

# Research on Chinese Functional Food Containing Ginseng

Yi Dang

*Beijing University of Chinese Medicine*

Ginseng (*Radix Ginseng*) is the root of *Panax ginseng* C.A Mey (family *Araliaceae*), which is chiefly produced in Jilin, Liaoning and Heilongjiang provinces in China. The cultivated ginseng is called 'garden ginseng' while the wild is known as 'mountain ginseng'. Cultivated ginseng is harvested in autumn, dried in the sun or roasted, which is called 'sun-dried ginseng', or dried after being steamed, known as 'red ginseng', or soaked in syrup, known as 'sugar-processed ginseng'. The fibrous rootlets are known as ginseng rootlets. Wild ginseng dried in the sun is known as sun-cured wild ginseng.

Ginseng (*Radix Ginseng*) has been one of the most popular herbs for maintaining health in China. According to the theory of Chinese medicine, ginseng can be used to replenish the primordial qi, restore pulse and treat collapse, tonify the spleen and lung, promote the production of body fluid to quench thirst, tranquillise the mind and improve mental power.

Many modern studies on pharmacology and clinic performance of ginseng have stated that Ginsenosides has the functions in increasing human body immunity, anti-aging regulating blood lipid and regulating blood pressure, etc.

## The Current Status of Functional Food Containing Ginseng in China

Functional food is the food with special functions for health care. Functional food is suitable for use by special groups of people to improve their body functions but it is not aimed at treating diseases [1].

There was no ginseng among the 77 items of dietetic Chinese medicine approved by Chinese government, although it is one of the most common used herbs related to immune regulation, anti-aging, etc. [2] (See Table 1)

Ginseng was not among the 77 items of dietetic Chinese medicine approved by the Chinese government. However, it had been used as the ingredients of functional foods by many food factories in China which have often been approved by the government. In order to dissolve this con-

**Table 1.** The items of dietetic Chinese medicine approved by the Chinese government

Fushe* (Pallas Pit Viper)**	Danzhuye (Lophatherum He)	Gegen (Kudzuvine Root)	Pugongying (Dandelion)
Xiebai (Longstamen Onion Bulb)	Longyanrou (Longan Aril)	Baihe (Lily Bulb)	Muli (Oyster Shell)
Rougui (Cassia Bark)	Jineijin (Chicken's Gizzard-skin)	Juhong (Red Tangerine Peel)	Honghua (Safflower)
Dingxiang (Clove)	Juhua (Chrysanthemum Flower)	Sangye (Mulberry Leaf)	Heye (Lotus Leaf)
Zisuye (Perilla Leaf)	Sharen (Villous Amomum Fruit)	Bajiaohuixiang (Chinese Star Anise)	Daidaihua (Orange Fruit)
Qingguo (Chinese White Olive)	Huomaren (Hemp Seed)	Mugua (Common Floweringqince Fruit)	Xiangyuan (Citron Fruit)
Foshou (Finger Citron)	Shanzha (Hawthorn Fruit)	Xiaohuixiang (Fennel)	Zhizi (Cape Jasmine Fruit)
Shaji (Seabuckthorn Fruit)	Maiya (Germinated Barley)	Dazao (Chinese Date)	Gouqizi (Barbary Wolfberry Fruit)
Luohanguo (Grosvenor Momordica Fruit)	Sangshen (Mulberry Fruit)	Wumei (Smoked Plum)	Hujiao (Pepper Fruit)
Juju (Chicory Herb)	Xiangru (Haichow Elsholtzia Herb)	Bohe (Peppermint)	Guanghuoxiang (Cablin Patchouli Herb)
Machixian (Purslane Herb)	Fengmi (Honey)	Chenpi (Dried Tangerine Peel)	Huajiao (Pricklyash Peel)
Fuling (Indian Bread)	Baizhi (Dahurian Angelica Root)	Gancao (Liquorice Root)	Gaoliangjiang (Lesser Galangal Rhizome)
Shanyao (Common Yam Rhizome)	Baimaogen (Lalang Grass Rhizome)	Lugen (Reed Rhizome)	Shengjiang (Fresh Ginger)
Xingren (Apricot Seed)	Daodou (Jack Bean)	Juemingzi (Cassia Seed)	Yiyiren (Coix Seed)
Qianshi (Gordon Euryale Seed)	Baiguo (Ginkgo Seed)	Baibiandou (White Hyacinth Bean)	Roudoukou (Nutmeg)
Lianzi (Lotus Seed)	Taoren (Peach Seed)	Chixiaodou (Rice Bean)	Yuliren (Chinese Dwarf Cherry Seed)
Laiфуzi (Radish Seed)	Heizhima (Black Sesame)	Huangjiezi (Yellow Mustard Seed)	Dandouchi (Fermented Soybean)
Feizi (Grand Torreya Seed)	Suanzaoren (Spine Date Seed)	Kunbu (Kelp or Tangle)	Wushaoshe (Black Snake)
Yuganzi (Emblic Leafflower Fruit)	Jinyinhua (Honeysuckle Flower)	Yuxingcao (Heartleaf Houttuynia Herb)	Yizhi (Sharpleaf Glangal Fruit)
Pangdahai (Boat-fruited Sterculia Seed)			

\*Chinese name; \*\*English name

**Table 2.** Frequency of Appearance of the herbs or foods in the Approved Functional Food Products (top 30 highest frequencies) [3]

Frequency of Appearance	The Herbal Medicine or Foods Used in the Functional Food
200-470	Gouqizi (Barbary Wolfberry Fruit) Shanzha (Hawthorn) Dazao (Chinese Date)
100-199	Fuling (India Bread), Xiyangshen (American Ginseng), Fengmi (Honey) Lingzhi (Glossy Ganoderma) Renshen (Ginseng) Huangqi (Astragalus) Shanyao (Chinese Yam) Longyanrou (Longan Aril) Dadou (Soybean) Dongchongxiacao (Chinese Caterpillar Fungus) Luoxuanzao (Spirulina) Juhua (Chrysanthemum flower)
70-99	Damaiya (Germinated Barley) Honghua (Safflower) Sangshen (Mulberry fluid) Niunai (Milk) Lucha (Green Tea) Juemingzi (Cassia Seed) Yiyiren (Coix Seed) Yuyou (Fish Oil) Heshouwu (Fleeceflower Root)
50-69	Jiaogulan (Fiveleaf Gynostemma) Chenpi (Dried Tangerine Peel) Xianggu (Mushroom) Danggui (Chinese Angelica) Yinxingye (Ginkgo Leaf) Rougui (Cassia Bark) Mayi (Ant) Jirou (Chicken), etc.

controversial situation, we supported by the Ministry of Public Health, started to evaluate this issue from 1999.

Among over 2000 kinds of approved functional food products by the government, the frequency of appearance of American Ginseng (Xiyangshen) or Ginseng (Renshen) is the same as that of the herbs in the 77 items, e.g. India Bread (Fuling), Honey (Fengmi), Glossy Ganoderma (Lingzhi), Chinese Yam (Shanyao), Longan Aril (Longyanrou), Soybean (Dadou), and Chrysan-

**Table 3.** The newly added 11 items of dietetic Chinese medicine approved by the Chinese government in 2002

	Chinese Name	Latin Name
1	Xiaoji	Herba Cirsii
2	Yuzhu	Rhizoma Polygonati Odorati
3	Baibiandouhua	Flos Lablab Album
4	Ajiao	Colla Corii Asini
5	Maiya	Fructus Hordei Germinatus
6	Zhijuzi	Fructus seu semen Hoveniae
7	Jiegeng	Radix Platycodi
8	Huangjing	Rhizoma Polygonati
9	Zisuzi	Fructus Perillae
10	Huaimi	Flos Sophorae
11	Huaihua	Flos Sophorae

themum flower (Juhua). (see Table 2).

In May 2002, the Chinese government issued a new list of a supplement of the 77 items of dietetic Chinese medicine. Besides the 77 items (Safflower is canceled) approved previously, 11 new herbs are added in which ginseng was nevertheless excluded (See Table 3).

At the same time, the Chinese government issued another 114 items which were allowed to be used as the ingredients of the functional food. Fortunately, Ginseng was among the new list (See table 4). That is, even though ginseng is not dietetic Chinese medicine (can be taken as food), it can be taken as a herb to be used in the functional food production according to the document provided by the Ministry Public Health, The People's Republic of China.

**Table 4.** 114 items allowed to be used as ingredients of the functional food issued by the Chinese government

	Chinese Name	Latin Name
1	Renshen	Radix Ginseng
2	Renshenye	Folium Ginseng
3	Renshenguo	Fructus Ginseng
4	Sanqi	Radix Notoginseng
5	Tufuling	Rhizoma Smilacis Glabrae
6	Daji	Herba seu Radix Cirsii Japonici
7	Nuzhenzi	Fructus Ligustri Lucidi
8	Shanzhuyu	Fructus Corni
9	Chuanniuxi	Radix Cyathulae
10	Chuanbeimu	Bulbus Fritillariae Cirrhosae
11	Chuanxiong	Rhizoma Chuanxiong
12	Malutai	Fetus Cervi

**Table 4.** Continued

	Chinese Name	Latin Name
13	Malurong	Cornu Cernu Pcuntotrichum
14	Malugu	Os Cervi
15	Danshen	Radix Salviae Miltorrhizae
16	Wujiapi	Cortex Acanthopanax Giraldui
17	Wuweizi	Fructus Schisandrae
18	Shengma	Rhizoma Cimicifugae Dahuricae
19	Tianmendong	Radix Asparagi
20	Tianma	Rhizoma Gastrodiae
21	Taizishen	Radix Pseudostellariae
22	Bajitian	Radix Morindae Officinalis
23	Muxiang	Radix Aucklandiae
24	Muzei	Herba Equiseti Hiemalis
25	Niubangzi	Fructus Arctii
26	Niubanggen	Radix Arctii
27	Cheqianzi	Semen Plantaginis
28	Cheqiancao	Herba Plantaginis
29	Beishashen	Radix Glehniae
30	Pingbeimu	Bulbus Fritillariae Ussuriensis
31	Xuanshen	Radix Scrophulariae
32	Shengdihuang	Radix Rehmanniae
33	Shengheshouwu	Radix Polygoni Multiflori
34	Baiji	Rhizoma Bletillae
35	Baizhu	Rhizoma Atractylodis macrocephalae
36	Baishao	Radix Paeoniae Rubrae
37	Baidoukou	Fructus Amomi kravanh
38	Shijueming	Concha Haliotidis
39	Shihu	Herba Dendrobii
40	Digupi	Cortex Lycii
41	Danggui	Radix Angelicae Sinensis
42	Zhuru	Caulis Bambusae in Taenia
43	Honghua	Flos Carthami
44	Hongjingtian	Rhizoma Rhodiolae
45	Xiyangshen	Radix Panacis Quinquefolii
46	Wuzhuyu	Fructus Evodiae
47	Huainiuxi	Radix Achyranthis Bidentatae
48	Duzhong	Cortex Eucommiae
49	Duzhongye	Folium Eucommiae
50	Shayuanzi	Semen Astragali Complanati
51	Mudanpi	Cortex Moutan
52	Luhui	Aloe
53	Cangzhu	Rhizoma Atractylodis
54	Buguzhi	Fructus Psoraleae

Table 4. Continued

	Chinese Name	Latin Name
55	Kezi	Fructus Chebulae
56	Chishao	Radix Paeoniae Rubra
57	Yuanzhi	Radix Polygalae
58	Maimendong	Radix Ophiopogonis
59	Guijia	Carapax et Plastrum Testudinis
60	Peilan	Herba Eupatorii
61	Cebaiye	Cacumen Platycladi
62	Zhidahuang	Radix et Rhizoma Rhei Preparata
63	Zhiheshouwu	Radix Polygoni Multiflori Preparata
64	Ciwujia	Radix et Caulis Acanthopanax Senticosi
65	Cimeiguo	Fructus Rosae Davuricae
66	Zelan	Herba Lycopi
67	Zexie	Rhizoma Alismatis
68	Meiguihua	Flos Rosae Rugosae
69	Meiguiqie	Calyx Hibisci Sabdariffae
70	Zhimu	Rhizoma Anemarrhenae
71	Luobuma	Folium Apocini Veneti
72	Kudingcha	Folium Ilicis kudingchae
73	Jinqiaomai	Rhizoma Fagopyri Dibotryis
74	Jinyingzi	Fructus Rosae Laevigatae
75	Qingpi	Pericarpium Citri Reticulatae Viride
76	Houpo	Cortex Magnoliae Officinalis
77	Houpohua	Flos Magnoliae Officinalis
78	Jianghuang	Rhizoma Curcumae longae
79	Zhiqiao	Fructus Aurantii
80	Zhishi	Fructus Aurantii Immaturus
81	Baiziren	Semen Platycladi
82	Zhenzhu	Margarita
83	Jiaogulan	Herba Gynostemmae
84	Huluba	Semen Trigonellae
85	Qiancao	Radix Rubiae
86	Bibo	Fructus Piperis Longi
87	Jiucaizi	Semen Allii Tuberosi
88	Shouwuteng	Caulis Polygoni Multiflori
89	Xiangfu	Rhizoma Cyperi
90	Gusuibu	Rhizoma Drynariae
91	Dangshen	Radix Codonopsis
92	Sangbaipi	Cortex Mori
93	Sangzhi	Ramulus Mori
94	Zhebeimu	Bulbus Fritillariae Thunbergii
95	Yimucao	Herba Leonuri
96	Jixuecao	Herba Centellae

**Table 4.** Continued

	Chinese Name	Latin Name
97	Yinyanghuo	<i>Herba Epimedii</i>
98	Tusizi	<i>Semen Cuscutae</i>
99	Yejuhua	<i>Flos Chrysanthemi Indici</i>
100	Yinxingye	<i>Folium Ginkgo</i>
101	Huangqi	<i>Radix Astragali</i>
102	Hubeibeimu	<i>Bulbus Fritillariae Hupehensis</i>
103	Fanxieye	<i>Folium Sennae</i>
104	Gejie	Gecko
105	Yueju	<i>Fructus Vaccinii</i>
106	Huaishi	<i>Fructus Sophorae</i>
107	Puhuang	<i>Pollen Typhae</i>
108	Jili	<i>Fructus Tribuli</i>
109	Fengjiao	Propolis
110	Suanjiao	<i>Fructus Tamarindus indici</i>
111	Mohanlian	<i>Herba Ecliptae</i>
112	Shudahuang	<i>Radix et Rhizoma Rhei Preparata</i>
113	Shudihuang	<i>Radix Rehmanniae Preparata</i>
114	Biejia	<i>Carapax Trionycis</i>

### **The Applications of Gingseng in Health Maintenance and Clinic According to the Theory of Chinese Medicine**

According to the theory of Chinese medicine, the properties of ginseng are sweet and slightly bitter in flavour, neutral in property, acting on the spleen, lung and heart meridians. In the clinic, the main indications of ginseng are as following:

- ▶ For prodromal symptoms of prostration syndrome due to extreme deficiency after a severe or prolonged illness, massive hemorrhage, hyperemesis or diarrhea, it can be used alone in large dosage and in a thick decoction for oral use, i.e Ginseng Decoction.
- ▶ For listlessness, lassitude, anorexia, feeling of fullness and stiffness in the upper abdomen, diarrhea and others due to deficiency of the spleen-qi, and general weakness due to deficiency of qi of various causes, it is often prescribed with white atractylodes (bai zhu), poria (fu ling) and stir-baked liquorice (zhi gan cao).
- ▶ For cough, short breath, feeble pulse, spontaneous sweating and others due to deficiency of the lung-qi, it is usually used with walnut kernel, schisandra fruit (wu wei zi) and gecko (ge jie).

- ▶ For consumption of both qi and body fluid with manifestations of short breath, thirst, profuse sweat and feeble and thready pulse in febrile diseases, it is often given with ophiopogon root (mai men dong) and schisandra fruit (wu wei zi).
- ▶ For the treatment of diabetes with thirst and polyuria, it is often used with the herbs which can tonify yin and promote the production of body fluid.
- ▶ For irritability, insomnia, dreaminess, palpitation induced by fright, forgetfulness, listlessness, lassitude and others due to deficiency of both the heart and spleen, it is often used with Chinese angelica root (dang gui), wild jujube seed (suan zao ren) and longan aril (long yan rou).
- ▶ For deficiency of both qi and blood, it is often used with prepared rehmannia root (shu di huang). For deficiency of the blood, it is often used with blood tonics like Chinese angelica root (dang gui),
- ▶ For maintaining health: 1) Ginseng and Chinese date (dazao), make as tea with boiling water, to tonify the primary qi, calm the mind. 2) Ginseng and Smoked plum (wumei), make as tea with boiling water, to produce body fluid and quench thirst. 3) Ginseng and Honeysuckle flower (jinyinhua) and Chinese Magnoliavine Fruit (wuweizi), make as tea with boiling water, to replenish qi, nourish yin, clear lung heat. 4) Ginseng, Poria (fuling) and Spina Date Seed (suanzaoren), make as tea with boiling water, to reinforce qi, nourish the heart, calm the mind and relieve palpitation. 5) Ginseng and Barbary Wolfberry Fruit (Gouqizi), make as tea with boiling water, to warm the kidney, invigorate yang [4].

It should not be prescribed in case of excess syndrome and heat syndrome without deficiency of the vital qi. Ginseng should not be used together with black hellebore (li lu), trogopteris (wu ling zhi) and honey locust (zao jia). Radish and tea should be avoided in the period when ginseng is used to avoid any reduction of the efficacy of herbal medicine [5].

## References

1. The Ministry of Public Health of the Peoples Republic of China, Measures of Functional Food Administration, Beijing, 1996.
2. Department of Hygiene Supervision of the Ministry of Public Health of the Peoples Republic of China, Collection of Administration Laws of the Functional Food, Jilin: Jilin Science and Technology Publishing House, 1997.



3. Yi Dang, the development and research of Functional food Related to Chinese Herbal Medicine, Beijing: the Peoples Medical Publishing House, Beijing, 2002.
4. Yi Dang, Chinese Health Tea, Beijing: New World Press, 1999.
5. Yi Dang, What is the Best Way to Take Ginseng, Tai Wan: Yuan Qi Zhai Press, 1995.
6. Yi Dang, Science of Nutrition Food Therapy of Chinese Medicine, Beijing, Science Publishing House, 1995.