

Research and Development Progress of Passion Fruit Health Function

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Abstract: In recent years, with the continuous development of China's economy and the continuous improvement of people's living standards, the demand for fruits has gradually increased. At the same time, people's requirements have changed from simple palatability to health, and some fruits with health-care effects have been more and more recognized by people. As a kind of fruit growing in the tropics and subtropics, passion fruit has high nutritional and active ingredients. Passion fruit is a rare tropical and subtropical fruit with rich aroma and rich nutrition, and its juice has many health-care effects. Passion fruit itself contains a variety of health functions, which has great potential for product development. If we can effectively and comprehensively utilize this resource and increase the research and development of passion fruit, we will create great economic benefits. By studying the function of passion fruit, we can better develop its value, which is of great significance for expanding the market of passion fruit. Based on this, this paper mainly discusses the health care function and development progress of passion fruit.

1. Introduction

Passion fruit is widely planted in tropical and subtropical areas [1]. It contains 38 kinds of volatile aromatic components of lipids, which makes it have a very strong special fragrance. It is one of the most fragrant fruits known in the world. Its fragrance is rich, sweet, sour and delicious, and it can't be artificially synthesized or imitated. Passion fruit is rich in flavor and has a good calming effect. It can be peeled and eaten raw or squeezed into fresh juice [2]. A cup of fresh passion fruit juice is low in fat (only 1.5g), rich in protein (5.4g) and carbohydrates (56g), and rich in vitamin C, vitamin A, potassium, iron and dietary fiber [3]. Besides serving as a daily dietary requirement, passion fruit can also help relieve anxiety, muscle tension, headache and insomnia. C is an antioxidant, which can reduce the probability of heart disease and cancer [4]. Vitamin A plays an important role in improving people's anti-infection ability and eyesight. Potassium is an electrolyte that helps to maintain the level of body fluids.

Abundant nutrition and active ingredients make Passion Fruit have a very broad market prospect, whether it is eaten as fruit or used as medicine to achieve health care effect, which makes Passion Fruit continuously researched and developed in both sale and processing [5]. By studying the function of passion fruit, we can better develop its value, which is of great significance for expanding the market of passion fruit [6]. With the deepening of the research on its functional active ingredients and health care function, the application range of passion fruit in fruit processing is also expanding. Therefore, the research on passion fruit will be more conducive to promoting the consumption market of passion fruit medicine and health care products, and the huge development value of passion fruit has also stimulated the enthusiasm of researchers for in-depth research [7]. This paper mainly discusses the health care function and development progress of passion fruit. Passion fruit itself contains a variety of health functions, which has great potential for product development. If we can effectively and comprehensively utilize this resource and increase the research and development of passion fruit, we will create great economic benefits.

2. Functions of passion fruit

2.1. Anti-anxiety and sedation

Passion fruit is juicy and has a unique flavor. Besides serving as a daily dietary requirement,

passion fruit can also help relieve anxiety, muscle tension, headache and insomnia [8]. In many western countries, passion fruit is widely used in the development of anti-anxiety and sedative drugs. Passion flower has mild sedative effect and can help promote sleep. It has been used to treat nervous and excitable children, bronchial asthma, insomnia, neurogastrointestinal dysfunction and menopausal problems. The shape of fresh passion fruit is shown in Figure 1.



Figure 1 Fresh passion fruit morphology

Passion fruit has high water content and can quench thirst; Contains substances that relax the human body, so it helps sleep [9]. After extraction and processing, passion fruit can become an anti-anxiety drug without toxic side effects. In addition, passion flower is sometimes used as a mild hallucinogen. Its market prospect is very broad, and it is believed that it can be further developed in the medical field.

2.2. Anti-inflammatory and immunity enhancing functions

After testing, passion fruit, especially its peel, is rich in flavonoids, so it has a very positive effect on anti-inflammation. The anti-inflammatory effects of water extract and n-butanol extract of passion fruit were determined. The results showed that both substances could inhibit the migration of white blood cells, release of pro-inflammatory cytokines and mediators, showing anti-inflammatory effects. Injection of Passion Fruit extract can inhibit the migration of white blood cells, thus achieving the anti-inflammatory effect [10]. Passion fruit is rich in protein and carbohydrates, as well as vitamin C, vitamin A, potassium, iron and dietary fiber. Daily intake of sufficient potassium can help lower blood pressure, maintain muscle energy, relieve joint inflammation, control stroke and relieve headache. Iron helps to improve the energy level of human body, promote sleep and improve immunity. The most important function is to help the oxygen transport in the blood.

2.3. Antioxidant and anticancer functions

Polyphenols contained in passion fruit pulp have good antioxidant properties. Eating passion fruit or its processed products can remove excess free radicals in the body. It plays a protective role in the damage of biological macromolecules induced by free radicals, and plays an important role in the prevention and treatment of biological diseases such as cancer and cardiovascular diseases. A variety of vitamins and antioxidants in passion fruit help to maintain the normal operation of urinary system and intestinal system, and are usually recommended for the treatment of kidney

calculi and other kidney diseases. The study also found that eating one passion fruit a day can keep away from insomnia, and passion fruit is also a cancer killer. Yellow passion fruit extract can kill cancer cells in tissue culture. The phytochemicals that play this role in preventing cancer are carotenoids and polyphenols.

3. Development of passion fruit

3.1. Juice development

Passion fruit and its active ingredients are highly concerned by scholars at home and abroad because of their various biological activities. Passion fruit has many bioactive functions, and fruit processing has become a hot research topic in recent years. With the rapid increase of passion fruit planting area, the yield has also increased rapidly. Table 1 shows the physical characteristic constants of passion fruit.

Table 1 Physical characteristic constants of passion fruit

Variety	Fruit length (mm)	Fruit diameter (mm)	Fruit quality (g)	Peel thickness (mm)
Huang Jinguo	5.82±0.51a	5.95±0.81a	36.75±3.64b	0.62±0.07b
Tai Nong	6.55±0.68b	5.65±0.42a	30.98±4.49a	0.45±0.07a
Zi Guo No.1	6.54±0.55b	5.90±0.65a	32.52±4.33a	0.46±0.08a

Passion fruit has a large fruit and its juice is pale yellow. Because of its rich flavor and excellent taste, passion fruit is popular as a drink. Passion fruit products have the effects of invigorating qi, regulating middle warmer, invigorating spleen and stomach, relieving hangover, promoting salivation, quenching thirst, relieving vexation, stopping vomiting, promoting blood circulation, relieving pain, tranquilizing mind and helping sleep. The fruit juice of passion fruit not only retains its rich nutrition, but also has a juice yield of nearly 50%, and there is stability in the processing process, which provides great convenience for the processing of passion fruit juice, and at the same time makes the processing plan of passion fruit juice have the value of implementation.

3.2. Peel development

The analysis results of processing applicability of passion fruit show that the juice yield of passion fruit pulp is high, but after being squeezed, passion fruit will produce a large number of discarded peels, resulting in a great waste of resources. At present, there are many researches on the extraction of effective components and biological activity of passion fruit, but few on the development of passion fruit peel. In daily life, people usually pay attention to the processing and utilization of passion fruit juice, but 35% ~ 40% of the peels are often discarded or processed into feed, resulting in a certain waste, so many scholars began to try to develop the peels. Through the research on the development of the peel, researchers found that the peel of passion fruit has a very good performance in making jam, preserved fruit and pectin. By adding some additives, very excellent products can be obtained. The peel contains natural pigment and fruit flavor, so there is no need for artificial coloring and flavoring. Through peel development, not only the economic value of passion fruit is increased, but also unnecessary waste is reduced, which greatly improves the economic benefits of processing enterprises.

3.3. Seed development

The seeds of passion fruit also have very good development value and research value. Among the fruits of passion fruit, peel accounts for 50%~55% of the fresh fruit weight, pulp accounts for 42%~34% of the fresh fruit weight, seeds account for 8%~11%, and the juice yield of pulp is as high as 43%. In the beverage industry, with the production of passion fruit juice, a large amount of waste residues will be produced every year. 90% of the residues are passion fruit shells and passion fruit seeds, resulting in a large amount of waste of biological resources, which is a key technical problem that has plagued passion fruit processing industry for a long time. Passion fruit seeds are

black, and they are generally discarded as waste when processing fruit juice. In fact, passion fruit seeds have high research and development value. First of all, the oil content of passion fruit seeds is very high, close to 1/4. In this case, pressing the seeds of passion fruit or extracting with organic solvent can get excellent edible oil. In addition, passion fruit seeds are rich in dietary fiber. Processing the seeds of passion fruit can further improve the economic benefits of processing enterprises and promote the development of enterprises.

4. Conclusions

Passion fruit is a tropical fruit with orange pulp and edible seeds. It is a healthy fruit. Passion fruit has the reputation of "the king of fruit juice". Fruit juice has the functions of promoting fluid production, quenching thirst, refreshing brain, helping digestion, eliminating phlegm and relieving cough, treating kidney deficiency and nourishing and strengthening body. In recent years, there have been more and more researches on the medical and health care function of passion fruit in China, and the role of passion fruit in medical and health care has been continuously discovered. However, the product development has been developing slowly, resulting in a certain cost waste of enterprises. An important measure to develop fruit and vegetable nutrition and health industry, realize deep processing of fruits and vegetables, and improve industrial benefits is the development of functional foods with special fruits and vegetables. Based on this, this paper discusses the health care function and development progress of passion fruit. In this paper, the health functions of passion fruit are summarized, and the development of passion fruit is discussed in many aspects. By studying the health care function and development of passion fruit, we can better develop its value, which is of great significance for expanding the market of passion fruit. Passion fruit itself contains a variety of health care functions, which have huge market demand and great product development potential. If we can effectively and comprehensively utilize this resource and increase the research and development of passion fruit, we will create great economic benefits.

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