

Review Article

Agriculture High-Quality Development and Food Security

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Abstract

In traditional Chinese medicine, the concept of “food and medicine sharing the same origin” or “medicine and food sharing the same origin” has a long history. This concept refers to certain substances that can be used both as food and as medicine, possessing the nutrition and safety of food, while also having the functions of health care and disease prevention. Since 2017, China has proposed the concept of high-quality development. To achieve high-quality development, both food and food with medical functions need high-quality ingredients and authentic food. Therefore, guided by the theories of resource utilization limits, vegetation carrying capacity and the critical period of plant resource relationship regulation, we need to make rational use of natural resources accelerate the high-quality development of agriculture, produce more high-quality agricultural products, and meet the people's aspiration for a better life, high-quality agricultural products and health.

Keywords: Critical period of plant resource relationship regulation; Food; High-quality agricultural products; High-quality development of agriculture; Medicine; Resource utilization limits; Vegetation carrying capacity

Introduction

In traditional Chinese medicine, the concept of “food and medicine sharing the same origin” or “medicine and food sharing the same origin” has a long history. This concept refers to certain substances that can be used both as food and as medicine, possessing the nutrition and safety of food, while also having the functions of health care and disease prevention. In the “Taisu” of the “Huangdi Neijing”, it is

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recorded: “When eaten on an empty stomach, it is food; when eaten by a patient, it is medicine.” This is the origin of the idea of “food and medicine sharing the same origin”. In the ancient Shennong era, while people were searching for food, they discovered that many foods could be used for medicinal purposes and many medicines could also be eaten. The boundaries between the two were not clear, and both had “four natures” and “five flavors”.

High-Quality Ingredients

High-quality nutrient ingredients is the food, agriculture produce that have the high-quality nutrient ingredients, which is best for people's health. Such as Yam, Poria cocos, Lotus, Coix seed and so on.

Yam

Yam (*Dioscorea oppositifolia* L.), originally named “shuyu”, originated in China and was first mentioned in “Shan Hai Jing - Bei Shan Jing”. It is a traditional food and medicine with a long history. Yam is a plant of the genus *Dioscorea* in the *Dioscoreaceae* family, a twining herbaceous vine. The tubers are long and cylindrical, growing vertically. The stem is usually purplish red, right-handed and hairless. Simple leaves, alternate at the lower part of the stem, opposite above the middle. The male inflorescences are spike inflorescences, 2 to 8cm long, nearly upright, and 2 to 8 solitary in the axils of the leaves. The capsule does not fold back. The seeds are borne in the middle of the central axis of each chamber. The flowering period is from June to September, and the fruiting period is from July to November.

Yam is Distributed in North Korea, Japan and China such as in Henan, Anhui, Jiangsu, Zhejiang, Jiangxi, Fujian, Taiwan, Hubei, Hunan, Guangdong, Guizhou, northern Yunnan, Sichuan, eastern Gansu and southern Shaanxi in China. It grows in the thickets or among the weeds on hillsides, in the undergrowth of valleys, by streams or along roadsides.

Poria cocos

Poria cocos is a kind of fungus that parasitizes on pine trees. It usually grows from the roots of pine trees and needs to obtain nutrients through parasitism to grow. Its outer skin is dark brown, its shape is similar to sweet potatoes, and its interior is white. It has high nutritional value. Poria cocos is mainly distributed in China, America, Oceania, Japan and some countries in Southeast Asia. The outer skin of poria cocos is dark brown and its shape is somewhat like that of sweet potatoes. The inside is white or pink. It is usually dug up from July to September. After being dug out, the sand and mud should be removed, and it should be piled up to sweat and then dried. This process should be repeated to allow the moisture to dry in the shade. The nature of poria cocos is sweet, light and neutral, and it enters the heart, lung and spleen meridians. It has the functions of promoting diuresis and eliminating dampness, strengthening the spleen and harmonizing the stomach, calming the mind and soothing the spirit.

When combined with various ingredients, poria cocos can be made into poria cocos paste, poria cocos yogurt and other delicious foods,

which are both tasty and healthful. Ingredients with the functions of tonifying the spleen and stopping diarrhea, benefiting the kidneys and consolidating essence, and nourishing the heart and calming the mind are suitable for patients with spleen deficiency, diarrhea and kidney deficiency.

Lotus

Lotus, an aquatic herb of the Nymphaeaceae family, has many parts that can be used as medicine. In traditional Chinese medicine, its mature seeds are called lotus seeds, the green embryo in the middle of the seeds is called lotus heart, the stamens of the lotus are called lotus whiskers, the leaves are called lotus leaves, the petioles and flower petioles are called lotus stems, and the lotus pod is called lotus room in traditional Chinese medicine, which means the lotus pod is beautiful. Because each part of the lotus is used as medicine in different ways so its functions and indications are also different. Lotus seeds have the functions of strengthening the spleen and stopping diarrhea. They are mainly used for diarrhea caused by spleen deficiency. They also have the effect of nourishing the heart and calming the mind. For instance, when patients are irritable, have palpitations or insomnia, lotus seeds can be used. Additionally, they have the function of benefiting the kidneys and consolidating essence. They can be used for conditions such as spermatorrhea, metrorrhagia and leucorrhea. Lotus seed heart is a medicine that can clear the heart and relieve irritability. It is mainly used to treat febrile diseases, irritability and fever, and confusion. Lotus root has the effects of clearing the heart and strengthening the kidneys, astringing essence and stopping bleeding. It can be used to treat nocturnal emission, spermatorrhea, frequent urination, enuresis, as well as bleeding symptoms such as metrorrhagia and hematemesis. This lotus leaf is a medicine that can clear heat, promote diuresis, raise Yang and stop bleeding. Lotus leaves can be used to treat summer dampness and spleen deficiency diarrhea, as well as various bleeding symptoms. The lotus stem is a herb that regulates qi and broadens the chest, and can be used to treat chest tightness and shortness of breath after experiencing summer dampness. Lianfang is a medicine for removing blood stasis and stopping bleeding. It can be used for symptoms such as blood stasis, various bleeding conditions, and various rectal prolapse. When stopping bleeding, it works better when stir-fried into charcoal. Lotus seeds: Moderate consumption of lotus seeds not only enhances the body's resistance but also has a certain strengthening effect on the heart.

Coix Seed

Coix seed is the kernel of *Euryale ferox* salisb, a plant of the Nymphaeaceae family and the genus *Euryale*. Also known as chicken head rice, it is neutral in nature and has a sweet and astringent taste. Rich in nutrition and with nourishing effects. It has a remarkable anti-cancer effect, can enhance immunity and reduce the risk of cancer.

Hawthorn

Hawthorn (*Crataegus pinnatifida* Bunge), also known as mountain fruit or mountain red, belongs to the genus *Crataegus* of the Rosaceae family. It is a deciduous tree that can grow up to 6 meters tall.

Stone fruits have hard seeds, thin flesh and a slightly sour and astringent taste. The fruit can be eaten raw or made into preserved fruit cakes. After being dried, it can be used as medicine. It is a unique tree species in China that is both medicinal and fruity. It has the functions of lowering blood lipid and blood pressure, strengthening the heart,

and preventing arrhythmia. It is also a good medicine for invigorating the spleen, stimulating appetite, aiding digestion, promoting blood circulation and eliminating phlegm. It has a good therapeutic effect on chest, diaphragm and spleen fullness, hernia, blood stasis and amenorrhea. Vitexin, a flavonoid compound in hawthorn, is a drug with a strong anti-cancer effect. Its extract has a certain effect on inhibiting the growth, proliferation, invasion and metastasis of cancer cells in the body. Hawthorn is not only an excellent fruit but also has great practical value. The main benefits and functions of drinking hawthorn water are:

Aiding Digestion: The various acidic substances in hawthorn, such as citric acid and malic acid, can promote gastric juice secretion and increase

Drinking hawthorn water can also replenish water for the body to a certain extent.

The active ingredients such as hawthorn acid contained in hawthorn can accelerate the body's metabolic rate, consume excess fat and help with weight loss.

Hawthorn contains various vitamins and organic acids, which can provide nutrients for the body, enhance the body's resistance and strengthen the body's resistance to diseases.

The active ingredients in hawthorn can promote blood circulation and relieve discomforts such as dysmenorrhea and postpartum blood stasis caused by blood stasis. For women, drinking an appropriate amount of hawthorn water can help regulate menstruation and alleviate dysmenorrhea and other issues.

Astragalus Membranaceus

Astragalus membranaceus, also known as Qi, cotton Qi, blood ginseng, and raw qi, is warm in nature, sweet in taste, and enters the lung and spleen meridians. Its functions include tonifying qi and consolidating the exterior, promoting diuresis, eliminating toxins and discharging pus, and healing sores and promoting muscle growth. Indications: It can be used for qi deficiency and fatigue, poor appetite and loose stools, middle qi sinking, long-term diarrhea and rectal prolapse, hematochezia and metrorrhagia, spontaneous sweating due to exterior deficiency, qi deficiency edema, difficult ulceration, long-term ulceration without healing, blood deficiency and pallor complexion, internal heat and polydipsia, chronic nephritis, proteinuria, diabetes. Dosage and Administration: 3-5 qi an each time. For large quantities, it can be used up to 1-2 liang. During the medication period, avoid cold and raw foods, tobacco, alcohol and strong tea. It is contraindicated for newborns and infants, those with a history of allergies, and those with damp-heat in the spleen and stomach.

Codonopsis Pilosula

Codonopsis pilosula (*Codonopsis pilosula* (Franch.) Nannf. Franch.), commonly known as *Codonopsis pilosula*, is a perennial herb of the Campanulaceae family and the genus *Codonopsis*. It contains milk. The base of the stem is covered with numerous tuberosus stem scars. The roots are often thick and spindle-shaped or spindle-cylindrical. The stem is entwined, sterile or has flowers at the tip, which are yellowish green or yellowish white. The leaves are alternate on the main stem and lateral branches. The petioles have sparse short bristles. The leaves are ovate or narrowly ovate, with wavy blunt serrations along the edges. The upper part is green and the lower part

is grayish green. The flowers are solitary at the tip of the branch, alternate or nearly opposite to the petioles. The corolla is elevated. Broad bell-shaped, with equilateral triangular lobes, long anthers, numerous seeds, ovate, flowering and fruiting from July to October.

It is produced in the mountain forest edges and shrublands at an altitude of 1,560 to 3,100 meters in northern China. *Codonopsis pilosula* is a commonly used traditional tonic in China. In ancient times, the *Codonopsis pilosula* produced in the Shangdang area of Shanxi Province was regarded as the best quality. It has the functions of tonifying the middle and benefiting qi, strengthening the spleen and benefiting the lungs. *Codonopsis pilosula* has the functions of enhancing immunity, dilating blood vessels, lowering blood pressure, improving microcirculation and strengthening hematopoietic function. In addition, it has an enhancing effect on the decrease of white blood cells caused by chemotherapy and radiotherapy.

Saskatoon Berry

Saskatoon berry (*Amelanchier alnifolia* Nutt.) is a pome fruit-bearing shrub native to the North American prairies. First, it is transferred to plant in Liaoning, China in 1997 and then be introduced to plant in Guyuan, China in 2008 because Saskatoon berries fruit are good sources of many bioactive phenolic components, such as flavonols, anthocyanins, procyanidins, and phenolic acids. As much as 382mg/100g based on fresh weight of anthocyanins, Anthocyanin- and flavonoid-rich foods have been demonstrated to have a beneficial protective function in combating certain cancers, inflammation and cardiovascular diseases, type II diabetes, obesity, and age-related macular degeneration, see figure 1.



Figure 1: Better fruit, Saskatoon berries grown in the Shanghuang Eco-experimental station.

Red Plum Apricot

Red plum apricot tree is a small tree and grows well. The shape of red plum apricot fruit is about round and looks beautiful, see figure 2. The fruit weight of red plum apricot per single fruit weight is about 40 -56g. The apricot is rich in juice, soluble solids content (14.3%), potassium (410.8mg per 100g), selenium and Vc (8.3mg per 100g). The potassium content of red plum apricot is higher than that of apple (*Malus pumila* Mill), pear (*Pyrus bretschneideri* Rehd), peach (*Amygdalus persica* L) and grape (*Vitis vinifera* L).

Corn

Corn is a native to Central and South America and now it is now grown all over the world. Corn contains rich vitamin, which are five times more vitamin for rice, wheat, which has the highest percentage



Figure 2: Better fruit red plum apricot grown in the Shanghuang Eco-experimental station.

of the content of vitamin A, every one hundred grams 63 micrograms of content, and the researchers point out that vitamin A is very beneficial to people's eyes. A nutritional factor, corn, with its powerful antioxidant to protect vision effect, and absorb harmful to the eyes of the useless components. Corn prevent obesity and constipation corn contains rich plant cellulose is not easy to be absorbed by the body, it can stimulate gastrointestinal peristalsis, promote fecal excretion. Corn can restrict the absorption of excessive sugar in the body, inhibit the increase of blood sugar in the body after dinner; Fiber can also inhibit fat absorption. Corn can help people prevent obesity, but also can help people lose weight, to achieve the effect of beauty and thin body. One of the nutrients in corn is niacin, which plays an important role in the metabolism of fat and sugar and helps us maintain a healthy digestive system and healthy skin. Corn can prevent heart disease and cancer in the corn in addition to contain carbohydrates, carotene these common elements, it also contains vitamins and riboflavin, and nutritional factors contained in the corn, absorbed by the body and then transformed into has anti-cancer effects of vitamin, corn and rich plant fiber, it can make effective discharge carcinogens and other poisons, it also has the effect of stimulating the brain to enhance one's brain power and memory. In addition, selenium and magnesium contained in corn also have good anti-cancer effects. They can accelerate the decomposition of peroxides in the body, which can inhibit the growth and division of cancer cells, so that cancer cells are inhibited, and can also promote the discharge of waste in the body, which is also good for cancer prevention, see fig.6.the soil water and plant growth was investigate.

Reasonable Formula

Drinking water infused with 5 grams each of hawthorn, *Codonopsis pilosula* and *Astragalus membranaceus* mainly has the effects of tonifying qi and blood, strengthening the spleen and stomach, enhancing immunity, and also helps regulate body functions, tonify Yang and enhance gastrointestinal function. The specific functions are as follows:

Tonifying qi and blood: Hawthorn AIDS digestion and promotes blood circulation. When steeped in water with *Astragalus membranaceus* and *Codonopsis pilosula* for drinking, it can significantly alleviate symptoms such as poor digestive function, chest tightness, and flatulence. Moderate consumption can help tonify qi and blood.

Strengthening the spleen and stomach: Hawthorn, *Codonopsis pilosula* and *Astragalus membranaceus* are all natural tonic herbs. Drinking water infused with them can enhance physical fitness, strengthen the spleen and benefit qi, and thereby improve the body's immunity.

Boosting immunity: The combined use of *Astragalus membranaceus*, hawthorn and *Codonopsis pilosula* can enhance heart and lung function, and has a positive effect on preventing respiratory diseases, arrhythmia and circulatory system diseases. It has the effects of tonifying qi and boosting immunity.

Drinking water infused with *Astragalus membranaceus*, *Codonopsis pilosula* and hawthorn can also help regulate body functions, enhance Yang energy and improve gastrointestinal function. Food and medicine are closely related.

The Development Direction of the Integration of Food and Medicine

The development direction of the integration of food and medicine, on the one hand, food enterprises are paying more and more attention to the health factors of food when developing products. At present, many food enterprises have collaborated with research institutions to launch a series of foods with specific nutritional functions, such as low-sugar foods, low-salt foods, and high-fiber foods. These foods can meet the health needs of different groups of people and provide more choices for people's health. On the other hand, the medical industry is also constantly exploring how to use food to assist in the treatment of diseases. For instance, some hospitals will set up nutrition clinics to provide patients with personalized dietary plans. Some medical institutions also collaborate with food enterprises to conduct nutritional intervention research and explore new treatment methods [1-14].

Conclusion

With economic development and the improvement of people's living standards, people's aspiration for a better life and agricultural development and food health has put forward higher requirements for economic and social development. For this reason. In 2017, China put forward new thinking, high-quality development. In order to achieve high-quality development, we should first carry out sustainable use of nature resources and agriculture high-quality development. All food products that exert medical effects need high-quality ingredients and authentic food. Therefore, we need to make rational use of natural resources, guided by the limits of resource utilization, the carrying capacity of vegetation and the limits of plant resources, take effective measures to accelerate the high-quality development of agriculture, produce more high-quality agricultural products, and meet the people's aspiration for a better life and high-quality agricultural products and health.

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