

TEXTUAL RESEARCH FOR LATIN NAMES AND MEDICINAL EFFECTS OF MEDIUM GRADE DRUGS IN SHENNONGBENCAOJING

Shu-Ling Liu*, Chao-Lin Kuo, Yu-Jen Ko, Ming-Tsuen Hsieh

*Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, College of Pharmacy,
China Medical University, Taichung, Taiwan*

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In our previous research for Top Grade Drugs, Textual Research for Latin Names and Medicinal Effects of Top Grade Drugs in Shennongbencaojing, we have defined names by various used parts, corrected misnames, confirmed scientific names, gathered papers and evaluated utilization in medicine, which helped to achieve the internationalization of Chinese Medicine. This study was one of the sequels to textual research for Shennongbencaojing. The Medium Grade Drugs were divided, in the same way for Top Grade Drugs, into six groups and their drug numbers were also shown in the following order: Plant (74 drugs), Mineral (14 drugs), Animal (11 drugs), Fish and Shellfish (four drugs), Insect (eight drugs) and Other (three drugs). The number of Medium Grade Drugs in the Sun's edition was summed up by us to 114 exactly. The 114 drugs were reclassified by us in this study although old classifications already existed in the Shennongbencaojing. Eight drugs were considered by us to be edible as daily food, such as: Ganjing (No. 1), Baihe (No. 14), Haizao (No. 36), Longyan (No. 62), Meishi (No. 66), Sumi (No. 69), Shumi (No. 70), and Xie (No. 73). Only for two drugs, Zishen (No. 28 of Plants) and Fuqing (No. 14 of Minerals), their scientific names have not yet been defined. All the other drugs can be used in medicine. The results fit the conception that "The Medium Grade Drugs are less often used as food and more often used to treat patients in medicine." Moreover, some drugs (plant or mineral) although have same origin but their Chinese medicinal names are different from Chinese common names. Examples are *Zingiber officinale* Roscoe, *Iris lactea* Pall. var. *chinensis* (Fisch.) Koidz., *Centella asiatica* (L.) Urb., *Zanthoxylum bungeanum* Maxim., *Campsis grandiflora* (Thunb.) K. Schum., *Ziziphus jujuba* Mill. var. *spinosa* (Bunge) Hu ex H. F. Chou, Mineral Ningshuishi, *Vespertilio superans* Thomas, *Sepiella maindroni* de Rochebrune, *Periplaneta americana* L., and *Eupolyphaga sinensis* Walker. Finally, the edition of Shennongbencaojing compiled by Sun Xingyan and Sun Fengyi was still chosen as the foundation to complete this sequent Medium Grade Drugs textual research.

Key words: Shennongbencaojing, medium grade drug, scientific name, pharmacological effect, edible and medicinal, textual research

*Correspondence to: Shu-Ling Liu, Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, College of Pharmacy, China Medical University, No. 91, Hsueh-Shih Rd., Taichung 40402, Taiwan, Tel: +886-4-22053366 ext. 5509, Fax: +886-4-22078083, E-mail: slliu@mail.cmu.edu.tw

Introduction

Shennongbencaojing (《神農本草經》), also known as Shennong's Classic of Materia Medica, is the first Chinese Pharmacy monograph compiled during the Eastern Han Dynasty (25-220 A.D.). The drugs were divided into three main parts in Shennongbencaojing. The three parts having its each meaning were defined as follows: Top Grade Drugs (上品), medicinals that are non-toxic, possesses a rejuvenating effect and can be taken frequently and for a long period of time without harm. Medium Grade Drugs (中品), medicinals that have no or only slight toxic effect and are effective for treating diseases or deficiency conditions. Low Grade Drugs (下品), medicinals that are effective for expelling pathogens, but are toxic and should not be taken for a long period of time¹.

The original edition of Shennongbencaojing was not preserved and lost long time ago. Fortunately, we can read the classic of Materia Medica from the editions which were recompiled at Ming Dynasty and Qing Dynasty. But only Chinese name, odor, therapy, collection and growing area were mentioned in them. They are lack of international defined information such as scientific names to join to these drugs which were researched by us not only for Top Grade Drugs but also for Medium Grade Drugs.

In our previous research for Top Grade Drugs (Top), we have shown how to define different medicinal names by various used parts, to correct misnames, to confirm scientific names, to gather papers in pharmacological effects and to evaluate utilization in medicine. Top Grade Drugs were summed up to 142 drugs in Sun's edition. In this study, official medicinal origins were confirmed to 135 drugs. Fourteen drugs which were included in the 135 drugs could be edible

as daily food². This result was identical to the old definition that Top grade drug is the least harmful to human treatment in the three grades of Shennongbencaojing. The Medium Grade Drugs of Shennongbencaojing are to be studied further continuously. The same edition of Shennongbencaojing compiled by Sun Xingyan (孫星衍) and Sun Fengyi (孫馮翼) was chosen as the foundation to complete this sequent textual research. Improving the ancient Materia Medica internationalization and universalization is always our final goal.

Materials and Methods

I. Materials

We referred following materials for this textual research.

(I) The Original Literatures of Classic of Materia Medica

1. Shennongbencaojing (神農本草經), recompiled by Sun Xingyan and Sun Fengyi, published by Wuzhou Pub Co, Taipei, 1999.
2. Jingshizhengleidaquanbencao (《經史證類大觀本草》), written by Tang Shenwei (唐慎微), copied and issued by Hirokawa Publishing Company, Inc., Tokyo, Japan, 1970³.
3. Jingshizhengleibeijibencao (《政和經史證類備急本草》), written by Tang Shenwei (唐慎微), published by Southern Materials Center Inc., Taipei, 1976⁴.
4. Bencaogangmu (《本草綱目》), written by Li Shizhen (李時珍), published by Da-Taipei Pub Co., Taipei, 1976⁵.
5. Chinese Herbal Medicine (《中華本草》), edited by Editorial Committee of National

Administrative Bureau on Chinese Medicine, published by Shanghai Science and Technology Pub Co., Shanghai, 1999⁶.

(II) National Pharmacopoeia

1. Zhonghua Chinese Herbal Pharmacopoeia (《中華中藥典》), edited by Editorial committee of Zhonghua Pharmacopoeia on Chinese Medicine, Published by Department of Health, Executive Yuan, R.O.C., Taipei, 2004⁷.
2. China Pharmacopoeia (《中國藥典》), Volume 1, edited by the Pharmacopoeia Commission of the Ministry of Health, P.R.C., published by China Medical Science Press, Beijing, 2010⁸.

(III) Folk Publication

Encyclopedia of Medicinal Plants 1-4, chief editors are Zhao ZZ, and Xiao PG, Shanghai World Pub Co., Shanghai, 2009⁹.

(IV) Popular Medicine Websites

Yibian.hopto.org, Pharmnet.com, Health.china-times.com, Zhong-yao, Hudong.com, Baike.baidu.com and Wikipedia-the free encyclopedia.

II. Methods

The Medium Grade Drugs in Shennongbencaojing compiled by Sun Xingyan and Sun Fengyi were first chosen to use in the study for the original formal Chinese drug names. Then, the literatures documented in classics of ancient Materia Medica such as Bencaojingjizhu (《本草經集注》)¹⁰, Xinxiubencao (《新修本草》)¹¹, Jingshizhengleidaguanbencao (《經史證類大觀本草》)³, Zhenghe Jingshizhengleibeijibencao (《政和經史證類備急本草》)⁴, and Bencaogangmu (《本草綱目》) were studied to indentify the exact

original formal Chinese drug names. Drug origins by its scientific names were identified through national pharmacopoeias such as Zhonghua Chinese Herbal Pharmacopoeia (《中華中藥典》), China Pharmacopoeia (《中國藥典》) and Chinese Herbal Medicine (《中華本草》). With each scientific name, the pharmacological effects of the drug were searched via Academic Search Premier or Medline in EBSCOhost data base. As regard to the drug utilizing, the original Chinese herbal name was used as the key word for searching on the internet via Google into some popular websites such as Health.chinatimes.com, Zhong-yao, Yibian.hopto.org, Pharmnet.com, Hudong.com, Baike.baidu.com and Wikipedia-the free encyclopedia. At the last, the Latin dictionary- Babylon.com was used for translating Latin into English.

Besides, the literatures documented in Classics of Materia Medica or publications in academic circles were also referred to and some combinations and comparisons were also involved to complete this study.

Results

Medium Grade Drugs in Shennongbencaojing were still divided into six groups, (I) Plant, (II) Mineral, (III) Animal, (IV) Fish and Shellfish, (V) Insect, and (VI) Other. Then the serial numbers, formal Chinese name and pinyin were arranged as title of the drugs. In addition to the title, scientific name, specific name, common name, medicinal parts and corresponding pharmacological effects, or chemical composition were presented. Another official botanical or zoological names would be shown if they existed. Lastly for the plant group, the utilizing levels i.e. from most commonly used to almost not used were pointed out in the study.

I. Plants (74 drugs)

1. 乾薑 Ganjing

Zingiber officinale Roscoe (Zingiberaceae)⁸, also known as Ginger. Its dried rhizome, *Zingiberis Rhizoma*⁸, has antidiabetic¹², anti-pyretic, analgesic, anti-inflammatory, anti-tumor, and anti-bacterial effects⁹, and has a potential anti-tolerant/anti-dependence property against chronic usage of morphine¹³. It is popularized as condiment and is one of the most commonly used in TCM.

2. 枲耳實 Cangershi

Xanthium sibiricum Patrin. ex Widder (Asteraceae)⁷, also known as 蒼耳子 Cangerzi, Its dried ripe fruit with involucre, *Xanthii Fructus*⁷, has antibacterial, anti-viral, anti-fungal activity, anti-hyperglycemia effects, and improves microcirculation⁹. *X. mongolicum* Kitag. of this species was also recorded as another official botanical origin of Cangershi⁶. They are seldom used in TCM.

3. 葛根 Gegen

Pueraria lobata (Willd.) Ohwi (Fabaceae)⁷, its dried root, *Pueraria Lobatae Radix*⁷, has stress-related disease, myocardial ischemia-inhibiting, anti-arrhythmic, vasodilator, anti-hyperlipidemic hepatoprotective, bone loss inhibiting, and anti-pyretic, anti-inflammatory and oxidative effects^{4,14}. *P. thomsonii* Benth. of this species was also recorded as another official botanical origin of Gegen⁶. These plants are edible, but often sprayed with herbicides. They are ones of the most commonly used in TCM.

4. 栝樓 Gualou

Trichosanthes kirilowii Maxim⁸. (Cucurbitaceae), also called as Snake Gourd fruit or Chinese Cucumber.

Its fruit, *Trichosanthis Fructus*⁸, has coronary artery dilator, anti-ulcer, antitumor, and anti-ageing effects⁶.

T. rosthornii Harms of this species was also recorded as another official botanical origin of Gualou⁶. They are commonly used in TCM.

5. 苦參 Kushen

Sophora flavescens Ait. (Fabaceae)⁸, its root known as “Ku Shen” which means “bitter root”, *Sophorae Flavescents Radix*⁸. The considered roots of this species has and possess antibacterial, antihelminthic, astringent, diuretic, and tonic properties⁹. It is commonly used in TCM.

6. 當歸 Danggui

Angelica sinensis (Oliv.) Diels (Umbelliferae)⁷, also commonly known as Dong Quai, Female Ginseng or Chinese Angelica. Its dried root, *Angelicae Sinensis Radix*⁷, some herbalists call it Danggui, the Queen of all female herbs. It is often included in prescriptions for abnormal menstruation, suppressed menstrual flow, painful or difficult menstruation, and uterine bleeding⁹, and has antibacterial and anti-inflammatory activity¹⁵. It is one of the most commonly used in TCM.

7. 麻黃 Mahuang

Ephedra sinica Stapf (Ephedraceae)⁷ common names are Joint-pine, Jointfir, Mormon-tea or Brigham Tea. Its dried herbaceous stem, *Ephedrae Sinicae Herba*⁷, has traditionally been used by indigenous people for a variety of medicinal purposes, including treatment of asthma, hay fever, and the common cold⁹. It has anti-inflammatory effect¹⁶. *E. equisetina* Bge. or *E. intermedia* Schrenk ex C. A. Mey. of this species was also recorded as others official botanical origin of

Mahuang⁶. They are ones of the most commonly used in TCM.

8. 通草 Tongcao

Akebia quinata (Thunb.) Decne. (Lardizabala-ceae)⁷ also known as Chocolate Vine or Five-leaf Akebia. Its cane stem, *Akebiae Quinatae Caulis*⁷, has diuretic, antiphlogistic, galactagogue, and analgesic effects⁹. *A. trifoliata* (Thunb.) Koidz. or *A. trifoliata* (Thunb.) Koidz. var. *australis* (Diels) Rehd. of this species was also recorded as others official botanical origin of Tongcao⁷. They are commonly used in TCM.

9. 芍藥 Shaoyao

(1) 白芍 Baishao

Paeonia lactiflora Pall. (Paeoniaceae)⁷ also known as Chinese Peony or common garden peony. Its dried root, *Paeoniae Alba Radix*⁷ is used to reduce fever and pain, and on wounds to stop bleeding and prevent infection⁹, and has anti-inflammatory effects¹⁷. *P. lactiflora* Pall. var. *trichocarpa* (Bunge) Stern of these species were also recorded as another official botanical origin of Baishao⁶. They are commonly used in TCM.

(2) 赤芍 Chishao

Paeonia lactiflora Pall. (Paeoniaceae)⁷ is the plant same as above first drug. *P. veitchii* Lynch⁷, *P. obovata* Maxim., *P. obovata* Maxim. var. *willmottiae* (Stapf) Stern, *P. mairei* Lévl., *P. anomala* L. or *P. anomala* L. var. *intermedia* (C.A. Mey.) O. et B. Fedtsch. of these species were also recorded as others official botanical origin of Chishao⁶. They are commonly used in TCM.

10. 蠶實 Lishi

Iris lactea Pall. var. *chinensis* (Fisch.) Koidz. (Iridaceae)⁶, was best known as 馬蘭 Malin. Its seed

also called 馬蘭子 Malinzi, *Iris Lactea Semen*⁶, has anti-tumor, anti-radiation, improving immunity, and contraception effects⁶. It is seldom used in TCM.

11. 瞿麥 Qumai

Dianthus superbus L. (Caryophyllaceae)⁸, also known as Fringed Pink, Superbus Pink. The aerial part, *Dianthi Herba*⁸, has diuretic, anti-bacterial, cardiac inhibitory, smooth muscle stimulating, antioxidant, and cytotoxic activities effects^{6,18}. *D. chinensis* L. of this species was also recorded as another official botanical origin of Qumai⁸. They are commonly used in TCM.

12. 元參 Yuanshen

Scrophularia ningpoensis Hemsl. (Scrophulariaceae)⁷ also known as figwort. Its dried root, *Scrophulariae Radix*, has anti-inflammatory, anti-bacterial, inhibition of platelet aggregation, and hypotensive effects⁶. *S. buergeriana* Miq. of this species was also recorded as another official botanical origin of Yuanshen⁶. They are commonly used in TCM.

13. 秦艽 Qinjiao

Gentiana macrophylla Pall. (Gentianaceae)⁸ also known as large-leaf gentian. Its dried root, *Gentianae Macrophyllae Radix*⁸, has anti-hypertensive, anti-inflammatory, hepatoprotective, analgesic, and pyretic effects⁶. *G. crassicaulis* Duthie ex Burk., *G. straminea* Maxim. or *G. dahurica* Fisch. of these species were also recorded as others official botanical origin of Qinjiao⁸. They are commonly used in TCM.

14. 百合 Baihe

Lilium brownii F. E. Brown ex Mieliez var. *viridulum* Baker (Liliaceae)⁷ also known as lily. Its dried fleshy scale leaf, *Lilii Bulbus*⁸ has antitussive,

expectorant, anti-fatigue, anti-oxidative, anti-hyperglycemia, anti-tumor, sedative, and hypnotic effects⁹. *L. lanciflorum* Thunb. and *L. pumilum* DC. of these species were also recorded as another official botanical origin of Baihe⁶. They are edible and commonly used in TCM.

15. 知母 Zhimu

Anemarrhena asphodeloides Bunge. (Liliaceae)⁷, its dried rhizome, *Anemarrhenae Rhizoma*⁷, has anti-viral, anti-bacterial, anti-pyretic, anti-inflammatory, anti-asthmatic, anti-hyperglycemic, antiplatelet, and antithrombotic effects^{9,19,20}. They are commonly used in TCM.

16. 貝母 Beimu

Fritillaria thunbergii Miq. (Liliaceae)⁷ also known as 浙貝母 *Zhebeimu* or Thunberg fritillary. Its dried bulb, *Fritillariae Thunbergii Bulbus*⁷, has antitussive, expectorator, sedative, analgesic, and anti-inflammatory effects⁶. It is commonly used in TCM.

17. 白芷 Baizhi

Angelica dahurica Benth. (Fisch. ex Hoffm.) Benth. et Hook. f. (Umbelliferae)⁸, its dried root, *Angelicae Dahuricae Radix*⁸, has anti-pyretic, analgesic, anti-inflammatory, anti-spasmodic anti-microbial and photosensitive effects⁹. *A. dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f. var. *formosana* (Boiss.) Shan et Yuan of this species was also recorded as another official botanical origin of Baizhi⁸. They are commonly used in TCM.

18. 淫羊藿 Yinyanghuo

Epimedium brevicornum Maxim. (Berberidaceae)⁸, its aerial part, *Epimedii Folium*⁸, enhances

gonadal function, promotes bone formation, improves hemorheological parameters, protects against cardiac ischemia and has anti-tumor, immunoregulatory, anti-inflammatory, and antidepressant effects^{9,21}. *E. sagittatum* (Sieb. et Zucc.) Maxim., *E. wushanense* T. S. Ying, *E. pubescens* Maxim., or *E. koreanum* Nakai of these species were also recorded as others official botanical origin of Yinyanghuo⁸. They are commonly used in TCM.

19. 黃芩 Huangqin

Scutellaria baicalensis Georgi (Lamiaceae)⁷, its dried root, *Radix Scutellariae*⁷, has antibacterial, anti-microbial, anti-pyretic, anti-inflammatory, anti-platelet aggregation, hypotensive, and diuretic effects^{9,22}. *S. amoena* C.H. Wright, *S. viscidula* Bunge or *S. likiangensis* Diels of these species were also recorded as others official botanical origin of Huangqin⁶. They are ones of the most commonly used in TCM.

20. 狗脊 Gouji

Cibotium barometz (L.) J. Smith (Dicksoniaceae)⁸, also known as 金毛狗脊 *Jinmaogouji*, golden chicken fern or woolly fern. Its dried rhizome, *Cibotii Rhizoma*⁸, can relieve rheumatism and related conditions, strengthen waist and knee. It is commonly used in TCM.

21. 石龍芮 Shilongrui

Ranunculus sceleratus L. (Ranunculaceae)⁶, its whole plant, *Ranunculi Scelerati Herba*⁶, can relieve rheumatismal pain. It is seldom used in TCM.

22. 茅根 Maogen

Imperata cylindrica (L.) Beauv. var. *major* (Nees) C. E. Hubb. (Poaceae)⁸ also known as 白茅

根Baimaogen, blady grass, cogon grass, kunai grass, or Japanese blood grass. Its dried root and rhizome, Imperatae Rhizoma⁸, have astringent, febrifuge, diuretic, tonic, and styptic actions⁹. It is commonly used in TCM.

23. 紫菀 Ziwan

Aster tataricus L.f. (Asteraceae)⁸, its dried root and rhizome, Asteris Radix et Rhizoma⁸, has expectorant, anti-tussive, anti-bacterial, and anti-tumor effects⁹. It is commonly used in TCM.

24. 紫草 Zicao

Arnebia euchroma (Royle) Johnst. (Boraginaceae)⁸, its dried root, Arnebiae Radix⁸ has anti-bacterial, anti-inflammatory, anti-tumor, anti-coagulant, and anti-HIV effects^{9,23}. *Lithospermum erythrorhizon* Sieb. et Zucc⁶. or *A. guttata* Bunge³ of this family was also recorded as another official botanical origin of Zicao. They are commonly used in TCM.

25. 敗醬 Baijiang

Patrinia scabiosaefolia Fisch. ex Trev. (Valerianaceae)⁸, also known as 敗醬草Baijiangcao. Its whole herb, Patriniae Scabiosaefoliae Herba⁶, has anti-inflammatory, anti-bacterial, anti-viral, improve liver cell regeneration and sedative effects^{6,24}. *P. villosa* (Thunb.) Juss. of this species was also recorded as another official botanical origin of Baijiang⁸. They are commonly used in TCM.

26. 白鮮 Baixian

Dictamnus dasycarpus Turcz. (Rutaceae)⁷, also known as 白鮮皮Baixianpi, or dense-fruit pittany. Its dried root bark, Dictamni Radicis Cortex⁷, has anti-bacterial, anti-inflammatory, homeostatic,

cellular, and humoral immunosuppressive effects⁹. *D. angustifolius* G. Don ex Sweet. of this species was also recorded as another official botanical origin of Baixian⁶. They are commonly used in TCM.

27. 酸醬 Suanjiang

Physalis alkekengi L. (Solanaceae)⁸ also known as Bladder cherry, Chinese lantern, Japanese lantern, or Winter Cherry. The whole plant, Physalis Alkekengi Herba⁶, has diuretic, antiseptic, abortifacient, and antifertility activities. *P. alkekengi* L. var. *franchetii* (Mast.) Makino, called 錦燈籠Jindenglong⁸. This species was also recorded as another official botanical origin of Suanjiang. They are seldom used in TCM.

28. 紫參 Zishen

Some other plants are also called Zishen but their relative official scientific names are still not defined.

29. 藁本 Gaoben

Ligusticum sinense Oliv. (Apiaceae)⁸ also known as 藁本 (with the same pinyin) or Chinese lovage. Its dried rhizome and root, Ligustici Rhizoma et Radix⁸, have analgesic, sedative, anti-spasmodic, anti-inflammatory, and anti-thrombotic effects. *L. jeholense* (Nakai et Kitag.) Nakai et Kitag. of this species was also recorded as another official botanical origin of Gaoben⁶. They are seldom used in TCM.

30. 石韋 Shiwei

Pyrrosia lingua (Thunb.) Farw. (Polypodiaceae)⁷, also known as Felt Fern. Its dried leaf, Pyrrosiae Folium⁸, has anti-microbial, diuretic, anti-platelet aggregation, and expectorant effects⁹. *P. shearereri* (Bak.) Ching, *P. gralla* (Gies.) Ching, *P. davidii* (Bak.) Ching or *P. petiolasa* (Christ) Ching of these species were

also recorded as others official botanical origin of Shiwei⁶. They are commonly used in TCM.

31. 萆薢 Beixie

Dioscorea collettii Hook. f. var. *hypoglauca* (Palibin) Pêi et Ting (Dioscoreaceae)⁶, its raw and dried rhizome, *Dioscoreae Collettii Rhizoma*⁶, has anti-bacterial, killed insect, hypoglycemia, and anti-tumor effects. It is seldom used in TCM.

32. 白薇 Baiwei

Cynanchum atratum Bunge (Asclepiadaceae)⁷ also known as Blackend Swallowwort. Its dried root, *Cynanchi Atrati Radix*⁷, has antipyretic and anti-inflammatory effects. *C. versicolor* Bunge of this species was also recorded as another official botanical origin of Baiwei. They are seldom used in TCM.

33. 水萍 Shuiping

Spirodela polyrrhiza (L.) Schleid. (Lemnaceae)⁸ also known as 浮萍 Fuping, Commonly Ducksmeat, or duckweed. Its dried whole plant, *Spirodela Polyrrhizae Herba*⁸, has anti-pyretic, anti-infection, diuretic, and cardio tonic effects. *Lemna minor* L. of this family was also recorded as another official botanical origin of Shuiping⁶. They are seldom used in TCM.

34. 王瓜 Wanggua

Trichosanthes cucumeroides (Ser.) Maxim. (Cucurbitaceae)⁸, its dried fruit, *Trichosanthis Cucumeroidis Fructus*⁸, can treat wasting-thirst, jaundice, and oligogalactia. It is seldom used in TCM.

35. 地榆 Diyu

Sanguisorba officinalis L. (Rosaceae)⁷ also known as garden burnet. Its dried root, *Sanguis-*

*sorbae Radix*⁷, has homeostatic, anti-inflammatory, anti-cancer²⁵, and anti-bacterial effects, and can be to treat burns⁹. *S. officinalis* L. var. *longifolia* (Bert.) Yü et Li of this species was also recorded as another official botanical origin of Diyu⁶. They are commonly used in TCM.

36. 海藻 Haizao

Sargassum fusiforme (Harv.) Setch. (Sargassaceae)⁸, its frond, *Sargassum*⁸ had anti-hypertension, anti-blood aggregation, lipoidolytic, improve immune, anti-tumor, and anti-infective effects^{6,26}. *S. pallidum* (Turn.) C. Ag. of this species was also recorded as another official botanical origin of Haizao⁶. They are edible and commonly used in TCM.

37. 澤蘭 Zelan

Lycopus lucidus Turcz. (Lamiaceae)⁸, also known as 地瓜兒苗 Digua'ermiao, Japan Bogorchid or shiny bugleweed. Its dried aerial part, *Lycopi Herba*⁸, improves microcirculation and hemorheology, lowers blood viscosity, and has sedative, analgesic, anti-allergic, and immunostimulatory effects⁹. *L. lucidus* Turcz. var. *hirtus* Regel of this species was also recorded as another official botanical origin of Zelan⁸. They are ones of the most commonly used in TCM.

38. 防己 Fangji

Stephania tetrandra S. Moore (Menispermaceae)⁸, also known as 粉防己 Fenfangji. The dried root, *Stephaniae Tetrandrae Radix*⁸, improves and protects injured myocardial cells and brain tissues, and also has anti-tumor, liver fibrosis-resisting, and hepatoprotective effects⁹. It is one of the most commonly used in TCM.

39. 款冬花 Kuandonghua

Tussilago farfara L. (Asteraceae)⁸, also known as Coltsfoot. Its dried flower bud, Farfae Flos⁸, has anti-tussive, expectorant, anti-asthmatic⁹, respiratory stimulation, anti-inflammatory, and platelet aggregation-inhibiting effects⁶. It is commonly used in TCM.

40. 牡丹 Mudan

Paeonia suffruticosa Andr. (Paeoniaceae)⁷, also known as tree peony. Its dried root bark called牡丹皮 Mudanpi, Moutan Radicis Cortex⁷, has central inhibitory, anti-inflammatory and anti-bacterial effects⁹. It is commonly used in TCM.

41. 馬先蒿 Maxianhao

Pedicularis resupinata L. (Scrophulariaceae)⁶, its root was used to dispel wind-dampness and increased urination⁶. It is seldom used in TCM.

42. 積雪草 Jixuecao

Centella asiatica (L.) Urb. (Apiaceae)⁸, also known as 蚶殼草 Hankecao, 雷公根 Leigonggen or Asiatic pennywort. Its dried whole plant, Centellae Herba⁸, protects the gastric mucosa, and has anti-viral, anti-inflammatory, anti-depressive, and anti-tumor effects⁹. It is one of commonly used folk medicinal herbs in Taiwan²⁷.

43. 女菀 Nuwan

Turczaninowia fastigiata (Fisch.) DC. (Asteraceae)⁶, its root or whole plant can cure diarrhea infected by bacteria⁶. It is seldom used in TCM.

44. 王孫 Wangsun

Paris bashanensis Wang et Tang (Liliaceae)⁶, its dried rhizome, Paridis Bashanensis Rhizoma⁸, was

used to spread cold, eliminate impediment, and free the collateral vessels⁶. It is seldom used in TCM.

45. 蜀羊泉 Shuyangquan

Solanum septemlobum Bunge (Solanaceae)⁶, also called as 青杞 Qingqi. Its whole plant or fruit, Solani Septemlobi Herba seu Fructus, was said to be able to clear heat and detoxify⁶. It is seldom used in TCM.

46. 爵床 Juechuang

Rostellularia procumbens (L.) Nees (Acanthaceae)⁶, its dried aerial part, Rostellulariae Procumbentis Herba⁶, has anti-bacterial and anti-arrhythmia effects⁶. It is seldom used in TCM.

47. 假蘇 Jiasu

Schizonepeta tenuifolia (Benth.) Briq. (Lamiaceae)⁷, also known as 荊芥 Jingjie. Its dried aerial part, Schizonepetae Herba⁵, has hemorheology-improving, anti-pyretic, analgesic, anti-inflammatory, anti-allergic, anti-microbial, and diaphoretic effects⁹. *S. multifida* (L.) Briq. of this species was also recorded as another official botanical origin of Jiasu⁶. They are seldom used in TCM.

48. 翹根 Qiaogen

Forsythia suspensa (Thunb.) Vahl. (Oleaceae)⁷ also known as 連翹 Lianqiao. Its sliced dried root has cleaning heat, detoxifying, and anti-icteric functions⁶. This root is seldom used in TCM.

49. 桑(根)白皮 Sang-gen-baipi

Morus alba L. (Moraceae)⁷, also known as white mulberry (桑). Its mulberry root bark, Mori Cortex⁸, has diuretic, anti-hyperglycemic, anti-inflammatory, anti-bacterial, anti-viral, and immunomodulatory

effects⁹. It is commonly used in TCM.

50. 竹葉 Zhuye

Phyllostachys nigra (Lodd. ex Lindl.) Munro var. *henonis* (Mitf.) Stapf ex Rendle (Poaceae)⁷, also known as Bamboo. Its dried stem and leaf also called 淡竹葉 Danzhuye, *Phyllostachdis Henonis Folium*⁶, has anti-pyretic, anti-bacterial, and diuretic effects⁶. It is commonly used in TCM.

51. 吳茱萸 Wuzhuyu

Evodia rutoecarpa (Juss.) Benth. (Rutaceae)⁷. Its dried nearly ripe fruit, *Evodiae Fructus*⁷, has anti-inflammatory, analgesic, anti-gastric ulcer, anti-thrombotic, anti-bacterial, and anti-parasitic effects⁹. *E. rutoecarpa* (Juss.) Benth. var. *officinalis* (Dode) Huang or *E. rutaecarpa* (Juss.) Benth. var. *bodineri* (Dode) Huang of this species was also recorded as other official botanical origin of Wuzhuyu⁶. They are commonly used in TCM.

52. 梔子 Zhizi

Gardenia jasminoides Ellis (Rubiaceae)⁷, also known as 梔子 (with the same pinyin) or Cape Lasmine. Its dried fruit, *Gardeniae Fructus*⁷, has hepatoprotective, choleric, anti-inflammatory, sedative, and anti-pyretic effects⁹. It is commonly used in TCM.

53. 蕪荑 Wuye

Ulmus macrocarpa Hance (Ulmaceae)⁶. Its dried ripe fruit, *Ulmi Macrocarpae Preparatus Fructus*⁶, can get rid of plasmodium, killed roundworm, killed pinworm, and anti-bacterial effects⁶. It is seldom used in TCM.

54. 枳實 Zhishi

Citrus aurantium L. (Rutaceae)⁷, also known as bitter orange, Seville orange, sour orange, bigarade orange, and marmalade orange. Its dried fruit, *Aurantii Immaturus Fructus*⁷, has anti-thrombosis, vasodilation, anti-bacterial, anti-viral, and anti-inflammatory effects⁹. *C. sinensis* (L.) Osbeck of this species was also recorded as another official botanical origin of Zhishi⁶. They are commonly used in TCM.

55. 厚朴 Houpo

Magnolia officinalis Rehd. et Wils. (Magnoliaceae)⁷, its dried bark, root-bark and branch-bark, *Magnoliae Cortex*⁸, has analgesic, smooth muscles regulatory, anti-inflammatory, anti-ulcer, and anti-epileptic effect^{9,28}. *M. officinalis* Rehd. et Wils. var. *biloba* Rehd. et Wils. of this species was also recorded as another official botanical origin of Houpo⁶. They are commonly used in TCM.

56. 秦皮 Qinpi

Fraxinus rhynchophylla Hance. (Oleaceae)⁸, its dried bark, *Fraxini Cortex*⁸, has anti-inflammatory, anti-allergic, diuretic, and anti-bacterial effects⁹. *F. chinensis* Roxb., *F. szaboana* Lingelsh. or *F. stylosa* Lingelsh. of these species were also recorded as other official botanical origin of Qinpi⁸. They are commonly used in TCM.

57. 秦艽 Qinjiao

Zanthoxylum bungeanum Maxim. (Rutaceae)⁸, also known as 花椒 Huajiao, Sichuan pepper, black pepper or prickly ash. Its dried pericarp of ripe fruit, *Zanthoxyli Pericarpium*⁸, regulates the movement of the bowels, acts against bacteria, kills parasites, and inhibits platelet aggregation⁹. *Z. schinifolium* Sieb. et

Zucc. of this species was also recorded as another official botanical origin of Qinjiao⁶. They are hot spices and commonly used in TCM.

58. 山茱萸 *Shanzhuyu*

Cornus officinalis Sieb. et Zucc. (Cornaceae)⁷, also known as Asiatic cornelian cherry. Its dried ripe sarcocarp, Corni Fructus⁷, has immunoregulatory, cardiac, anti-shock, platelet aggregation inhibiting, anti-thrombotic, anti-inflammatory, and hepatoprotective effects^{9,29}. It is commonly used in TCM.

59. 紫葳 *Ziwei*

Campsis grandiflora (Thunb.) Loisel ex K. Schum. (Bignoniaceae)⁸, also known as Chinese trumpet creeper or凌霄花 *Lingxiaohua*, Its dried flower, Campsis Grandiflorae Flos⁸, has anti-bacterial, anti-thrombotic, and anti-tumor effects⁹. *C. radicans* (L.) Seem. of this species was also recorded as another official botanical origin of Ziwei⁸. They are commonly used in TCM.

60. 豬苓 *Zhuling*

Polyporus umbellatus (Peres.) Fr. (Polyporaceae)⁶, its dried sclerotium, Polyporus⁸, has immunity-boosting, anti-tumor, hepatoprotective, and diuretic effects⁶. It is commonly used in TCM.

61. 白棘 *Baiji*

Ziziphus jujuba Mill. var. *spinosa* (Bunge) Hu ex H. F. Chou (Rhamnaceae)⁶, also known as 酸棗 *Suanzao*. Its dried thorns can alleviate edema and relieve pain⁶. It is seldom used in TCM.

62. 龍眼 *Longyan*

Dimocarpus longan Lour. (Sapindaceae)⁸, its dried aril, Arillus Longan⁸, has immunostimulatory,

anti-aging, and anti-oxidant effects⁶. This fruit is edible and commonly used in TCM.

63. 松蘿 *Songluo*

Usnea longissima Ach. (Usneaceae)⁶, also known as Usnea. This lichen, Usnea⁶, has anti-inflammatory, anti-bacterial, vasodilatory, and antispasmodic effects⁶. *U. diffracta* Vain of this species was also recorded as another official botanical origin of Songluo⁶. They are seldom used in TCM.

64. 衛矛 *Weimao*

Euonymus alatus (Thunb.) Sieb. (Celastraceae)⁸ known variously as Winged Spindle, Winged Euonymus or Burning Bush. Its winged branches, Ramulus Euonymi Alati⁸, has lipohemia regulatory and hypoglycemic effects⁶. It is seldom used in TCM.

65. 合歡 *Hehuan*

Albizia julibrissin Durazz. (Fabaceae)⁷, also known as silktree. Its dried bark called合歡皮 *Hehuanpi*, Albiziae Cortex⁷, has sedative, hypnotic, anti-depressant, anti-tumor, and immunoregulatory effects⁹. It is commonly used in TCM.

66. 梅實 *Meishi*

Armeniaca mume Sieb. (Rosaceae)⁶, also known as Japanese apricot. Its dried, nearly ripe fruit, Mume Fructus⁸, has ascaricidal and anti-bacterial effects. It is edible but seldom used in TCM.

67. 大豆黃卷 *Dadouhuangjuan*

Glycine max (L.) Merr. (Fabaceae)⁷, also known as Soybean. Its dried black soybean sprout, Glycines Macis Germinatum Semen⁶, can clear summer heat, dispel dampness⁶. It is seldom used in TCM.

68. 赤小豆 Chixiaodou

Vigna umbellata (Thunb.) Ohwi et H. Ohashi (Fabaceae)⁸, also called ricebean or rice bean. Its dried seed, *Vignae Semen*⁸, can treat edema, jaundice, diarrhea and beriberi⁹. *V. angularis* (Willd.) Ohwi et Ohashi of this species was also recorded as another official botanical origin of Chixiaodou⁸. They are commonly used in TCM.

69. 粟米 Sumi

Setaria italica Beauv. (Poaceae)⁶, also known as Foxtail millet, Italian millet, German millet, Chinese millet, and Hungarian millet. Its kernels can be used to fortify the spleen, harmonize the stomach and replenish deficiency⁶. *S. italica* Beauv. var. *germanica* (Mill.) Schred. of this species was also recorded as another official botanical origin of Sumi⁶. They are edible but seldom used in TCM.

70. 黍米 Shumi

Panicum miliaceum L. (Poaceae)⁶, also known as Proso millet, common millet, hog millet or white millet. Its seed has boosting qi, tonifying middle, suppressing thirst, and detoxifying functions⁶. It is edible but seldom used in TCM.

71. 蓼實 Liaoshi

Polygonum hydropiper L. (Polygonaceae)⁶ also known as Water pepper. Its dried ripe fruit, *Polygoni Hydropiperis Fructus*, can improve vision, warm the middle, disperse swelling, treat abscess, and tolerance cold⁶. It is seldom used in TCM.

72. 葱實 Congshi

Allium fistulosum L. (Liliaceae)⁶ also known as Welsh onion, Japanese bunching onion. Its dried

ripe seed, *Allii Fistulosi Semen*⁶ can warm kidney, improve vision and detoxify⁶. It is seldom used in TCM.

73. 薤 Xie

Allium macrostemon Bunge (Liliaceae)⁸, also known as 薤白 Xiebai. Its dried bulb boiled or steamed, *Allii Macrostemi Bulbus*⁸, is used for aggregating antioxidant, depressing blood pressure, preventing atherosclerosis, and antitumor pharmacy⁹. *A. chinense* G. Don.⁸, *A. neriniflorum* (Herb.) Baker or *A. caeruleum* Pall⁶. were also recorded as other official botanical origin of Xie. They are edible and commonly used in TCM.

74. 水蘇 Shuisu

Stachys japonica Miq. (Lamiaceae)⁶, its whole plant, *Stachydis Chinensis Herba*⁶, was used medicinally for tonsillitis, sore throat, and dysentery⁶. *S. chinensis* Bunge ex Benth. or *S. baicalensis* Fisch. ex Benth. of these species were also recorded as others official botanical origin of Shuisu⁶. They are seldom used in TCM.

II. Minerals (14 drugs)

Nowadays all the mineral drugs are seldom used due to higher risks to human health.

1. 雄黃 Xionghuang

Realgar⁸, also known as ruby sulphur or ruby of arsenic, is an arsenic sulfide mineral. Its main composition is arsenic sulfide (As₄S₄) and often in association with the other mineral, orpiment (As₂S₃)⁸. With its poison, it is used for abscess and insects or snakes bite in tradition⁶.

2. (石) 流黃 Shi-liuhuang

Sulfur (Sulphur)³ also known as 流黃liuhuang, it is represented by the symbol S. Sulfur easily is found in sulfide and sulfate minerals⁸. Its well-known uses for the element are in matches, insecticides and fungicides⁶.

3. 雌黃 Cihuang

Orpiment⁶ is a commonly monoclinic arsenic sulfide mineral (As_2S_3). The material, Orpimentum was used as a medicine for killed insects and measure to lessen the virulence of pathogens in China⁶ although it is highly toxic.

4. 水銀 Shuiyin

Mercury⁶ also known as Quicksilver or Hydrargyrum, is a chemical element with the symbol Hg³. Mercury in the form of one of its commonly ores, cinnabar, is used in traditional medicines. Mercury has been used in medicine for dermatosis such as scabies, tinea, scall and leprosy⁶. Although they are much less commonly today than they once were. Now, the toxic effects of mercury and its compounds are more widely understood.

5. 石膏 Shigao

Gypsum⁶, is a very soft sulfate mineral composed of calcium sulfate dihydrate, with the chemical formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ⁸. The powdered crystals, Gypsum Fibrosum, were given by Chinese physicians to treat fevers and coughs, and externally for eczema, burns, and sores⁶. Homeopaths use it for sinusitis. It is commonly used in TCM.

6. 磁石 Cishi

Magnetitum⁸ is a ferromagnetic mineral mainly

contain iron oxide (Fe_3O_4)⁸. Magnetitum can inhibit CNS, sedative, and possesses anti-convulsion effect. It can treat anxiety, palpitation, insomnia, epilepsy, dizziness, and blurry vision⁶.

7. 凝水石 Ningshuishi

The drug also known as 寒水石Hanshuishi, includes two derivatives:

(1) Gypsum⁶ is a very soft sulfate mineral composed of calcium sulfate dihydrate, with the chemical formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. Its materials, Gypsum Rubrum, a tofu (soy bean curd) coagulant, make it ultimately a major source of dietary calcium, especially in Asian cultures which traditionally use few dairy products.

(2) Calcite⁶ is a carbonate mineral and the most stable polymorph of calcium carbonate (CaCO_3). Its article, Calcitum, was used to remove heat, reduce fire and treat edema by Chinese physician⁶.

8. 陽起石 Yangqishi

Tremolite⁶ is a member of the amphibole group of silicate minerals with composition: $\text{Ca}_2\text{Mg}_5\text{Si}_8\text{O}_{22}(\text{OH})_2$. Its material, Tremolitum⁸, was use on kidney deficiency and lack of copulative power in the male⁶ by Chinese physician. It is seldom used in TCM.

9. 孔公孽 Konggongnie

Stalactite⁶ is formed by the deposition of calcium carbonate and other minerals. The drug was cited for the middle part of stalactite deposition which had thin or space inside. The drug can free yang for man. Chinese physician used it to treat dissipate stasis and remove toxicity⁶.

10. 殷孽 Yinnie

Stalactite⁶ is formed by the deposition of calcium carbonate and other minerals. The drug was cited for the agglomerates of stalactite deposition which was attached to stone bed. It can warm the kidney and strong bone. Chinese physician used it to treat dissipate stasis and remove toxicity⁶.

11. 鐵精落 Tiejingluo

Haematite⁶ also spelled as haematite, is the mineral form of iron oxide (Fe₂O₃). It is the essence one of several iron oxides stated in ancient times. The drug used to tranquilize and relieve mental uneasiness caused by fright by Chinese physician.

12. 理石 Lishi

Gypsum and Anhydrite⁶ is mixed of Gypsum, also called hydrated calcium sulphate (CaSO₄·2H₂O), and anhydrite (CaSO₄). This drug, Gypsum and Anhydritum, treat subjective feeling of feverishness and wasting-thirst⁶ by Chinese physician.

13. 長石 Changshi

Anhydrite⁶ is a mineral which composed of anhydrous calcium sulfate (CaSO₄). This drug, Anhydritum, was used for feverishness, improving emiction, remove nebula and improve vision⁶.

14. 膚青 Fuqing

It is still not defined today.

III. Animals (11 drugs)

Nowadays some animal drugs are seldom used in TCM due to wildlife conservation or animal rights.

1. 白馬莖 Baimajing

Equus caballus orientalis Noack (Equidae)⁶, also known as horse. Its penis can treat impotence, seminal emission, deficiency cold, and vaginal discharge⁶. It is seldom used in TCM.

2. 鹿茸 Lurong

Cervus nippon Temminck (Cervidae)⁸, also known as the Sika Deer, Spotted Deer or the Japanese Deer. Its hairy antlers of a young stag, *Cervi Pantotrichum Cornu*⁸, can strengthen kidney yang, benefit essence and blood, and effective sinew, and bone⁶. *C. elaphus* L. of this family was also recorded as another official zoological origin of Lurong⁸. They are commonly used in TCM.

3. 牛角膠 Niujiangsai

Bos taurus domesticus Gmelin (Bovidae)⁶, also known as cattle. The hard bone in its horn, *Bovis Medulla Cornus*⁶, can resolve stasis, stop bleeding and treat hematochezia⁶. *Bubalus bubalis* L. of this family was also recorded as another official zoological origin of Niujiangsai⁶. They are seldom used in TCM.

4. 殺羊角 Guyangjiao

Capra hircuas Linnaeus (Bovidae)⁶, also known as domestic goat. The male's horn, *Cornu Caprae seu ovis*⁶, has antipyretic, analgesic, and sedative effects. *Ovis aries* L. of this family is also recorded as another official zoological origin of Guyangjiao⁶. They are seldom used in TCM.

5. 狗陰莖 Gouyinjing

Canis familiaris L. (Canidae)⁶, also known as domestic dog. Its penis with testis, also called 狗鞭Goubian, *Canis Penis et Testis*⁶, treat impotence,

seminal emission, deficiency cold, and vaginal discharge⁶. It is seldom used in TCM.

6. 羚羊角 Lingyangjiao

Saiga tatarica L. (Bovidae)⁸, its horn, Saigae Tataricae Cornu⁸, has antipyretic and analgesic effects⁶. The antelope was listed as first-grade protected animal and hunting it is forbidden by government.

7. 犀角 Xijiao

Ceratotherium simum Burchell (Rhinocerotidae)⁶, also known as White Rhinoceros, Square-Lipped Rhinoceros. Its horn was forbidden to use for the animal was on the brink of extinction⁶. It is never used in TCM.

8. 燕屎 Yanshi

The drug is the feces of swallow. It was abandoned after Shennongbencaojing. It is almost not used in TCM.

9. 天鼠屎 Tianshushi

Vespertilio superans Thomas (Vespertilionidae)⁶, also known one of bat. Its excrements, also called 夜明砂 Yemingsha, Vespertilionis Faeces⁶, were used to improve vision, activate blood and resolve stasis⁶. *Murina leucogaster* Milne-Edwards, *Pipistrellus abramus* Temminck, *Plecotus auritus* L., *Eptesicus andersoni* Dobson, *Hipposideros armiger* Hodgson or *Rhinolophus ferrumequinum* Schreber of this family is also recorded as others official zoological origin of Tianshushi⁶. They are seldom used in TCM.

10. 蝟皮 Wepi

Erinaceus europaeus L. (Erinaceidae)⁶,

commonly known as hedgehogs. Its dried skin is called 刺蝟皮 Ciwepi, Erinacei seu Hemiechini Corium⁶. Its fatty oil can treat wind spasm and contracture, hemiplegia, and qi stagnation⁶. *Hemiechinus dauritus* Sundevall or *H. auritus* Gmelin of this family is also recorded as others official zoological origin of Wepi⁶. They are seldom used in TCM.

11. 伏翼 Fuyi

Vespertilio superans Thomas (Vespertilionidae)⁸, also known as 蝙蝠 Bianfu, its dried body, which was takes out the internal organs, hair and claws, Concha Ostreae⁸, was cough-suppressing, panting-calming and strangury-relieving diuretic medicinals⁶. Its official zoological origin is the same as 天鼠屎 Tianshushi. (No. 9.). It is seldom used in TCM.

IV. Fish and Shellfish (4 drugs)

1. 鳖甲 Biejia

Trionyx sinensis Wiegmann (Trionychidae)⁶, also known as Chinese soft shell turtle. Its quenched shell, Trionycis Carapax⁶, was used to prevent and treat syndrome-complex of deficiency of Yin⁶. *T. steindachneri* Siebenrock of this family is also recorded as another official zoological origin of Biejia⁶. They are commonly used in TCM.

2. 蟹 Xie

Eriocheir sinensis H. Milne-Edwards (Varunidae)⁶, also known as Chinese mitten crab. Its crabmeat and viscera, Eriocheir Sinensis⁶, can clear heat, stasis-resolving, alleviate edema, and detoxify⁶. *E. japonicus* (de Haan) of this family is also recorded as another official zoological origin of Xie⁶. They are edible but seldom used in TCM.

3. 烏賊魚骨 Wuzeiyugu

Sepiella maindroni de Rochebrune (Sepiidae)⁷, also known as cuttlefish. Its cuttlebone, dried internal shell, known as 海螵蛸 Haipiaoxiao, *Os Sepiae*⁷, can stop bleeding arrest seminal discharge or leukorrhea, to inhibit gastric secretion, and to promote the healing of wound⁶. *Sepia esculenta* Hoyle, *Sepia andreana* Steenstrup, *S. latimanus* Quoy et Gaimard or *S. lycidas* Gray of this family is also recorded as other official zoological origin of Wuzeiyugu⁶. They are commonly used in TCM.

4. 鮢魚甲 Tuoyujia

Alligator sinensis Fauvel (Alligatoridae)⁶, also known as Chinese Alligator or China Alligator. Its scales contain much collagen and epidermis constituents of β -keratin was used to dispel stasis and remove accumulation by Chinese physician⁶. It is seldom used in TCM.

V. Insects (8 drugs)

1. 柞蟬 Zuochan

Cryototympana pustulata Fabricius (Cicadidae)⁶ was known as 柞蟬 Zhachan. Its steamed dried whole body, *Cicada*⁶, is used to relieve heat, extinguish wind, and settle fright⁶ by Chinese physician. It is seldom used in TCM.

2. 螻蛄 Qicao

Holotrichia diomphalia Bates (Scarabaeoidea)⁶, its dried larva, *Holotrichiae Larva*⁶, used to dispel stasis, dissipate binds, relieve pain, and detoxify⁶ by Chinese physician. It is seldom used in TCM.

3. 白僵蠶 Baijiangcan

Bombyx mori L. (Bombycidae)⁷, also known as

silkworm. Its fungus *Beauveria bassiana* (Bals.) Vailant infected died white bug, *Bombyx Batryticatus*⁷, has anti-convulsive, sedative, anti-blood coagulator, and hypoglycemic effects⁶. It is commonly used in TCM.

4. 樗雞 Chuji

Lycorma delicatula White (Fulgoridae)⁶, can activate blood, unblock the meridian, attack toxicity, and disperse nodules⁶. It is seldom used in TCM.

5. 蜚虻 Femeng

Tabanus mandarinus Schiner (Tabanidae)⁶, also known as 虻蟲 Mengchong or Gadfly. The dried female whole body has anti-blood coagulator, anti-inflammatory, analgesic and haemolysis effects⁶. *Atylotus bivittateinus* Takahasi of this family is also recorded as another official zoological origin of Femeng. They are seldom used in TCM.

6. 木虻 Mumeng

This drug had been disused. It was replaced by 蜚虻 Femeng (above, No. 5) by Chinese physicians. This was footnoted by Su Song (蘇頌) at Tujing-bencao (《圖經本草》) in Song Dynasty.

7. 蜚廉 (蠊) Feilian

Periplaneta americana L. (Blattidae)⁶, also known as 蟑螂 Zhanglang, cockroach, a roach, black-beetle or waterbug. The dried whole body, *Periplaneta Americana*⁶, has anti-tumor, lift immunity function and detoxify functions⁶. *Blatta orientalis* (L.) or *P. australasiae* (Fabricius) of this family is also recorded as others official zoological origin of Feilian⁶. It is seldom used in TCM.

8. 蟪蟲 Zhechong

Eupolyphaga sinensis Walker (Corydiidae)⁸, also known as Ground Beetle, wingless cockroach, eupolyphaga, di bie chong (地鳖蟲), tu bie chong (土鳖蟲), tu yan (土元). The dried female whole body, *Eupolyphaga* seu *Steleophaga*⁸, can treat blood stasis, amenorrhea, injuries of bones, and muscles from impact, sprain in loin area and has immunodulation function³⁰. *Steleophaga plancyi* Boleny of this family is also recorded as another official zoological origin of Zhechong⁶. These drugs is forbidden for pregnant woman. They are commonly used in TCM.

VI. Other (3 drugs)

1. 活蟪 Huoyu

Limax fravus (L.) (Limacidae)⁶, also known as 蛞蝓 Kuoyu or slug. This can dispel wind, settle fright, clear heat, detoxify, disperse swelling, and relieve pain⁶. *Agriolimax agrestis* (L.) of this family is also recorded as another official zoological origin of Huoyu⁶. They are seldom used in TCM.

2. 石龍子 Shilongzi

Eumeces chinensis Gray (Scincidae)⁸, also known as 蜥蜴 Xiyi or Chinese Skink. Its whole dried body, which its internal organs were taken off, has water-draining, strangury-relieving, break accumulation, dissipate stasis, and detoxify functions⁶. *E. elegans* Beulenger of this species is also recorded as another official zoological origin of Shilongzi⁶. They are seldom used in TCM.

3. (露) 蜂房 Lu-fengfang

Polistes olivaceous DeGeer (Vespidae)⁸, also known as honeycomb. Its or its close species honeycomb, *Nidus Vespae*, can dispel wind, relieve pain,

attack toxicity, treat dermatophytosis, and relieve itching⁶. *P. japonicus* Saussure or *Parapolybia varia* Habricius of this family is also recorded as others official zoological origin of Lu-fengfang⁶. They are edible and commonly used in TCM.

Discussion

Jingshizhengleidaguanbencao (《經史證類大觀本草》)³ is the National Pharmacopoeia of Song Dynasty. The original documents of Shennongbencaojing (《神農本草經》) were included in it as the main content and printed with “White on Black”. All the drugs in white on Black were called Ben-Jing-Zheng-Pin (本經正品). Jingshizhengleidaguanbencao (《經史證類大觀本草》) were adopted for the edition of Shennongbencaojing by Sun Xingyan (孫星衍) and Sun Fengyi (孫馮翼) who were ones of the most popular text researchers and considered to be the scholars royal to the original contents of their studying objects. Many people believe that there are just 365 drugs in Shennongbencaojing. In the preface of Sun's recompiled edition, Sun Xingyan (孫星衍) mentioned that the total drugs number in original Shennongbencaojing was more than 365. The drugs number will be surveyed by us. Tao Hongjing (陶弘景) chose 365 drugs from them and completed his work, Bencaojingjizhu (《本草經集注》)³¹. In our studies for Sun's Shennongbencaojing, there were 142 drugs in Top Grade Drugs, and 114 drugs in Medium Grade Drugs, respectively. It was different from a common impression that there were 120 drugs in Top and Medium Grade Drugs, respectively. The above results indicated that many different Shennongbencaojing editions were ever used in ancient times.³²

In the Medium Grade Drugs, the number for the

drugs that were considered by us to be edible as daily foods was eight. They were Ganjiang (乾薑, No. 1), Baihe (百合, No. 14), Haizao (海藻, No. 36), Longyan (龍眼, No. 62), Meishi (梅實, No. 66), Sumi (粟米, No. 69), Shumi (黍米, No. 70), and Xie (薤, No. 73). Comparing with our previous studies, there were at least 14 drugs in Top Grade Drugs which are considered to be edible as foods.² This result was conformed to the definition of Medium Grade Drugs: “less are used as food, more are used for treating disease”³³.

In the Medium Grade Drugs, there were only two drugs which their scientific names had not yet been decided. They were Zishen (紫參, No. 28 of Plants) and Fuqing (膚青, No. 14 of Minerals). In the Top Grade Drugs, six drugs, Baituhuo (白兔藿), Weixian (薇銜), Guhuo (姑活), Bieji (別羈), Qucao (屈艸) and Huaimu (淮木), could not be defined. The latter four drugs were withdrawn from Jingshizhengleibei jibencao (《經史證類備急本草》) and listed in the type of You-Ming-Wei-Yong (有名未用)²⁻⁴, which means that the drug only has its name but has never been used in medicine. As they were rarely used and the document is insufficient, the chance for their relative scientific names to be defined is very slim in the future.

The drug Ganjiang (乾薑, No. 1), it means “dried” Ginger. The “fresh” Ginger was taken as another drug called Shengjiang (生薑). The drug name of Fresh Ginger was attached as an add-on for Dried Ginger firstly in Mingyibielu (《名醫別錄》)³⁴. As ancestor considered they had different medical effects so dried ginger and fresh ginger were given different drug names. Fresh ginger is a warm acrid superficies-resolving drug, and is used for colds, nausea, vomiting, bloating, and coughing. After processing, fresh ginger becomes as dried ginger. Dried ginger is an interior-

warming, chill-repelling drug, and is used for releasing vomiting, diarrhea, cold limbs, weak pulses, coughing, and rheumatism.

Tongcao (通草, No. 8), it means “perforated grass” in Chinese. Its scientific name of botanical origin is *Akebia quinata* (Thunb.) Decne⁷. 木通 (pinyin Mutong) meaning “perforated wood” was named first at Shixingbencao (《食性本草》) which is also generally referred to as Tongcao (通草)³⁵. The medicinal part of these plants (通草+木通) is the woody stem which is sliced in transverse sections and prepared as a decoction. The stem contains approximately 0.25% potassium salts thus giving the diuretic action³⁶.

Shaoyao (芍藥, No. 9) was most early distinguishing into Baishao (白芍) and Chishao (赤芍) for its white or red color by Tao Hongjing (陶弘景). They all belong to Genus *Paeonia* and have same comprehensible function in therapy³⁷. But they still have some distinct nature such as that the White tasted sweet, benefit for tonification, warm the meridian to nourish blood, pacify the liver. However, the Red tasted bitter, benefit for purgation, cool the blood and dissipate stasis, purge the liver by Chinese physician.

Lishi (蠡實, No. 10) is the seed of *Iris lactea* Pall. var. *chinensis* (Fisch.) Koidz. (Iridaceae). Its another common name, Malinzi (馬蘭子), was first denominated illustration in Tujingbencao (《圖經本草》) by Su Song (蘇頌), A.D. 1062³⁸⁻³⁹.

Yuanshen (元參, No. 12). It was originally named Xuanshen (玄參) in ancient medicine literature. Sun, the compiler, lived in Ching Dynasty. It was then forbidden to use Emperor's name for a drug name. The name of Emperor Kangxi (康熙) was Xuan-ye (玄燁), so the word Xuan (玄) was replaced by Yuan (元) and Xuanshen became Yuanshen. After Ching Dynasty, Xuanshen (玄參) came back to its original name.

Drug Baixian (白鮮, which was documented in the Sun's edition. No. 26) or Baixianpi (白鮮皮), It was named for having white cortex and gamy odor. The significant drug name was recorded on all previous classic of Materia Medica. But it was deemed to be miswritten as Baixianpi (白癬皮) which has very similar Chinese pronunciation and writing. Which is the right one is still under debate and not yet been clarified.

Suanjiang (酸醬, No. 27), this Chinese drug name was only used by Sun Xingyan and Sun Fengyi¹. It was printed with 酸漿 (with the same pinyin) on all other versions of Shennongbencaojing. It is suggested to take notice the variation of this drug when reading the Sun's edition.

Some drugs are also called 紫參 Zishen (No. 28) such as the drugs from *Polygonum bistorta* L., *P. manshuriense* V. Petr. ex Kom., and *P. suffultum* Maxim., and *Salvia yunnanensis* C.H. Wright, and *S. chinensis* Benth., and *S. plectranthoides* Griff. and *Astragalus membranaceus* Bunge var. *mongholicus* (Bunge) P. K. Hsiao, *A. membranaceus* (Fisch.) Bunge, and *Paris bashanensis* Wang et Tang, and *P. polyphylla* Smith var. *chinensis* (Franch.) Hara. by textual research with its different scientific names.

For the plant *Centella asiatica* (L.) Urban (No. 42) its official Chinese name is Jixuecao (積雪草), in China and Classic of Materia Medica. One commonly used folk herb called Leigonggen (雷公根) in Taiwan was also defined as *Centella asiatica* (L.) Urban, the same scientific name as Jixuecao (積雪草), a drug already listed in the famous Shennongbencaojing. Therefore it was proved that Leigonggen (雷公根) is the same plant as Jixuecao (積雪草)²⁷.

The drug Jiasu (假蘇, No. 47) was also known as Jingjie (荊芥) in Wushibencaojing (《吳氏本草經》)

which was annotated by Wu Pu (吳普)⁴⁰. The latter name is much commonly used nowadays.

Forsythia suspensa (Thunb.) Vahl. (Oleaceae) (No. 48), its root was called Qiaogen (翹根) in Shennongbencaojing and seldom used. Its dried ripe fruit was named Lianqiao (連翹) which is much more commonly used nowadays.

This drug name Qinjiao (秦茛, No. 57), *Zanthoxylum bungeanum* Maxim. was used in Sun's edition and it is the same as 秦椒 (with the same pinyin as 秦茛). Its another general name was recorded as Huajiao (花椒)⁴¹. This comment that a drug often had other different names was explained by Li Shizhen (李時珍) on Bencaogangmu⁴¹.

The plant *Ziziphus jujuba* Mill. var. *spinosa* was famous mainly for its seed but not for its thorn in TCM. Its seed as a drug was called Suanzaoren (酸棗仁) which was listed in the Top Grade Drugs. It is used to treat insomnia. Its thorn called Baiji (白棘, No. 61) was listed in the Medium Grade Drugs and was occasionally used in the past but is seldom used nowadays.

Sumi (粟米 No. 69), its scientific name is *Setaria italica* Beauv. (Poaceae) which was defined by Chinese Herbal Medicine (《中華本草》). In Chinese-speaking territories, it is also called Xiaomi (小米), meaning "Little Rice". The drug was first documented on Sun's edition of Shennongbencaojing. But in Chinese Herbal Medicine, it was recorded that Sumi (粟米) was first documented on Mingyibielu (《名醫別錄》)⁴².

The mineral drug Ningshuishi (凝水石, No. 7), was so named as having nature to coagulate water and stop its mobility. Many materials were ever considered as Ningshuishi but only the two, Gypsum and Calcite were finally accepted to be used as drugs by Chinese

Herbal Medicine⁶.

The mineral drug, 膚青Fuqing (No. 14), was included among the series Classic of Materia Medica from Han Dynasty to Song Dynasty. But “Disused and unacquainted for the drug” was noted by Tao Hongjing. Its annotation was not collected in Bencaogangmu by Li Shizhen.

Periostracum Cicadae (蟬蛻, Chantui), is the outermost layer of the shell of insect Zuochan (柞蟬, No. 1 of Insects), which is much more often used than its whole body (Cicada) in TCM right now.

After Top Grade Drugs, we preceded with Medium Grade Drugs trying to complete the series textual research of Shennong’s Classic of Materia Medica with the objective to popularize it to the world.

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《神農本草經》中品藥拉丁名與藥效之本草考證

劉淑鈴*、郭昭麟、柯裕仁、謝明村

中國醫藥大學藥學院中國藥學暨中藥資源學系，台中，台灣

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作者曾發表《神農本草經》「上品藥」拉丁名與藥效之本草考證，有助於中醫藥國際化。本文擬繼續進行「中品藥」的本草考證研究。首先仍將藥物分類為：植物（74種）、礦石（14種）、動物（11種）、魚貝（4種）、昆蟲（8種）、其它（3種）等六大類。考證結果「中品藥」共有114種藥物，其中可供日常食用的藥物約有8種（乾薑、百合、海藻、龍眼、梅實、粟米、黍米、薤），尚未被定義出基原者僅有2種（紫參、膚青），並無「有名未用」的藥物存在。結果與前已發表論文「上品藥」作比較，本研究符合「中品藥」的定義，即「食用者較少，但療病者漸深」。另各藥物具有相同基原者，羅列於下：乾薑-生薑、蠡實-馬蘭子、積雪草-雷公根、秦艽-花椒、紫葳-凌霄花、白棘-酸棗、凝水石-寒水石、天鼠屎-夜明砂、烏賊魚骨-海螵蛸、蜚蠊（蠅）-蟑螂、蠋蟲-地鱉蟲。本研究仍引用孫星衍與孫馮翼編著的《神農本草經》版本，作為藥物考證的來源依據。

關鍵字：神農本草經、中品藥、學名、藥效、食藥用、本草考證

*聯絡人：劉淑鈴，中國醫藥大學藥學院中國藥學暨中藥資源學系，40402台中市北區學士路91號，電話：04-22053366分機5509，傳真：04-22078083，電子郵件信箱：slliu@mail.cmu.edu.tw