

整理本草研究國藥之方案及其實例

祁州藥之研究 1

屬於菊科及川續斷科之藥材

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A PROGRAMME TOGETHER WITH CONCRETE
RESEARCH EXAMPLES, TO MAKE INTENSIVE
STUDY OF „PEN TS'AO“ AND CHINESE
MATERIA MEDICA

The Study of Chi-chow Drugs 1.
Drugs of Compositae and Dipsacaceae

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(With 92 Plates)

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For the past thirty years I was devoted myself to the study of "Pen Ts'ao" and Chinese Materia Medica. In 1934 I was transferred from the Academia Sinica to the National Academy of Peiping. I began to start the present programme, emphasizing on the various problems of Chinese drugs and collection of our medicinal plants. In 1937 a three-year plan for a complete investigation of this programme was sent to the Ministry of Education. At present I shall endeavour to continue my work in the Insititute of Chinese Drugs of the Medical College of National Peking University. The present paper gives a general outline of my work:—

I. THE PROGRAMME AND PROBLEMS FOR STUDY

A. The Programme for the Study of "Pen Ts'ao" and Chinese Drugs.

1. The first part includes to solve the pharmacognostical fundamental problems of Chinese materia medica and the preliminary work for the compilation of a Chinese pharmacopoeia.

(A) To identify the original plants, from which the drugs are derived, such as root, bark, wood, etc., by investigation, collection, cultivation and experiment.

(B) To compare the commercial drugs and the drugs in "Pen Ts'ao" in ancient times.

(C) To determine the effectiveness of Chinese drugs, which the doctors frequently use in their prescriptions, and to replace those drugs of foreign origin, such as Digitalis, Belladonna, etc., by native drugs. For the details of the experiment see (E) of the second part.

(D) To study the drugs of a special district and the distribution of the medicinal plants.

I had accomplished a part of the above problems and published as "The Primary Research of Materia Medica in North China" in Chinese, (本草藥品實地之觀察, 華北之部, 別集之一及二) of which two volumes have been appeared, by the National Academy of Peiping in 1937. I shall continue to study the problem and will accomplish it within three years.

2. The second part includes the pharmacognostical standardization of Chinese drugs and the standard experiment of the Chinese pharmacopoeia.

(A) To study the external morphology of Chinese drugs with a magnifying lens.

(B) To study the internal anatomy of Chinese drugs by making sections under a microscope.

(C) To study the powdered drugs (Drogenpulver).

(D) To study the picture of the ash of drugs (Drogenaschenbild).

(E) The microchemical study of the drugs under a polarising microscope.

(F) To classify and arrange the drugs in order according to Engler's system of classification of plants.

(G) A committee for the compilation of Chinese pharmacopoeia is established to standardize the Chinese drugs. This is as follows:

1. The unification of the name of Chinese drugs.
2. The identification and selection of the original plants, from which the Chinese drugs are derived.
3. The identification of the characteristics of the drugs.
4. The chemical reactions of the drugs.
5. The standarization of the constituents of the drugs:
 - a. Percentage of water.
 - b. Percentage of ash.
 - c. Percentage of acid-insoluble ash.
 - d. Percentage of alcohol extract.
 - e. Percentage of the efficiency of a certain known constituent.
6. The quantity used in the dose and the lethal dose of the poisonous drugs.
7. The method of preservation.

(H) The "Homöopathie" study of Chinese drugs for the compilation of Chinese pharmacopoeia of "Homöopathie".

I had studied a part of the above problems in relation to (A) and (B) of 1 and (F) of 2 and published the result in "The Study of Ch'ichow Drugs Vol. 1 Compositae and Dipsacaceae" in Chinese, (祁州藥誌. 第一集 菊科及川續斷科之生藥研究). I will accomplish my study of the drugs of the other families continuously according to Engler's system of classification of plants. As for the problems in relation to (A), (B), (C) and (D) of 2, I will select those unsettled problems for study which include the plants which are so similar in appearance and cannot be easily distinguished. The following problems had been proposed, in which those with asterisks are studied already.

B. The Problems to be Studied.

**1. The pharmacognostical study of the genus *Panax* and its allies of Araliaceae.

**2. The identification of scientific names and the comparative histological study of "San Ch'i 三七" of Compositae and "Ging-shen San Ch'i 人參三七" of Araliaceae.

*3. The comparative pharmacognostical study of *Platycodon*, *Adenophora* and *Codonopsis* of Campanulaceae, and "Pei Sha Shen 北沙參" (*Phellopterus litteralis*, (A. Gray) Benth) "Fen Sha Shen 粉沙參", (*Sesili libanotis*, Koch. var.?) "T'u Sha Shen 土沙參" (*Carum buriatum*, Turcz) and "Ming Tang Shen 明黨參" of Umbelliferae.

4. The pharmacognostical study of "Nanking Tai Tzū Shen 南京太子參". [*Krascheninikovia raphanorrhiza*, (Hemsley) Hand-Mzt. (= *Stellaria raphanorrhiza*, Hemsl.)]

5. The comparative histological study of "*Rhizoma Atractylodetis viridis* Tsang Chu 蒼朮" and "*Rhizoma Atractylodetis alba* Pai Chu. 白朮".

6. The pharmacognostical study of "Mu Hsiang 木香" (*Inula* and *Saussurea*).

7. The identification and difference between *Centaurea montanthus*, Georgi 祁州漏蘆 and *Echinops dahuricus*, Fisch. 禹州漏蘆 and the comparative histological study with *Anemone chinensis*, Bunge 白頭翁.

8. The pharmacognostical study of "T'ien Hsien Tzū 天仙子" (*Hyoscyamus niger*, L. var. *chinensis* Makino) and "Kwangtung Tien Hsien Tzū 廣東天仙子".

9. The comparative histological and pharmacognostical study of *Rehmannia lutea*, Makino var. *purpurea*, Maxim. 莧橋地黃, *R. glutinosa*, Lib. 北京地黃 and *R. rupestris*, Hemsl. var.? 懷慶地黃.

10. The comparative pharmacognostical study of "Nan Wu Chia Pei 南五加皮, Hsiang Chia Pei 香加皮" (*Acanthpanax spinosum*, Miq. and *A. senticosus*, Harms.) of Araliaceae and "Pei Wu Chia Pei 北五加皮" (*Periploca sepium*, Bunge) of Asclepiadaceae.

11. The comparative pharmacognostical and histological study of *Excoecaria Agallocha*, L. 土沉香 and *Aquilaria Agallocha*, Roxb. 沉香.

**12. The pharmacognostical study of Menispermaceae. 防己科

13. The comparative pharmacognostical and histological study of *Astragalus complanatus*, R. Br. 大沙苑子 and *Melilotus suaveolens*, Ledeb. 小沙苑子.

14. The identification and histological study of *Celastrus articulatus*, Thunb. 合歡皮 and *Evonymus Bungeana*, Maxim. 合歡花.

15. The pharmacognostical study of *Eucommia ulmoides*, Oliv. 杜仲.

16. The identification and pharmacognostical study of *Isopyrum adoxoides*, DC. 天葵子.

17. The pharmacognostical study of *Trichosanthes* sp. 白藥子.

18. The pharmacognostical study of *Oroxylum indicum*, Vent.

千張紙

19. The pharmacognostical study of *Gastrodia elata*, Bl. 天麻.

20. The comparative pharmacognostical and histological study of *Fritillaria Roylei*, Hook. f. 川貝, *F. verticilla*, Willd. var. *Thunbergii* Bak. 浙貝 and *Actinostemma* sp. 土貝.

21. The pharmacognostical study of *Cordyceps sinensis*, (Berk.) Saccardo 冬蟲夏草.

22. The other important problems.

A part of the above problems have been solved and published in my contributions from the National Academy of Peiping. I will carry on the study of the other problems, but in China this kind of study is rare and I regrets that I cannot consult with other scholars. It is useless to depend upon Japanese pharmacognostical contributions, for they study their native drugs instead of ours. So we Chinese must solve the pharmacognostical problems of Chinese drugs ourselves and no foreigner can help us. Dr. Matsumura, a famous Japanese botanist, who strives his whole life in studying Chinese names of plants, spoke to other persons at old age: "Only Chinese can solve the problem of Chinese names of Chinese plants. Many European and American

botanists have made many expeditions to China and have much knowledge of Chinese plants. On the other hand the Japanese herbalists, who had never reach China and never touch Chinese plants, studied only from their imaginations and followed the false conceptions of ancient botanists. How foolish they are!" Dr. Matsumura had published „Shokubutsu-Mei-I Part 1. Chinese Names of Plants 植物名彙, 漢名之部", in which he have corrected many errors of other botanists and revised this book many times. This famous book stopped to publish at the ninth edition, because there are still many unsettled problems about Chinese names of plants. From this we can see clearly, that the study of the original plants, from which the drugs are derived, is a complicated and difficult problem. We must make expeditions and collections to those places, where the medicinal plants are growing, bring them back to our laboratory and study them carefully. This is why the problem cannot be solved quickly.

In 1937 before crisis of China the Ministry of Education ordered all institutes and associations of culture of whole China, to send out their plans for study, in order to join together the different experts for discussion of the scientific and cultural problems. The above programme is my three-year plan for studying Chinese drugs, which is a part of the problems of study of the National Academy of Peiping.

II. THE AIM OF STUDY OF THE DRUGS AND THE CONCRETE EXAMPLES.

A. The Aim of Studying Ch'i-chow Drugs

The large part of the drugs are derived from the incomplete medicinal plants, (the animal drugs are excluded in the present paper) of which only the portion effective in curing diseases are used, such as root, bark, wood, fruit, etc. Before reaching the drug markets and druggists the medicinal plants are cut and trimmed by the native drug-collectors and only the useful parts are remained unchange. When this raw drugs go to the hand of the druggists,

they select the best one for sale, use one kind of drug to adulterate the other and replace the dear drug with the cheap one. Therefore the identification of the original plants is a difficult problem in the study of drugs.

There are two steps in the identification of the drugs. The first step is to study the original plants from which the drugs are derived. This problem can be solved only from the investigation and collection from the field work. After knowing the name of the original plants, the second step is to study the external morphology and internal structure of the drugs. From this kind of study a standard for each kind of drug is established. Then we can study the pharmaceutical chemistry and pharmacology. But most of Chinese druggists do not pay special attention to this fundamental problem of pharmacognosy, so many false conceptions and misunderstandings happen, which is a large obstacle for the utilization of Chinese drugs.

For this reason my recent research is emphasized to the investigation and collection of the medicinal plants. I went to Chi-chow of Hopei, and Yü-chow of Honan the former is a large drug market for both South and North China drugs, the latter is a centre of the drugs of Mid-China. I went to Ch'i-chow twice and collected about 240 kinds of officinal drugs and about 130 kinds of unofficinal or local drugs from the drug market of Yao Wang Temple, which is situated at South Gate of Ch'i-chow. In addition to this I had collected about 500 kinds of medicinal plants, both fresh and herbarium specimens, from East Tomb, Hsiao-wu-tai-shan, Poa-hua-shan, Miao-feng-shan of Hopei, Yü-chow, Cheng-chow, Hwai-king and Sung-shan of Honan. I will publish the result of my research continuously according to the natural system of classification of plants. The present paper includes the first part of my study of Ch'i-chow drugs of Compositae and Dipsacaceae, which contains about 50 kinds of drugs. I compiled all drugs of North China belonging to the above two families and made notes

to those which are not solved. In each kind of drug I first discussed the name of the drug and compared the present material with those of ancient "Pen Ts'ao" and saw whether they are coincide with each other. Then I tried to find out the original plants of the drugs in comparison with the collected plant specimens. Sometimes I went to the high mountains to bring back young living plants or seeds to the laboratory and to cultivate them in the garden for the identification of the medicinal plants. As for those plants of the far provinces cannot be easily obtained, I lend the specimens from other herbarium or specimens preserved by other botanists personally, and studied them with the collected drugs. In the case I cannot get the plant specimen, I traced the conception of the ancient scholars and discussed again and again. As for the unsolved plants I gave out the source of the drug and a simple clear description of the drug and remained for further study.

B. Concrete Examples of the Study of Ch'i-chow Drugs

Key to the Drugs of Compositae and Dipsacaceae

A¹ Roots and rhizomes.

B¹ With special aromatic odour.

C¹ Globular, biglobular, creeping and nodosus or somewhat moniliform.

D¹ Globular or biglobular, erect.

E¹ Diameter 1.5-2.5 cm., globular or biglobular, with radical leaves, long petiole of the leaf or the stem base.....

..... { *Atractylodes macrocephala* (a)
於白朮(金線於朮)(野生品) b (1).

E² Diameter 4-8 cm., with 2-6 nodes aggregated into biglobular, together with long craneneck-like rhizome.....

..... { *Atractylodes macrocephala* (b)
仙居白朮(栽培品) b (1)

D² Irregular nodose or somewhat moniliform, creeping.

- E¹ Outer surface slightly yellowish gray, sometimes cloud-like or chickenleg-like..... { *Atractylodes ovata*
白朮(普通白朮) b (1)
- E² Outer surface brown or blackish brown.
- F¹ Cross-section with dense reddish brown scars (oil-glands), with white bloom after exposing..... { *Atractylodes lancea* (a)
茅朮(茅山蒼朮) a (1)
- F² Cross-section with lax brown scars or without white bloom after exposing..... { *Atractylodes chinensis*
蒼朮(北蒼朮) a (1)
- F³ Cross-section with brown scars in the bark and without white crystalline bloom..... { *Atractylodes chinensis* var. *koreana*
關朮(關東蒼朮) a (1)
- G¹ Cell with raphides and cystoliths of inulin..... { *Atractylodes lancea* (b)
古蒼(日本移植之茅朮) a (1)
Atractylodes japonica (a)
焚蒼(日蒼) a (1)
A. chinensis var. *koreana*
焚蒼(鮮蒼) a (1)
- G² Cell with neither raphides nor inulin crystals..... { *Atractylodes japonica* (b)
新蒼(日蒼) a (1)
- C² Dry bone like, semicircular or cylindrical.
- D¹ Fracture slight even, outer surface grayish brown, with some large tuberous root and 1-2 long cylindrical lateral roots..... { *Inula Helenium*
土木香(青木香) a (2)
- D² Fracture not even.
- E¹ Outer surface blackish brown, cylindrical or

- semicircular, with black, slightly swollen root tip; cross-section grayish white, scars (oil-glands) not prominent..... { *Inula racemosa*
川木香 b (2)
- E² Outer surface grayish yellow, scars prominent
..... { *Saussurea Lappa*
廣木香 c (2)
- B² Without aromatic odour.
- C¹ Woody fibrous roots.
- D¹ Root with white tomentose, cylindrical, blackish brown or black and white scales, outer surface quite scabrous, with large fissure.....
..... { *Centaurea monanthus*
祁州漏蘆 a (4)
- D² Root with brown fibrous bristles, prismatic, grayish, brown or yellowish brown, outer surface slight scabrous, without fissure.....
..... { *Echinops dahuricus*
禹州漏蘆 b (4)
- C² Not woody fibrous roots.
- D¹ Main root with numerous slender lateral roots, horsetail-like, outer surface grayish brown or purplish { *Aster tataricus*
紫菀 (3)
- D² Main root without many slender lateral roots, with only tap root.
- E¹ Cross-section with latex (when fresh) and concentric zones of latex vessels.....
..... { *Taraxacum mongolicum* (a)
Taraxacum officinale
蒲公英 (根) (6)
- E² Not as above.
- F¹ Regular slender vertical root, grayish brown; cross section with thick bark, central cylinder with radiately arranged

..... { *Dipsacus asper*
川續斷 (31)

F² Irregular elliptical or radish-like short root, purplish red; cross-section with thin bark and central cylinder with large pith and lax vascular bundles, with reddish brown scars (not calcium oxalate crystals)..... { *Gynura pinnatifida*
三七(土三七) (鮮品) (5)

B¹ Head with all tubular flowers.

D¹ Not pressed, brilliant reddish yellow, with quite prominent yellow anthers { *Carthamus tinctorius*(a)
草紅花 (8)

D² Pressed into square plate, dark red, with light reddish brown anthers, but not prominent.....
 { Carthamus tinctorius (b)
 { 板紅花 (8)

D¹ Only flower-heads used, 0.2-0.4 cm. in diam., receptacle with white hairs, with strong unpleasant odour..... { *Artemisia Sieversiana*
北京野菊花 (白蒿) b (11)

E¹ All parts with white soft woolly hairs, scape
purplish brown, with only one flower-head
at the tip..... { *Saussurea gnaphaloides*
雪蓮花 a (12)

- E² All parts without white soft woolly hairs,
stem-tip with large membranous involucre
bracts and many flower heads.....
..... { *Saussurea involucrata* var?
 { 雪蓮花 b (12)
- B² Heads with marginal ligulate flowers and central tubular
flowers, receptacle naked; aromatic.
- C¹ Expanded flower-heads used.
- D¹ Involucre scarious.
- E¹ Ray flowers white and disk flowers yellow
or light yellow.
- F¹ Disk flowers many and prominent
..... { *Chrysanthemum sinense* f. *dulcis*
 { 杭菊花 a (10)
- F² Disk flowers few and not prominent.
- G¹ Involucre dark green to brown
..... { *C. sinense* f. *Tsuchow*
 { 滁菊花 c (10)
- G² Involucre light green and light
brown..... { *C. sinense* f. *alba*
 { 懷菊花 b (10)
- E² Both ray and disk flowers yellow.....
..... { *C. indicum* f. *amara*
 { 黃菊花 (10)
- D² Involucre not scarious.
- E¹ Ray flowers blue to light blue, one-seriate
..... { *Aster altaicus*
 { 祁州野菊花 (鐵桿蒿) a (11)
- E² Ray flowers yellow, several-seriate.....
..... { *Inula britannica* (a)
 { 旋覆花 (9)
- C² Unexpanded flower buds used, brush-like, 2-3 together,

enclosed with purplish red scaly involucre.....

..... { *Tussilago Farfara*
款冬花 (7)

A³ Leaves mixed with stems.

B¹ Leaves 28-32 cm. long and 12-16 cm. broad, cordate at base, spiny undulate at the margin; not aromatic.....

..... { *Arctium Lappa* (b)
大夫葉 (24) (Appen.)

B² Leaves less than 6. cm. long and less than 5 cm. broad, divided or not divided, aromatic.

C¹ Leaves alternate, pinnatifid to bipinnatifid, soft and slight scabrous, dark green above, grayish white beneath.

D¹ Leaf-segments entire, linear, incisely-lobed, acuminate..... { *Artemisia vulgaris* var.? (a)
祁州山艾 a (13)

D² Leaf-segments lanceolate to ovate-elliptical.

E¹ Leaves trilobed, in the leaf axils, longpetioled, segments lanceolate to long elliptical.....

..... { *Artemisia vulgaris* var.? (c)
北京蕪艾 c (13)

E² Not as above.....

..... { *Artemisia vulgaris* var.? (b), (d)
祁州蕪艾 b (13)
北京蕪艾 d (13)

C² Leaves opposite, simple to trifoliate compound, dark green above, light green beneath.

D¹ Leaves, simple, tripartite or trifoliate compound or irregularly lobed, segments or lobes lanceolate to linearlanceolate; without glands.....

..... { *Eupatorium japonicum*
佩蘭葉 (14)
Eupatorium stoechadosmum
蘭草葉 (14)

- D² Leaves simple, rarely lobed, lanceolate, hairy beneath; with glands..... { *Eupatorium Lindleyanum*
澤蘭葉 (14)

A⁴. Herbs.B¹ Not with flowers and fruits.C¹ Aromatic; leaves bi-tri-pinnatifid.

- D¹ Leaf-segments lanceolate, greenish on both sides
..... { *Artemisia annua*
青蒿 (16)

- D² Leaf-segments filiform, pubescent
..... { *Artemisia capillaris* (a)
茵陳蒿 (15)

C² Not aromatic; leaves long elliptical, dentate, clasping.

- D¹ Dry whole plant collected before flowering (with neither flowers nor fruits), with *Patrinia*-like odour
..... { *Sonchus arvensis* (a)
祁州小薊 (1) b (22), 敗醬草 (1) (23)

- D² Young sprouts collected in the spring, fried with oil and salt; with bitter taste
..... { *Sonchus arvensis* (b)
苣荬菜(敗醬菜) (1) (23)

B² With flowers and fruits.

- C¹ All ligulate flowers yellow; leaves radical runcinate; involucre with dark purple horned or auriculate appendages at tip..... { *Taraxacum mongolicum* (b)
蒲公英草 (6)

C² All flowers tubular.

- D¹ Leaf-margin spiny; heads more than 1 cm. in diam..... { *Cirsium* spp. et *Sonchus arvensis*
大薊與小薊 (22)

- D² Leaf-margin not spiny; heads less than 1 cm. in diam.

- E¹ Woolly throughout, head 2-3 mm. in diam.; flowers golden yellow, many aggregated, terminal..... { *Gnaphalium multiceps*
佛耳草 (20)