ovaries are usually 4-loculed, a few ovules per locule. The fruits are 6–10 mm long, split from the apices to the middle part, with prominent oil glands on pericarps. There are numerous seeds, reinform, ca. 1.5 mm long, brown black. The flowering period is from March to June and the end of winter. The fruiting period is from July to September.

Habitat: It is cultivated.

Distribution: It is cultivated in the south and north of China, usually potted, and native to Mediterranean regions.

Acquisition and Processing: The whole plants are harvested all year round and dried in the shades or used when fresh.

Natural Taste and Meridian Tropism: It is pungent and slightly bitter in taste and cool in property.

Functions: Clearing heat, detoxicating, dispersing blood stasis, and relieving pain, it is often used for the treatment of cold, fever, toothache, irregular menstruation, eczema in children, sore, boils, swelling, and injuries caused by falls.

Use and Dosage: 6–15 g per dose, decocted in water for oral use. For external treatment, the fresh products are mashed and applied to the affected areas. The pregnant women should not take it.



10.29 Family: Rutaceae

10.29.1 *Skimmia arborescens*

Chinese Name(s): qiao mu yin yu, mei mai yin yu, guang xi yin yu.

Source: This medicine is made of the leaves of *Skimmia arborescens* (*Skimmia arborescens* T. Anders. ex Gamble).

Morphology: The plant is a small tree, up to 8 m in height, 20 cm in DBH. The pith of branchlet is small but prominent, and the cortex of the biennial branches is thin, without wrinkled when dry. The leaves are thin, papery when dry, elliptic or oblong, or obovate-elliptic, 5–18 cm long, 2–6 cm wide, glabrous on both surfaces, whose midvein is slightly raised or mesophyll is impressed when dry, with 7–10 secondary veins on each side of midvein. The petioles are 1–2 cm long. The inflorescences are 2–5 cm long, inflorescence rachis being puberulent or glabrous. The bracts are broadly ovate, 1–1.5 mm long. The sepals are slightly larger than bracts, margins being ciliate. There are 5 petals, which are obovate or ovate-oblong, 4–5 mm long, spreading horizontally or obliquely upward. The stamens of male flowers are longer than petals, with filiform filaments. The pistillodes are 3–4 mm long, rod-shaped, with apex 3–4 parted. The parastemon of female flowers are longer than petals. The ovaries are nearly spherical, and styles are ca. 1 mm long, stigma being capitate. The fruits are spherical, 6–8 mm in diameter, rarely larger, bluish black, and usually have 1–3 seeds. The flowering period is from April to June. The fruiting period is from July to September.

Habitat: It grows in moist places in mountain forests.

Distribution: It is distributed in the provinces Guangdong, Guangxi, Yunnan, Sichuan, Guizhou, and Tibet, as well as in India, Myanmar, Bhutan, and Nepal.

Acquisition and Processing: The leaves are harvested all year round and used when fresh.

Natural Taste and Meridian Tropism: It is pungent and slightly bitter in taste and cool in property.

Functions: Expelling wind and dampness, it is often used for the treatment of rheumatism arthralgia.

Use and Dosage: For external treatment, the fresh products are mashed and applied to the affected areas.



10.30 Family: Rutaceae

10.30.1 *Skimmia reevesiana*

Chinese Name(s): yin yu, huang shan gui, shen hong yin yu, hai nan yin yu.

Source: This medicine is made of the stems and leaves of *Skimmia reevesiana* (*Skimmia reevesiana* Fort. [S. hainanensis Huang]).

Morphology: The plant is a shrub, 1–2 m in height. The branchlets are often hollow, with pale grayish green, smooth bark, and often with shallow longitudinal wrinkles when dry. The leaves have a citrus-leaf odor, leathery, clustered at branch apex. The leaf blades are elliptic, lanceolate, ovate, or oblanceolate, apically mucronate or obtuse, basally broadly cuneate, 5–12 cm long, 1.5–4 cm wide. The midvein is slightly raised, more prominent after drying, being puberulent. The petioles are 5–10 mm long. The inflorescence rachises and pedicels are puberulent, fragrant, yellowish white, terminal panicles, with condensed flowers, short pedicels. The sepals and petals are 5-merous, rarely 4- or 3-merous, and sepals are semicircular, 1–1.5 mm long, margins being ciliate, and petals are yellowish white, 3–5 mm long, and the size of each petal is slightly different at budding periods. The stamens are equal to or longer than petals in length, the same number with petals. The styles are short in the early, elongated and stigma enlarged when blooming. The male flower's staminodes are rod-shaped, ovaries being subglobose, styles being cylindrical, stigma being capitate. The male flower's pistillodes are oblate, apex being mucronate, entire or shallowly 2–4-lobed. The fruits are globose, elliptic or obovate, 8–15 mm long, red, with 2–4 seeds. The seeds are compressed ovoid, 5–9 mm long, 4–6 mm wide, 2–3 mm thick, apex being mucronate, base being round, with tiny dens. The flowering period is from March to May. The fruiting period is from September to November.

Habitat: It grows in moist areas below the valley and is sometimes cultivated.

Distribution: It is distributed in the provinces along the southeast coast of China to Hunan, Hubei, Guangdong, Guangxi, Guizhou, Sichuan, and other places, as well as in the Philippines.

Acquisition and Processing: The stems and leaves are dried in the sun.

Natural Taste and Meridian Tropism: It is bitter in taste, warm in property, and poisonous.

Functions: Dispelling wind and dampness, it is often used for the treatment of rheumatic arthralgia, limb contracture, weakness of leg, persistent arthralgia, and acute spasm.

Use and Dosage: 3–6 g per dose, decocted in water for oral use. The patients with syndromes of Yin-deficiency and no excessive wind-dampness should not take it. *Skimmia reevesiana* should be taken with caution not to overdose for it is poisonous.



10.31 Family: Rutaceae

10.31.1 *Toddalia asiatica*

Chinese Name(s): fei long zhang xue, huang rou shu, ru di jin niu, san bai bang, da jiu jia, san wen teng.

Source: This medicine is made of the roots of *Toddalia asiatica* (*Toddalia asiatica* (Linn.) Lam.).

Morphology: The plant is a woody climber. The old stems have thick phellem layers, usually armed, yellowish green branchlets and pubescent. The leaves are alternate, ternate compound, petiolate. The leaflets are usually sessile or subsessile, elliptic or obovate, 5–9 cm long, 2–4 cm wide. Two lateral leaflets are oblique basally, serrulate at margin, glabrous, with much oil spots. The lateral veins are dense, about 15 on each side. The flowers are most prosperous at the end of autumn and early winter, white or pale yellow, unisexual, usually composed the corymbiform cyme by several flowers, and multiple cymes composed the large panicles. There are 5 sepals, which are connate at the base, ovate, less than 1 cm in length. There are 5 petals, which are oblong to lanceolate, 3.5 mm long. The male flowers have 5 developing stamens and 1 sterile pistil. The female flowers have 5 sterile stamens and 1 developing pistil. The fruits are drupes, round or oblate, 8–10 mm in diameter, orange-yellow to vermilion, and have many rib-like straight ridges. There are 4–10 small putamen, seed being nephroid, 5–6 mm long, with small dens. The flowering period is from April to June. The fruiting period is from August to October.

Habitat: It grows in hillsides, valleys, or sparse forests or thickets along the banks of streams.

Distribution: It is distributed in the southern part of the southern slope of Qinling Mountains, as well as in eastern Africa and southern and southeastern Asia.

Acquisition and Processing: The roots are dug up all year round; after removing the soils, they are cut into sections or sliced diagonally and dried in the sun.

Medicinal Properties: The product is cylindrical, slightly curved, about 30 cm long, 0.5–2.5 cm in diameter, and about 1 cm in thickness of slices. It is grayish brown to grayish yellow on surfaces, rough, with fine longitudinal lines and stripes, and sometimes with numerous verrucous protuberances. After peeling off the cork, it is brown or reddish brown, the xylem is fine and straight, hard in quality, not easy to break, and the sections are light yellow. It is slight in odor and bitter in taste. The products even sized and light yellow are better in quality.

Natural Taste and Meridian Tropism: It is pungent and slightly bitter in taste and warm in property.

Functions: Relaxing muscles and unblocking circulation tracks, dissipating blood stasis, dispelling wind and dampness, relieving swelling, and detoxicating, it

is often used for the treatment of rheumatic arthralgia, injury caused by knocks and falls, rheumatoid arthritis, intercostal neuralgia, stomachache, irregular menstruation, dysmenorrhea, and amenorrhea, as well as external treatment for fracture and bleeding.

Use and Dosage: 9–15 g per dose, decocted in water for soaked in wine for oral use. For external treatment, the products are mashed or ground to powder and applied to the affected areas.

Prescription Example(s):

Clinical diagnoses and symptoms: rheumatoid arthritis: *Toddalia asiatica*, *Ficus pumila*, *Spatholobus* stem, *Smilax china*, each 18 g, *Clematis chinensis* 9 g, soaked in 500 g of alcohol. Take 30–60 g each time, three times a day.





10.32 Family: Rutaceae

10.32.1 *Zanthoxylum armatum*

Chinese Name(s): tu hua jiao, xiang jiao, hua jiao, jiao mu, zhu ye jiao, bei jiao zi, shan ba jiao.

Source: This medicine is made of the mature fruits of *Zanthoxylum armatum* (*Zanthoxylum armatum* DC. [*Zanthoxylum planispinum* Sieb. et Zucc.]).

Morphology: The plant is a deciduous shrub or small tree. The branches straight out, expanding, with compressed prickles. The leaves are alternate, with odd-pinnate compound leaves. The rachis is winged, with prickles scattered adaxially, and

smaller prickles near the leaflets. The leaves have 3–9 leaflets, opposite, shortly stipitate to sessile, papery, lanceolate or oblong-lanceolate, 5–9 cm long, 1–3 cm wide, apically acuminate, and the margin being crenate or nearly entire. The inflorescences are axillary thyrse, 2–6 cm long, and flowers are unisexual, yellow-green, small; there is 1 series perianth, with 6–8 tepals. The male flowers have 6–8 stamens and stick out, while female flowers develop only 1–2 carpels. The fruits are follicles, red, with large, protruding glands, and seeds are black and ovate. The flowering period is from April to May. The fruiting period is from August to October.

Habitat: It grows mostly in low-lying limestone bushes.

Distribution: It is distributed in the south of Shandong, Henan, Shaanxi, and Gansu provinces. It is also distributed in Japan, Vietnam, Laos, Myanmar, India, Nepal, and other countries.

Acquisition and Processing: The fruits are collected in autumn when they mature. Generally, the whole infructescence is picked, stacked for 1–2 days, and dried in the sun, and then the impurities such as branches and leaves are removed.

Medicinal Properties: The follicles are nearly spherical, 2–5 mm in diameter, split into 2 petals, which are often connate at the base. The pericarps are leathery, reddish brown on surfaces, with many protuberant wartlike oil cells. The inner surface is smooth, light yellow or yellowish brown. The seeds are small and round, black and shiny. It is spicy in taste and fragrant in odor. The products even sized, reddish brown, and strong aromatic are better in quality.

Natural Taste and Meridian Tropism: It is pungent in taste, warm in property, and a little poisonous, belonging to the meridians of spleen, lungs, and kidneys.

Functions: Warming the Middle-jiao to dispel cold, drying dampness and killing insects, promoting circulation of Qi, and relieving pain, it is often used for the treatment of stomach and abdomen cold pain, vomiting, diarrhea, schistosomiasis, ascariasis, and filariasis, as well as for external treatment for toothache, seborrheic dermatitis, and surface anesthesia.

Use and Dosage: 2.4–4.5 g per dose, decocted in water for oral use. Pregnant women should not use it.

Prescription Example(s):

1. Clinical diagnoses and symptoms: stomach and abdomen cold pain: *Zanthoxylum armatum* 6 g, dry ginger 6 g, *Codonopsis pilosula* 12 g, decocted in water, removed the residue, and added with caramel and taken warmly.
2. Clinical diagnoses and symptoms: intestinal obstruction due to ascaris: *Zanthoxylum armatum* 9 g, sesame oil 12 g. Boil the sesame oil in the pot, put in *Zanthoxylum armatum*, fry until it is slightly charred, take out the *Zanthoxylum armatum*, and cool the oil. Take the sesame oil at a draught. If the obstruction time is too long, and the poisoning symptom is obvious, or there is intestinal necrosis or possibility of appendiceal ascaris, the method of treatment is not suitable then.
3. Clinical diagnoses and symptoms: early and middle stage schistosomiasis: appropriate amount of *Zanthoxylum armatum*, stir-fried for about 10 minutes, ground into fine powder, and put into the capsule (each grain containing 0.4 g *Zanthoxylum* powder). Take 4 capsules per time for adults (reduce discretionary for children), 3 times per day, 20–25 days as a course of treatment.

4. Clinical diagnoses and symptoms: filariasis: appropriate amount of *Zanthoxylum armatum*, stir-fried with mild fire or baked until charred in the oven (not carbonized), ground into fine powder, and put into the capsule, each grain containing 0.4 g of *Zanthoxylum armatum* powder. Take 6 capsules per time, 3 times a day, 6 days as a course of treatment.
5. Clinical diagnoses and symptoms: seborrheic dermatitis: *Zanthoxylum armatum* 60 g (stir-fried), mercurous chloride 30 g (stir-fried), alum 30 g (calcined), and verdigris 30 g (stir-fried), mixed and ground into fine powder, added with sesame oil for rubbing the affected area, twice a day.
6. For surface anesthesia: *Zanthoxylum armatum* 30 g, toad 0.0167 g, 100 ml of 75% ethanol. Crush the *Zanthoxylum armatum*, soak it in ethanol for 36 hours, take the brownish red supernatant, seal, and set aside. Apply cotton ball with the medicinal liquid to the operation site (or insert it into the nasal operation site) for about 5 minutes. When the patient feels painless after stimulation, the operation can be carried out.
7. For delactation: *Zanthoxylum armatum* 9–15 g, soaked in 400 ml of cold water for 1 hour, decocted in water, concentrated to 250 ml, and added with 50 g of brown sugar. Take one dose per day. Generally, two doses are enough for delactation.





10.33 Family: Rutaceae

10.33.1 *Zanthoxylum avicennae*

Chinese Name(s): le dang hua jiao, le dang, gou hua jiao, ying bu bo, ji hu dang, tu hua jiao.

Source: This medicine is made of the roots, leaves, and fruits of *Zanthoxylum avicennae* (*Zanthoxylum avicennae* (Lam.) DC.).

Morphology: The plant is a deciduous tree, up to 15 m in height. The trunks have chicken claw-like prickles. The base of the prickles is oblate and thick, resembling a drum spike, being zonate. The leaflets of the seedlings are very small, but as many as 31 leaflets, and the branches and leaves of the young tree are densely spiny and glabrous. The leaves have 11–21 leaflets, and a few leaves are rare, and leaflets are usually opposite or occasionally uneven opposite, obliquely ovate, rhomboidal or falcate, sometimes obovate, and the leaflets of seedlings are mostly broad-ovate. The leaflets are 2.5–7 cm long, 1–3 cm wide, apically mucronate or blunt, bilaterally extremely asymmetrical, entire at margins, or crenate above the center, with oil glands visible on fresh leaves or inconspicuous. The ventral surface of the rachis has narrow, green leafy margin, often narrow-winged. The inflorescences are terminal, many flowers, rachis, and pedicel sometimes being purplish red. The male pedicels are 1–3 mm long, with 5 sepals and petals. The sepals are broadly ovate, green, and the petals are yellowish white. The petals of female flowers are slightly longer than those of male flowers, about 2.5 mm long. Male flowers have 5 stamens, pistillode 2-lobed. The female flowers have 2 carpels, rarely 3, with very small staminodes. The fruit pedicels are 3–6 mm in length, and the peduncles are 1–3 times longer than the pedicels. The mericarps are pale purplish red, 4–5 mm in diameter, apex with no arista, oil glands being numerous, large, and slightly protruding. Seeds are 3.5–4.5 mm in diameter. The flowering period is from June to October. The fruiting period is from October to December.

Habitat: It grows in sparse forests or thickets on hillsides, hills, flatlands, or roadsides.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Taiwan, Macau, Fujian, Guangxi, and Yunnan, as well as in the Philippines and Vietnam.

Acquisition and Processing: The roots, leaves, and fruits are collected in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is bitter and slight pungent in taste and slight warm in property.

Functions: Dispelling wind and dampness, promoting blood circulation, and relieving pain, the roots are often used for the treatment of jaundice hepatitis, nephritis edema, and rheumatoid arthritis. The fruits are often used for the treatment of stomachache and abdominal pain. The leaves are often used for the treatment of bruise, lumbar muscle strain, mastitis, and furuncle.

Use and Dosage: 15–30 g per dose for roots, 3–6 g per dose for fruits, decocted in water for oral use. For external treatment, proper amounts of fresh leaves are mashed and applied to the affected areas.

Prescription Example(s):

1. Clinical diagnoses and symptoms: jaundice hepatitis: *Zanthoxylum avicennae* 30 g, *Callicarpa macrophylla* Vahl 30 g, Herba Blumeae Balsamiferae 15 g, decocted in water and taken three times.
2. Clinical diagnoses and symptoms: rheumatoid arthritis, acute sprain, lumbar bone strain: *Zanthoxylum avicennae* root and *Rosa cymosa* root each 30–60 g, *Zanthoxylum armatum* 24 g, soaked in 0.5 kg of rice wine for half a month and removed the residue. Take 50–100 ml each time, once or twice a day, 20 days as a course of treatment. For treatment of acute sprain, the medicinal wine is used for external application. The patients with cold and fever, pregnancy, menstruation, and ulcer should not take it.







10.34 Family: Rutaceae

10.34.1 *Zanthoxylum bungeanum*

Chinese Name(s): hua jiao, hui, da jiao, qin jiao, shu jiao.

Source: This medicine is made of the fruits of *Zanthoxylum bungeanum* (*Zanthoxylum bungeanum* Maxim.).

Morphology: The plant is a small tree, 3–7 m in height. The base of prickles on the branchlets is broad, flat, and stiff, young branchlets being pubescent. The leaves have 5–13 leaflets, and the rachis is often marginated. The leaflets are opposite, sessile, ovate, oval, 2–7 cm long, 1–3.5 cm wide, serrate at margins, with oil spots. The

inflorescences are terminal or terminal on lateral branchlets, rachis and pedicel being densely pubescent or glabrous. There are 6–8 tepals, which are yellowish green, and nearly undifferentiated. The male flowers have 5 or up to 8 stamens, and the apex of the pistillode is shallowly divergent lobed. Female flowers rarely have developed stamens, with 3 or 2 carpels, and occasionally 4, styles obliquely to the dorsal. The fruits are purplish red, 4–5 mm in diameter of schizocarp, with oil points scattered slightly, and apex shortly beaked or beak lacking. The seeds are 3.5–4.5 mm long. The flowering period is from April to May. The fruiting period is from August to September or October.

Habitat: It is cultivated from plains to higher mountains.

Distribution: It is widely distributed, north from the south of the northeast, south to the north slope of wuling, southeast to Jiangsu, Zhejiang coastal zone, southwest to the southeast of Tibet.

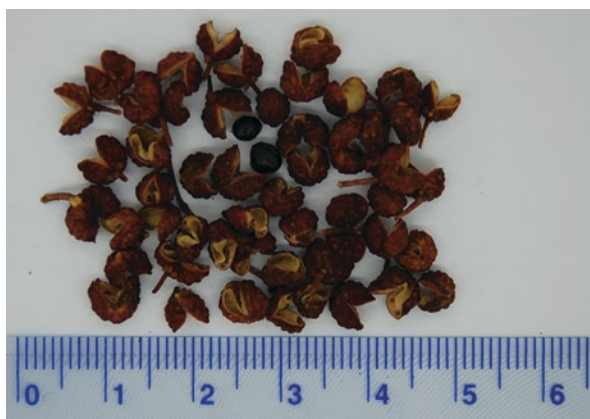
Acquisition and Processing: The mature fruits are collected in autumn and dried in the sun after removing the impurities.

Morphology: The follicles are mostly solitary and spherical, 4–5.5 mm in diameter, purplish red or brownish red on surface, and scattered with many verrucous protuberant oil cells, which are 0.5–1 mm in diameter and translucent. The inner surface is light yellow. It is extremely aromatic, lasting pungent in taste.

Natural Taste and Meridian Tropism: It's pungent in taste and warm in property, belonging to the meridians of spleen, stomach, and kidneys.

Functions: Warming the middle-Jiao and dispersing cold, drying dampness, relieving pain, killing insects, and reducing the fishy smell, it is often used for the treatment of food distention, cold pain in the heart and abdomen, vomiting, hiccup, cough, arthralgia due to cold and dampness, diarrhea, dysentery, hernia, toothache, ascariasis, pinworm disease, pruritus, and scabies.

Use and Dosage: 3–6 g per dose. For external treatment, the products are mashed to powder for application or decocted for washing.





10.35 Family: Rutaceae

10.35.1 *Zanthoxylum myriacanthum*

Chinese Name(s): da ye chou jiao, qu feng tong, lei gong mu, ci chun mu.

Source: This medicine is made of the stems, branches, and leaves of *Zanthoxylum myriacanthum* (*Zanthoxylum myriacanthum* Wall. ex Hook. f. [*Z. rheticsoides* Drake]).

Morphology: The plant is a deciduous tree, and a few can reach 15 m in height and about 25 cm in DBH. There are spike-like prickles on the stems. The rachis of inflorescence and apex of branchlets have more sharp prickles, with large, hollow pith on the branchlets, and without prickles on the leaf rachis and leaflets. The leaves have 7–17 small leaflets, which are opposite, broadly ovate, ovate-elliptic, or oblong, but suborbicular basally on rachis, 10–20 cm long, 4–10 cm wide, base obliquely rounded to broadly cuneate, symmetrically or obliquely cuneate. Both surfaces of leaflets are glabrous, with numerous, large oil glands, turning red or blackish brown and slightly protruding when dry. The leaf margin has shallow and obvious crena, with oil spots in the crena. The midveins are adaxially impressed, and the second veins are obvious. The inflorescences are terminal, up to 35 cm long and 30 cm wide, with many flowers, and flower branches are pubescent. The sepals and petals are both 5-merous, and petals are white, about 2.5 mm long. The male flowers have 5 stamens, and the filaments are longer than the petals. The sepals are broadly ovate, about 1/3 mm long, and the apex of the pistillodes are 3-lobed. The petals of female flowers are about 3 mm long, and the staminodes are extremely small, with 3 carpels, rarely 2 or 4 carpels. The schizocarps are reddish brown, about 4.5 mm in diameter, with no beak at the apex and many oil spots. The seeds are about 4 mm in diameter. The flowering period is from June to August. The fruiting period is from September to November.

Habitat: It grows in sparse forests on hillsides or thickets in limestone fields.

Distribution: It is distributed in the provinces of Hainan, Guangdong, Taiwan, Fujian, Hunan, Guangxi, Yunnan, and Guizhou, as well as Vietnam, Myanmar, and India.

Acquisition and Processing: The stems, branches, and leaves are collected in summer and autumn and dried in the sun.

Natural Taste and Meridian Tropism: It is pungent and slight bitter in taste and warm in property.

Functions: Expelling wind and dampness, promoting blood circulation and removing blood stasis, eliminating swelling, and relieving pain, it is often used for the treatment of rheumatic bone pain, cold and wind, and poliomyelitis sequelae, as well as for external treatment of fracture, trauma, and bleeding.

Use and Dosage: 9–24 g per dose for stems and branches, decocted in water for oral use. For external treatment, fresh leaves are mashed and applied to the affected areas.





10.36 Family: Rutaceae

10.36.1 *Zanthoxylum nitidum*

Chinese Name(s): liang mian zhen, guang ye hua jiao.

Source: This medicine is made of the roots of *Zanthoxylum nitidum* (*Zanthoxylum nitidum* (Roxb.) DC.).

Morphology: The plant is a woody climber, up to 5 m long. The stems, branchlets, and leaf rachises usually have hooked prickles, 1–2.5 mm in length. The leaves are odd-pinnate compound leaves, which have 7–11 leaflets, opposite, thick leathery, broadly ovate or broadly elliptic, 4.5–11 cm long and 2.5–6 cm wide, apically cuspidate, obtuse or retuse, basally rounded or sometimes broadly cuneate, crenate

or nearly entire at margins, and the leaves are bright when dry. There are prickles on both blades or only abaxially. The inflorescences are paniculate cyme, axillary, 2–8 cm long. The flowers are small, turquoise, unisexual. There are 4 sepals, which are broadly ovate, less than 1 mm in length. There are 4 petals, which are ovate-elliptic, 2–3 mm long. There are 4 stamens, which protrude in the male flowers and appear scaly or disappear in female flowers. The fruits are follicles, usually composed of 1 or 2 mature carpels, purplish red or purplish brown, wrinkled and glandular when dry, apex with or without beak. The seeds are spherical, 5–6 mm in diameter. The flowering period is from March to May. The fruiting period is from September to November.

Habitat: It grows in dry hillsides, barren mountains, and sparse forest thickets in the wilderness.

Distribution: It is distributed in the provinces of Hong Kong, Guangdong, Hainan, Taiwan, Fujian, Guangxi, Yunnan, Guizhou, and other places, as well as in the Philippines and Vietnam.

Acquisition and Processing: The roots are collected in summer and autumn, washed, sliced, and dried in the sun.

Medicinal Properties: The products are irregular blocks or short segments with different sizes. It is light yellow on surfaces, scattered with yellow lenticels, and the shed part of the skin is light brown to brown. The cortex of the cross sections is light brown, 1–4 mm thick, and the xylem is light yellow with concentric rings and dense pores. It is solid in quality, hard to break, slightly fragrant in odor, bitter and tongue numbing in tastes. The products with thick root barks and strong aromatic are better in quality.

Natural Taste and Meridian Tropism: It is pungent and bitter in taste and neutral in property, belonging to the meridians of liver and stomach.

Functions: Expelling wind and activating blood circulation, promoting Qi flow and relieving pain, detoxicating, and reducing swelling, it is often used for the treatment of rheumatic joint pain, bruise, lumbar muscle strain, toothache, stomachache, sore throat, and snakebite.

Use and Dosage: 9–15 g per dose, decocted in water for oral use. For external treatment, proper amounts of products are ground to powder and applied to the affected areas or decocted for washing. Pregnant women should not take it.

Prescription Example(s):

1. Clinical diagnoses and symptoms: rheumatoid arthritis, lumbar muscle strain: *Zanthoxylum nitidum* 9 g, thistleleaf croton root 15 g, *Wikstroemia indica* root barks 6 g, soaked in 75% ethanol for 7–15 days, filtered and set aside. For external treatment, the products are used for smearing on the affected areas.
2. Clinical diagnoses and symptoms: gastric and duodenal ulcer: *Zanthoxylum nitidum*, *S. rotundalour*, *Ervatamia hainanensis* root in equal amounts, ground to fine powder. Take 0.5–1.0 g per dose, three times a day (reduce the dosage for children).

3. Clinical diagnoses and symptoms: ascariasis of biliary tract: *Zanthoxylum nitidum* 15 g, iron holly bark 15 g, wampee root, cochinchina cudrania root, lemon-like citrus root, each 3 g, decocted in water for oral use. Take 1 dose per day.
4. Clinical diagnoses and symptoms: toothache: *Zanthoxylum nitidum* 100 g, adina fruit 100 g, soaked in 150 ml of 95% ethanol for 10 days. Dip the cotton pad with a little liquid medicine and put it into the caries hole.
5. Clinical diagnoses and symptoms: rheumatism joint pain: *Zanthoxylum nitidum* 15 g, urena lobata linn root 30 g, decocted in water for oral use.





10.37 Family: Rutaceae

10.37.1 *Zanthoxylum scandens*

Chinese Name(s): hua jiao le, teng hua jiao, hua jiao teng, wu kou le.

Source: This medicine is made of the roots and leaves of *Zanthoxylum scandens* (*Zanthoxylum scandens* Bl.).

Morphology: The plant is a climbing shrub, with short channeled prickles on the branches and more prickles on the leaf rachises. The leaves have 5–25 leaflets, with fewer leaflets near the inflorescence and more leaflets on the germinating branches. The leaflets are alternate, or opposite on the distal part of leaf rachis, ovate, ovate-elliptic or obliquely oblong, 4–10 cm long, 1.5–4 cm wide, rarely being smaller. The apex is mucronate to long caudate, or cuspidate to long acuminate, with an obtuse to retuse tip, and an oil spot at the sinus. The base is mucronate or broadly cuneate, or one side is nearly rounded, and the other is cuneate, bilaterally obvious asymmetrical or subsymmetric, margin being entire or apically crenulate. The leaf blades are black or dark brown when dried, the surface of which is lustrous or with no gloss on the old leaf. The midveins are adaxially impressed at least in the lower part, glabrous or with cinereous puberulent. The leaflets are usually 5–11-foliolate, thick and slightly hard, with a few, small, and inconspicuous oil spots. The inflorescences are axillary or terminal, with 4 sepals and petals. The sepals are pale purplish green, broadly ovate, about 0.5 mm long. The petals are yellowish green, 2–3 mm long. The male flowers have 4 stamens, 3–4 mm long, connective with an oil gland at apex. The female flowers have 4 or 3 carpels. The schizocarps are purplish red, grayish brown or black when dry, 4.5–5.5 mm in diameter, apex being beaked. The oil glands are usually not obvious, plane or slightly protruding, sometimes impressed.

Habitat: It grows on hillside shrubs, sparse forests, or villages and roadsides.

Distribution: It is distributed in the provinces of Taiwan, Fujian, Jiangxi, Hunan, Guangxi, Hainan, Guangdong, Guizhou, Yunnan, etc.

Acquisition and Processing: The roots and leaves are harvested in summer and autumn and used when fresh.

Natural Taste and Meridian Tropism: It is pungent in taste and warm in property.

Functions: Expelling wind and dampness, promoting blood circulation and removing blood stasis, eliminating swelling, and relieving pain, it is often used for the treatment of injuries caused by knocks and falls and arthralgia due to wind-cold.

Use and Dosage: For external treatment, fresh products are mashed for application to the affected areas.



10.38 Family: Rutaceae

10.38.1 *Zanthoxylum schinifolium*

Chinese Name(s): qing hua jiao, shan hua jiao.

Source: This medicine is made of the pericarps of *Zanthoxylum schinifolium* (*Zanthoxylum schinifolium* Sieb. et Zucc.).

Morphology: The plant is a deciduous shrub, 1–2 m in height. The stems and branches have short prickles, base being compressed, and the young branchlets are dark purplish red. The leaves have 7–19 leaflets, which are papery, opposite, subsessile, often alternate toward the base of rachis. The petiolules are 1–3 mm long, leaflets being broadly ovate to lanceolate, or broadly ovate-rhombic, 5–10 mm long, 4–6 mm wide, a few up to 70 mm, 25 mm wide, apically mucronate to acuminate, basally rounded or broadly cuneate, bilaterally symmetrical or sometimes oblique, with numerous or inconspicuous oil glands. There are visible short hairs or hairy protrusions on the blades under a magnifying glass, margins being serrate to subentire, midveins being impressed at least in the lower part. The inflorescences are terminal, flowers more or less. There are 5 sepals and petals. The petals are yellowish white and about 2 mm long. The pistillodes of male flowers are very short, 2–3 lobed. The female flowers have 3 carpels, rarely 4 or 5. The schizocarps are reddish brown, dark green or brownish black when dry, 4–5 mm in diameter, without beak in the apex, oil glands being small. The seeds are 3–4 mm in diameter. The flowering period is from July to August. The fruiting period is from September to October.

Habitat: It grows in sparse forests, bushes, and rocks and often gathers together.

Distribution: It is distributed in Liaoning, North China, Northwest China, Central China, South China, and Southwest China, as well as in North Korea and Japan.

Acquisition and Processing: The fruits are collected in autumn before frost and rubbed repeatedly by hands, and the impurities are removed to get pericarps.

Natural Taste and Meridian Tropism: It is pungent in taste and warm in property.

Functions: Warming the middle-Jiao to dispel cold, drying dampness and killing insects, promoting Qi flow, and relieving pain, it is often used for the treatment of stomach and abdomen cold pain, vomiting, diarrhea, schistosomiasis, filariasis, toothache, and seborrheic dermatitis.

Use and Dosage: 10–25 g per dose, decocted in water for oral use.

Prescription Example(s):

1. Clinical diagnoses and symptoms: chronic asthmatic tracheitis: *Zanthoxylum schinifolium* seeds are ground to powder and sifted, put into capsule or made into tablets. Take amounts of medicine equaling 5–7.5 g of crude drug each time, 2–3 times a day, 10 days as a course of treatment.
2. Clinical diagnoses and symptoms: stomach and abdomen cold pain: *Zanthoxylum schinifolium* 10 g, dry ginger 10 g, *Codonopsis pilosula* 20 g, decocted in water and removed the dregs, added with some caramel, and taken warmly.

3. Clinical diagnoses and symptoms: ascariis intestinal obstruction: *Zanthoxylum schinifolium* 25 g, sesame oil 200 g. Boil the sesame oil in the pot, put in the *Zanthoxylum schinifolium* until it is slightly charred, remove *Zanthoxylum schinifolium* and cool the oil. Take the oil at one time. If the obstruction time is too long, the poisoning symptom is obvious, and there is intestinal necrosis or the possibility of appendiceal ascariis, the method of treatment is improper.
4. Clinical diagnoses and symptoms: early and middle stage schistosomiasis: appropriate amount of *Zanthoxylum schinifolium*, removed the dark seeds and impurities, stir-fried for about 10 minutes, ground into fine powder, and put into capsule, each capsule containing 0.4 g. Take 5 g per day (reduce for children) 3 times, 20–25 days as a course of treatment.
5. Clinical diagnoses and symptoms: filariasis: *Zanthoxylum schinifolium* stir-fried with slow until charred or baked in the oven (not carbonized), ground into fine powder and put into capsule. Take 5 g every time, three times a day, six days as a course of treatment. The dosage and treatment course can be increased according to the case condition.
6. Clinical diagnoses and symptoms: seborrheic dermatitis: *Zanthoxylum schinifolium* (stir-fried) 100 g, calomel (stir-fried), alum (calcined) and verdigris (stir-fried), 50 g each mixed and ground into fine powder, added with sesame oil for rubbing the affected area, twice a day.
7. For delactation: *Zanthoxylum schinifolium* 25–40 g, soaked in 400 ml of cold water, decocted until 250 ml left, added with 50–100 g of brown sugar. Take one dose per day. Generally, 2–3 doses are enough for delactation.
8. Clinical diagnoses and symptoms: baldness: *Zanthoxylum schinifolium* powder, mixed with pig fat for application.
9. Clinical diagnoses and symptoms: scabies and sores: *Zanthoxylum schinifolium* leaf, pine needle, honeysuckle, decocted and wash the affected areas.
10. Clinical diagnoses and symptoms: pinworm disease: *Zanthoxylum schinifolium* 50 g, added with 1 kg water, decocted for 40–50 minutes and filtered. Take 25–30 ml of tepid filtrate for retention enema, once a day, for 3–4 continuous days.





10.39 Family: Rutaceae

10.39.1 *Zanthoxylum simulans*

Chinese Name(s): ye hua jiao, bing guo hua jiao, tian jiao jiao, huang zong guan, xiang jiao.

Source: This medicine is made of the pericarps and seeds of *Zanthoxylum simulans* (*Zanthoxylum simulans* Hance [*Z. podocarpum* Hemsl.]).

Morphology: The plant is a shrub or a small tree. The branches are scattered with broad and flatten sharp prickles at the base, and the young branchlets and leaflets are pubescent abaxially on midvein or only the bilateral base, sometimes secondary veins also being pubescent, sometimes all parts being glabrous. The leaves have 5–15 leaflets, the rachis has narrow leafy wing, and the ventral surface is canaliculate impressed. The leaflets are opposite, sessile or with a short petiolule at the

base of leaf rachis, ovate, ovate-elliptic or lanceolate, 2.5–7 cm long, 1.5–4 cm wide, bilaterally slightly asymmetrical, apically acute or mucronate or with a retuse tip. There are numerous oil glands, which are translucent, and slightly protruding when dry, sometimes with nest-like depressions. The leaf blades often have setose spines, and the midveins are impressed, distant and shallow dentate at margins. The inflorescences are terminal, 1–5 cm long. There are 5–8 perianths, which are narrowly lanceolate, broadly ovate, or subdeltoid, sometimes different in size and shape, about 2 mm long, yellowish green. The male flowers have 5–8 stamens, and the filaments and the semicircular raised pistillodes are pale green, with a dark brown black oil gland after drying at the apex of the connective. The perianths of the female flower are narrowly long lanceolate, with 2–3 carpels, and the styles recurved obliquely dorsal. The fruits are reddish brown, base attenuate into a 1–2 mm stipe, with numerous oil glands and slightly protruding. The schizocarps are about 5 mm in diameter. The seeds are about 4–4.5 mm long. The flowering period is from March to May. The fruiting period is from July to September.

Habitat: It grows in valleys.

Distribution: It is distributed in the south of the Yangtze River of China, and it is also distributed in Southeast Asia.

Acquisition and Processing: The roots and stems are harvested in summer and autumn, and fruits are harvested in autumn and winter and dried in the sun.

Natural Taste and Meridian Tropism: The pericarps are pungent in taste, warm in property, and a little toxic. The seeds are bitter and pungent in taste and cool in property. The roots are pungent in taste and warm in property.

Functions: The pericarps function in warming the middle Jiao to relieve pain, dispelling insects, and strengthening stomach and are often used for the treatment of stomachache, abdominal pain, and ascariasis, as well as external treatment for eczema, pruritus, and caries pain. The seeds function in promoting diuresis and relieving swelling and are often used for the treatment of edema and ascites. The roots function in dispelling wind dampness and relieving pain and are often used for the treatment of stomach and abdominal cold pain, toothache, and arthralgia due to wind-cold.

Use and Dosage: 1.5–4.5 g per dose for mericarps and roots, 3–6 g per dose for seeds, decocted in water for oral use. For external treatment, proper amounts of pericarps and roots are decocted to wash the affected areas or mashed for application.

Prescription Example(s):

Clinical diagnoses and symptoms: eczema, pruritus: *Zanthoxylum simulans* 9 g, alum 9 g, *Sophora flavescens* 30 g, fruit of summer cypress 15 g, decocted in water for fumigation.



Further Reading

1. Pharmacopoeia of the People's Republic of China (Part 1) [S], The Medicine Science and Technology Press of China, 2015.
2. Chinese medicinal plants, Vol. 1–30 [M], China Chemical Industry Press, 2015–2020.
3. Xie Z W et al. Compilation of the national chinese herbal medicine, Vol. 1 [M]. Beijing: People's Medical Publishing House, 1975.
4. Xie Z W et al. Compilation of the national chinese herbal medicine, Vol. 2 [M]. Beijing: People's Medical Publishing House, 1975.

5. Editorial Committee of Chinese Materia Medica of Guangdong. Chinese materia medica of guangdong, Vol. 1 [M]. Guangzhou: Guangdong Science & Technology Press, 1994.
6. Editorial Committee of Chinese Materia Medica of Guangdong. Chinese materia medica of guangdong, Vol. 2 [M]. Guangzhou: Guangdong Science & Technology Press, 1994.
7. Ye H G, Zeng F Y et al. Medicinal plants of South China [M]. Wuhan: Huazhong University of Science and Technology Press, 2013.
8. Hunan Academy of Chinese Medicine. Hunan Chinese materia medica, Vol. 1 [M]. Changsha: Hunan People's Publishing House, 1962.
9. Hunan Academy of Chinese Medicine. Hunan Chinese materia medica, Vol. 2 [M]. Changsha: Hunan People's Publishing House, 1962.
10. Hunan Academy of Chinese Medicine. Hunan Chinese materia medica, Vol. 3 [M]. Changsha: Hunan People's Publishing House, 1962.
11. Wu Z Y et al. List of traditional Chinese medicine resources in Yunnan [M]. Beijing: Science Press, 1993.
12. China National Traditional Chinese Medicine Corporation. Main record of Chinese medicine resources in China [M]. Beijing: Science Press, 1994.
13. Fang D et al. List of medicinal plants in Guangxi [M]. Nanning: Guangxi People's Publishing house, 1986.
14. National Chinese Medicine Authority "Chinese Materia Medica" Editorial Board. Chinese materia medica: mongolian medicine volume [M]. Shanghai: Shanghai Science and Technology Press, 2005.
15. National Chinese Medicine Authority "Chinese Materia Medica" Editorial Board. Chinese materia medica: uighur medicine volume [M]. Shanghai: Shanghai Science and Technology Press, 2005.
16. Yi S Y et al. List of medicinal plants in Chongqing [M]. Chongqing: Chongqing Press, 2009.
17. China National Traditional Chinese Medicine Corporation. The Chinese traditional medicine resource [M]. Beijing: Science Press, 1995.
18. China National Traditional Chinese Medicine Corporation. The Chinese traditional medicine resource records [M]. Beijing: Science Press, 1994.
19. Liang G L, Yi S Y et al. Wild medicinal plant resources in Jinpo Mountain [M]. Beijing: China Science and Technology Press, 2013.
20. Chen S C, Tan J, Dai C Y et al. Medicinal Flora of the three gorges of the Yangtze River [M]. Chongqing: Chongqing University Press, 2016.
21. Wan D G. Sichuan authentic Chinese herbal Materia Medica [M]. Chengdu: Sichuan Science and Technology Press, 2005.
22. Li Y H et al. Field handbook of medicinal plant in Xinjiang [M]. Urumqi: Xinjiang People's Saitary Press, 2013.
23. Zhu Y C. Medicinal plants in North China [M]. Harbin: Heilongjiang Science and Technology Publishing House, 1989.
24. Editorial Committee of Flora of Chinese Academy of Sciences. The Flora of China. Vol. 1–80 (126 Volumes.) [M]. Beijing: Science Press, 1959–2004.