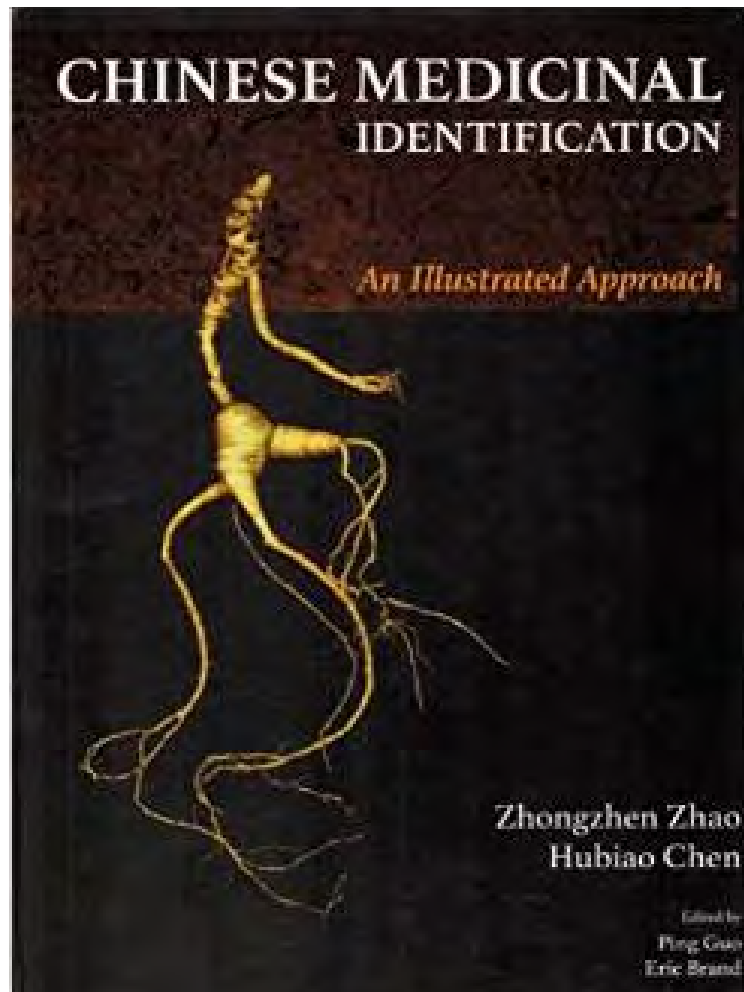




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Chinese Medicinal Identification
An Illustrated Approach



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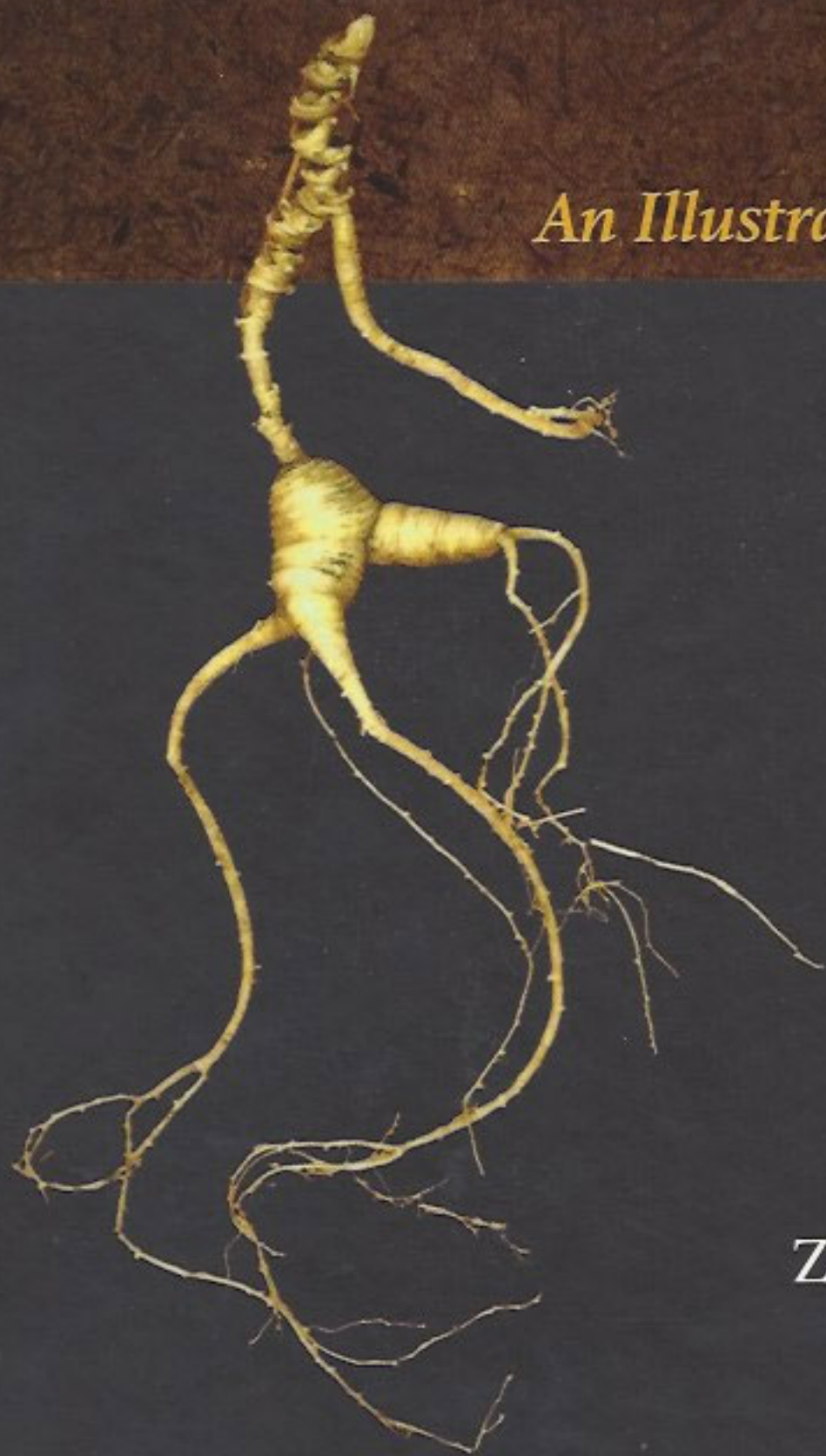
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CHINESE MEDICINAL IDENTIFICATION

An Illustrated Approach



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Edited by
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Guide

1. This book covers 428 commonly used Chinese medicinals, using medicinal nomenclature based on an integration of the 2010 Chinese Pharmacopoeia with domestic and international market investigation.
2. The medicinals are organized based upon the plant part used in medicine, such as roots and rhizomes (137 medicinals), stems and woods (19 medicinals), barks (15 medicinals), leaves (17 medicinals), flowers (24 medicinals), fruits and seeds (110 medicinals), whole herbs (42 medicinals), seaweeds, fungi, resins, and others (19 medicinals), as well as animal products (32 medicinals) and minerals (14 medicinals).
3. Each medicinal monograph records the following content:

- (1) **Name of the medicinal material**

This includes the Chinese, Pinyin, and Latin Pharmaceutical names. These names are primarily based on the 2010 *Chinese Pharmacopoeia*. For medicinals not listed in the Chinese Pharmacopoeia, the following texts have been used as references for nomenclature: *Flora of China* (*Zhong Guo Zhi Wu Zhi*), *Chinese Materia Medica* (*Zhong Hua Ben Cao*), *Encyclopedia of Medicinal Plants* (*Dang Dai Yao Yong Zhi Wu Dian*), and *Illustrated Atlas of Chinese Medicinals in Hong Kong* (*Xiang Gang Zhong Yao Cai Tu Jian*).

- (2) **Origin**

This includes the zoological and botanical family names, Latin binomials, and the medicinally used plant part, and is generally standardized around the 2010 Chinese Pharmacopoeia. For items where multiple species are listed in the 2010 Chinese Pharmacopoeia, the main entry in this book is based upon the most commonly used representative variety, and the other used species are mentioned under the "Notes" or "Associated Medicinals" sections of the main entries. (For example, although the 2010 Chinese Pharmacopoeia has separate entries listed for related medicinals such as *huang bai* vs. *guan huang bai*, *jin yin hua* vs. *shan yin hua*, *wu wei zi* vs. *nan wu wei zi*, and *ge gen* vs. *fen ge*, in this text these related medicinals are grouped together for convenient comparisons.

- (3) **Production Regions**

This section describes the main production regions for medicinal materials and the primary distribution regions for wild medicinals.

- (4) **Harvesting and Post-Harvest Handling**

This covers the traditional harvesting and processing methods of each medicinal.

(5) Properties and Functions

This section records the nature, flavor, and traditional actions of each medicinal.

(6) Macroscopic Features

In this section, photographs and text illustrate the key distinguishing features of each medicinal material, as well as its traditional quality requirements.

(7) Decoction Pieces

This section focuses on the appearance and special distinguishing features of the decoction pieces (e.g., the prepared form of the medicinal that is dispensed in pharmacies and ready for use in decoctions).

(8) Notes

- i. This includes elucidation of essential, selected technical terms that are used in the traditional differentiation of Chinese medicinal materials.
- ii. This section also records information on medicinals that have multiple species listed in the Chinese Pharmacopoeia (major items are covered with photographs as associated medicinals), with comparisons on their key distinguishing points, current market prevalence, and quality standards based on traditional experience.
- iii. Information on standardized GAP plantation sites (nationally registered) with details on their distribution
- iv. Notes on medicinals derived from different parts of the same plant, which have separate entries

4. All the photographs in this book were taken from crude medicinal materials and decoction pieces that have been photographed, tested and authenticated by the authors. All magnified photographs have a scale for reference. Voucher specimens of all of the photographed medicinals are deposited at the Bank of China (Hong Kong) Chinese Medicines Centre at Hong Kong Baptist University.
5. This book contains photographs of the natural environment of all of the primary medicinals, with a small portion of illustrative images from ancient texts.
6. This book has indexes to look up medicinals by referencing their names by Pinyin, Latin Pharmaceutical, or Latin binomials.
7. All measurements in this book are based on the international standard metric system.

Dang shen 黨參

Codonopsis Radix



Codonopsis pilosula (Franch.) Nannf.

- Origin** ▶ The dried root of *Codonopsis pilosula* (Franch.) Nannf. (Campanulaceae).
- Production Regions** ▶ Primarily produced in the Chinese provinces of Shanxi, Shaanxi, Gansu, and Sichuan.
- Harvesting and Post-Harvest Handling** ▶ Harvested in autumn, washed clean, and sun-dried.
- Properties and Functions** ▶ Sweet; neutral. Supplements the center, boosts *qi*, fortifies the lung, and boosts the spleen.
- Macroscopic Features** ▶ Cylindrical, slightly curved. Externally yellowish-brown to grayish-brown. *Texture*: Slightly hard and pliable, with a somewhat smooth fractured surface. *Odor*: Distinctive aroma. *Taste*: Slightly sweet.
- Quality Requirements** ▶ According to traditional experience, superior medicinal material is thick and long, with a soft and moist texture, a potent aroma and taste, and "leaves little residue after chewing"④.



Below the root head are dense round transverse striations



"Lion's head"①

A thick black-brown substance is often present where lateral roots have broken off



Fractured surface: "Chrysanthemum center"②; "Loose skin and tight flesh"③

Technical Terms

- ① "Lion's head" (獅子盤頭 *shī zǐ pán tóu*):
This refers to the root head of *dang shen*, which has numerous raised cauliflower-shaped stem scars and sprouts; at the apex of stem scar there is an indented round spot, giving a shape similar to a lion's head.
- ② "Chrysanthemum center" (菊花心 *ju hua xin*):
This refers to radial lines seen on the fractured surface of the medicinal material, which appear similar to an open chrysanthemum flower; also called "chrysanthemum lines" (*ju hua wen*).
- ③ "Loose skin and tight flesh" (皮松肉緊 *pí sōng ròu jǐn*):
This refers to a loose cortex layer but a relatively full woody portion seen on the fractured surface of some root medicinals.
- ④ "Leaves little residue after chewing" (化渣 *hua zha*, literally "transforming dregs"):
This refers to medicinal material that leaves little residue in the mouth after being chewed.

Fresh item



Below the root head are dense round transverse striations

***C. pilosula* Nannf. var. *modesta*:** The dense round transverse striations below the root head extend down more than half the total length of the root

***C. tangshen***

NOTES

The Chinese Pharmacopoeia also records the dried root of *C. pilosula* (Franch.) Nannf. var. *modesta* (Nannf.) L. T. Shen and *C. tangshen* Oliv. for medicinal use as *dang shen*.

Key Distinguishing Features of the Three Types of Dang Shen

Item	<i>Codonopsis pilosula</i>	<i>C. pilosula</i> var. <i>modesta</i>	<i>C. tangshen</i>
Round transverse striations	Dense near the root head; the cultivated product has few or no striations	Often present on half of the root length or more	Dense near the root head; the cultivated product has few or no striations
Exterior	Longitudinal wrinkles and long horizontal raised lenticels	Longitudinal wrinkles and long horizontal raised lenticels	Longitudinal grooves
Texture, Fractured Surface	Slightly hard and pliable, has fissures	Relatively abundant fissures	Relatively soft but full, relatively few fissures

Di huang 地黃

Rehmanniae Radix



Rehmannia glutinosa Libosch.

- Origin** ▶ The fresh or dried tuberous rhizome of *Rehmannia glutinosa* Libosch. (Scrophulariaceae).
- Production Regions** ▶ Primarily produced in the Chinese provinces of Hunan, Shanxi, and Shandong.
- Harvesting and Post-Harvest Handling** ▶ Harvested in autumn; the neck, rootlets, and dirt are removed and it can be used fresh. Alternatively, *di huang* can be gently baked until nearly dry. The former is called *xian di huang* and the latter is called *sheng di huang*.
- Properties and Functions** ▶ *Xian di huang*: Sweet, bitter; cold. Clears heat, engenders fluids, cools the blood, and stops bleeding. *Sheng di huang*: Sweet; cold. Clears heat, cools the blood, nourishes yin, and engenders fluids.
- Macroscopic Features** ▶ *Xian di huang*: Fusiform or strip-shaped. Thin outer skin, light reddish-yellow; fleshy and easily broken. *Odor*: Faint. *Taste*: Slightly sweet, slightly bitter. *Sheng di huang*: Irregular lumps or oval-shaped pieces, larger in the center and slightly thinner at the ends. Sometimes appears as thin long strips that are slightly flat and twisted. *Texture*: Heavy in substance. Relatively soft but pliable, difficult to break, with a sticky fractured surface. *Odor*: Faint. *Taste*: Sweet.
- Quality Requirements** ▶ *Xian di huang*: According to traditional experience, superior medicinal material is thick and strong, with a reddish-yellow color. *Sheng di huang*: According to traditional experience, superior medicinal material consists of large, heavy pieces with a sweet taste and a black, oily and moist fractured surface.

Xian di huang (Fresh rehmannia)



Sheng di huang (Dried rehmannia)



NOTES

1. At present, standardized GAP plantation sites have been established in Henan province, in the regions of Wuzhi, Wenxian, and Mengzhou.
2. The *Chinese Pharmacopoeia* also lists *shu di huang*, which is a processed medicinal made from *sheng di huang*. See *shu di huang*.

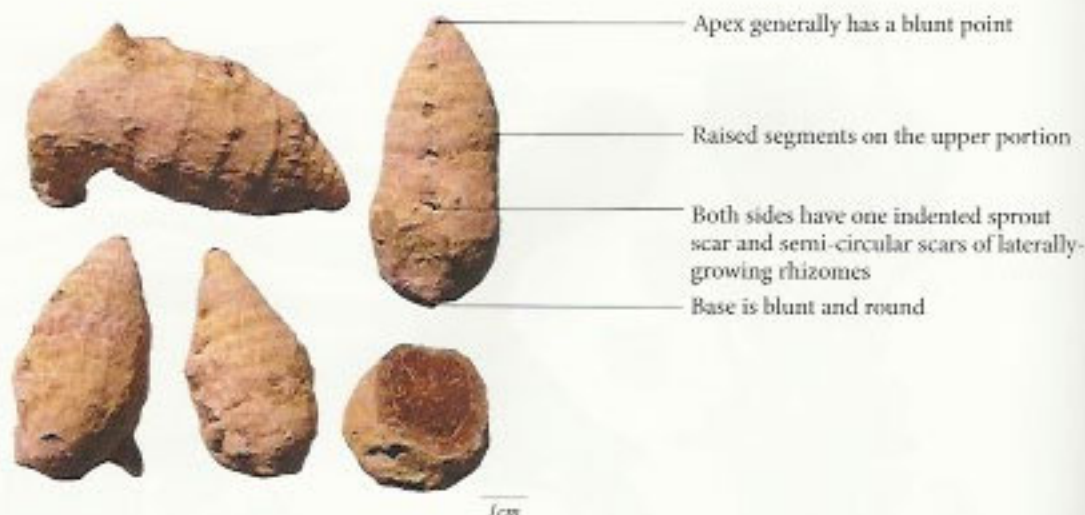
E zhu 莪朮

Curcumae Rhizoma



Curcuma phaeocaulis Val.

- Origin** ▶ The dried rhizome of *Curcuma phaeocaulis* Val. (Zingiberaceae).
- Production Regions** ▶ Primarily produced in the Chinese provinces of Fujian, Sichuan, Guangdong, and Guangxi.
- Harvesting and Post-Harvest Handling** ▶ Harvested in winter after the stems and leaves wither, washed clean, and then steamed or boiled until the core is penetrated. It is then sun-dried or dried under low heat, and cleaned of rootlets and foreign matter.
- Properties and Functions** ▶ Acrid, bitter; warm. Breaks the blood, moves *qi*, disperses accumulations, and relieves pain.
- Macroscopic Features** ▶ Oval, long egg-like, conical, or long fusiform shape. Externally grayish-yellow to grayish-brown. *Texture*: Heavy and firm. *Odor*: Faintly aromatic. *Taste*: Slightly bitter and acrid.
- Quality Requirements** ▶ According to traditional experience, superior medicinal material is firm and fragrant.



DECOCTION PIECES ▶ Horizontally cut pieces



Qin jiao 秦艽

Gentianae Macrophyllae Radix



Gentiana straminea Maxim.

- Origin** ▶ The dried root of *Gentiana straminea* Maxim. (Gentianaceae). Also called *ma hua jiao* (麻花艽).
- Production Regions** ▶ Primarily produced in the Chinese provinces of Ningxia, Gansu, Qinghai, and Sichuan.
- Harvesting and Post-Harvest Handling** ▶ Harvested in spring and autumn, cleaned of dirt, and sun-dried till soft. It is then piled up to "sweat" until the surface is reddish-yellow or grayish-yellow, then it spread out and fully sun-dried. Alternatively, it can be sun-dried directly without "sweating."
- Properties and Functions** ▶ Acrid, bitter; neutral. Dispels wind-dampness, clears damp-heat, and relieves impediment (*bi*) pain.
- Macroscopic Features** ▶ Semi-conical. Externally dark brown, rough. *Texture*: Loose and brittle, easily broken; the fractured surface appears slightly oily. *Odor*: Distinctive. *Taste*: Slightly bitter, astringent.
- Quality Requirements** ▶ According to traditional experience, superior medicinal material has a solid texture, a brownish-yellow color, and a potent odor and taste.



DECOCTION PIECES ▶ Longitudinally-cut slices



Horizontally-cut slices



NOTES

The Chinese Pharmacopoeia also records the dried root of *G. macrophylla* Pall., *G. crassicaulis* Duthie ex Burk. and *G. dahurica* Fisch. for medicinal use as *qin jiao*. The former two are called *qin jiao* while the latter is called *xiao qin jiao* (small *qin jiao*).

Key Distinguishing Features of the Three Types of Qin jiao

Item	<i>Gentiana straminea</i> (<i>Ma hua jiao</i>)	<i>G. macrophylla</i> , <i>G. crassicaulis</i> (<i>Qin jiao</i>)	<i>G. dahurica</i> (<i>Xiao qin jiao</i>)
Shape	Semi-conical, often has a number of small roots that are tangled and enlarged	Semi-cylindrical, curved	Semi-conical or semi-cylindrical
Exterior	Dark brown, rough	Yellowish-brown or grayish-yellow, longitudinal wrinkles	Brownish-yellow
Size	Diameter can reach 7 cm	Length 10–30 cm, Diameter 1–3 cm	Length 8–15 cm, Diameter 0.2–1.0 cm
Texture, fractured surface	Loose and brittle, often looks withered and rotten	Hard but brittle, appears slightly oily, yellow or brownish-yellow	Yellowish-white

An Illustrated Guide to Macroscopic Identification

For centuries, traditional medicine practitioners have relied on macroscopic identification to assess the quality and authenticity of medicinal materials. Macroscopic identification refers to the authentication of medicinal materials by examining gross morphological features and organoleptic properties. For the first time, this text brings this specialized discipline of knowledge to English readers, using a concise, illustrated approach that presents the experience of China's leading authorities in a visually rich, easy-to-understand format.

Featuring

- 428 commonly used Chinese medicinals
- Over 1000 high-resolution images of medicinal materials and decoction pieces
- Over 400 photos dedicated to botanical, zoological, and mineral sources
- Preservation of nearly 200 traditional technical terms used in macroscopic identification



Chinese Medicinal Identification
An Illustrated Approach



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