

Research Article

Study on Processing and Marketing of *Gynostemma Pentaphyllum* Tea Based on O2P Theory

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Abstract: *Gynostemma Pentaphyllum* (GP), which is a plant of the cucurbitaceae, is the only plant which contain ginseng saponin in addition to Araliaceae Panax plants and the features of Gypenosides is similar to ginsenosides, so that GP is also called "Southern ginseng" and "The second ginseng". But the development and utilization of GP has not been accepted by customers in the market. In recent years, many experts have spent much time on the identification of the chemical constituents of GP. This paper studied GP research in recent years, including major components, pharmacological functions and the status of its application. From the industrial chain and industrial cluster angles, this study puts forward marketing strategy on GP related products by using O2P theory. The purpose is to let customers know the pharmacological functions of GP deeply. At the same time, this study can display the GP tea to these potential customers.

Keywords: *Gynostemma pentaphyllum* tea, marketing, O2P theory, processing

INTRODUCTION

Gynostemma Pentaphyllum (GP) is one of the plants of cucurbitaceae, which is also a perennial deciduous clamber plant. Its piperzine is buckeyes gut and it is also named bitter medicine, male hemsleya macrosperma and mass blossom. The people in ancient China have known the plant GP years ago. From the record of "Chiu Huang Pen Ts'ao" and "An Illustrated Book on Plants", it can be seen that GP was used as food to treat cough, phlegm panting, chronic bronchitis and so on, so GP is also called "Southern Ginseng" and "The second ginseng". Many experts have studied the identification of chemical constituents of GP. Lu (2014) wrote an article of "Study of the chemical composition of GP" on Chinese traditional and herbal drugs. Wang and Zhang (1998) published "Gypenoside capsule treatment of senile dementia, 30 cases of cerebral vascular" on the efficacy of GP in research.

What's more, foreign experts also showed their interest in GP. There are more and more foreign experts and medical institutions intending to study deeply about clinical manifestation of GP, such as Takemoto *et al.* (1986) had a research on the constituent of cucurbitaceae plant and the saponin constituent of GP makino in Yakugaku zasshi in 1986. Razmovski-Naoumovski *et al.* (2010) focused on Chemistry and

Pharmacology of GP. But their studies about GP are confined to the medical effects. This study is mainly about health care products and drinks from GP, like GP tea, because of its wildness and it puts forward the marketing suggestions for its future development.

MATERIALS AND METHODS

Introduction to *Gynostemma pentaphyllum*: GP is a precious plant. It has been used in medicine. But different plant areas have different qualities of GP, so the next will fully introduce the information about GP.

Origin and types of *Gynostemma pentaphyllum*: GP, also named buckeyes gut and buckeyes ginseng, is a plant of cucurbitaceae. According to the research, more than 48 types of GP are found in China. According to quantity of leaf, there are three leaves, five leaves, seven leaves, nine leaves and eleven leaves of GP. According to the taste, it just has two types, sweet and bitter. In medical books, it has been recorded the taste of the different kinds of GP, such as "five leaves ginseng" (bitter), "five leaves gut", "seven leaves ginseng" (bitter), "seven leaves gut", "nine leaves ginseng" (bitter), "nine leaves gut". This kind of plant grows widely in subtropics. Meanwhile GP also grows in India and Japan. The best areas of GP in China are

nine provinces, Shanxi, Fujian, Henan, Jiangxi, Hubei, Hunan, Guangdong, Guangxi and Yunnan. The seven leaves of GP mostly grows in South Mountain of Hunan province and Big Yao Mountainous area of Guangxi Province. In Shanxi, Fujian, Henan and Jiangxi, the main kind of GP is the five leaves.

It should be known that only the five or seven leaves of GP can be used as a Chinese traditional medicine, as illustrated in "Golden Chamber Synopsis".

Composition detection for *Gynostemma pentaphyllum*: Since 1970s, more and more Chinese and foreign scholars adapt the modern separation technology and analysis method to study the main composition deeply. The result shows that there are Saponins (Liu, 2013), flavonoids (Liu, 2009), amino acid (La Cour *et al.*, 1995) sugars (Ma *et al.*, 2000), inorganic elements (Zhang, 1995), fiber and vitamins etc.

Pharmacological functions of *Gynostemma pentaphyllum*: Nowadays, the study about GP from pharmacology shows that it can protect liver and decrease blood pressure and enhancing immunity etc.

Decreasing blood lipid: GP can not only prevent the rise of the total cholesterol and triglyceride, but also can decrease the Low Density Lipoprotein (LDL) for increasing high density lipoprotein that make the ratio of High Density Lipoprotein (HDL)/LDL bigger, which has significant meaning in the improvement and regulation for Lipid metabolism disorder. The reason why it can regulate fat metabolism is that GP can prevent fat cell from making free fatty acid and combine the neutral fat. The compound for regulating fat are GPS and original GP saponin (Takemoto *et al.*, 1986; Arihara, 1986; Qi, 1996; Ma *et al.*, 2005; Zhuang, 2004).

Anti-neoplastic: GP saponin has the antineoplastic benefit in vitro. GP can increase the effects of coagulation antibody and cell division, which can obviously increase mouse's delayed type hypersensitivity, so that the immunity for animal with oncocyte is elevated and the content of IgG and IgM is decreased and decreased and it can induce T lymphocyte to differentiate for touching and killing the tumor cell (Qi, 1996). That has confirmed that the effective constituent are GP saponin and polysaccharide (Ma *et al.*, 2005).

Liver protection: GP can decrease the chronic constriction injury of sciatic nerve (CCI) and serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT) that harming liver and it can increase the rate of Albumin/Globulin (A/G) and make the collagen decreasing for 33%. Experts observed the liver collagen thinned, which confirm the GP for liver protection and liver fibrosis prevention from pathology. To drink aqueous solution

of GP (100, 300 and 500 mg/kg) can speed up the recovery of liver function. Under the Paracetamol model, the aqueous solution of GP can prevent the Rise Aspartate Transaminase (AST) and Alanine Transaminase (AIT) (Xiao and Jin, 2001).

Enhancing immunity: Many kinds of polysaccharide, the main material of immune activity, which are separated from Chinese herbal medicine has effects to enhance immunity. The GP polysaccharide came from GP which can observably enhance the activity of mouse's Natural Killer (NK) cell. The activity is connected with dose. More dose of polysaccharide, more actives for NK cell. To some degree, it shows GP polysaccharide can develop the cell immunity. The test also expresses that polysaccharide can develop the content of serum hemolysin. In addition, the GP polysaccharide also develops the non-specific immunity (Luo and Gong, 2005).

Anti-fatigue and enhancing body: The test with small rats indicated: compared with that didn't eat GP, the rats who eat GP can swim longer 31-57% and recovered quickly than that do not eat. Similarly people will feel stronger and untied. After drinking the GP, worker can recover from tired out and develop the work efficiency (Luo and Gong, 2005).

Reducing weight: The GP can prevent fat cell from making free fatty acid and combining the neutral fat as well as stopping glucose transforming, so that the GP can avoid making fat cell and then reduce weight.

Test for reducing weight indicated that: comparing five women for eating greasy food and drinking GP tea with another five women without eating greasy food and GP tea, after regular checking, the expert finds out the content of cholesterol and neutral fat are indifferent between the two women groups, so GP can avoid making fat cell and then reduce weight (Qi, 1996).

Preventing cancer: GP can prevent normal cell from cancerization through the pharmacology test. GP plays an important role in the DNA synthesis process of tumor cell. It has an obvious inhibitory effect in proliferation of cancer cell. Anticancer pharmacological experiments show that GP can prevent normal cells cancerization and promote cancer cell gradually returning to normal. Compared mouse with cancer disease drinking GP with that group not taking, the cancer cell decreased for 44.8% and prolonged the survival time for 53.3%. GP is a highly effective anti-cancer drugs, for lung cancer, liver cancer, breast cancer and other 20 kinds of cancer which have a significant inhibitory effect. If healthy people use GP for a long-time, they may also reduce the risk of cancer (Qi and Zhang, 2003).

Other benefits: GP also has a significant effect in fighting against cerebral thrombosis, diabetes, asthma,

migraine headaches, bronchitis, mouth ulcers, gastric ulcer, hepatitis and other chronic disease.

Development of related products of *Gynostemma pentaphyllum*: There are many related products of GP due to have same effects like ginseng saponin and selling with cheap price. The main kinds of products are medicinal and health care products. For example, GP saponin capsule, or diet pill which have the content of GP. For health care products, the GP tea and the health care capsules made of GP are the main products. Only GP tea is pure natural product in the relative products. The GP tea is made by manual operation without the help of any technology, so the effective compounds are kept fully in the tea. It is a pity that it is not accepted by customers. Awarding to this unbalance situation, the marketing of GP tea should be pushed to make customers approved.

RESULTS AND DISCUSSION

The marketing status of GP tea must be considered when making marketing strategy. It is very important for dealers to marketing the products.

Craft of *Gynostemma pentaphyllum* tea: GP is the vine plant in subtropics, which is planted widely in the south of China. It has the functions of decreasing blood lipid and antineoplastic due to having ginseng saponin. The GP is named "plant ginseng". Dealers can make tea with the wild or people plant GP (Fan, 1998).

Leaf picking: The leaves should be picked during the time from spouted in spring to wither in winter. But the best time is in August, because of the high content of saponin. When picking the leaves, the similar side should be picked together, tincture leaves, in addition to picking out the bad leaves. After picking leaves, that must care to keep them fresh and clean and make with picking.

Fixation: When heating the pot for 200°C, workers could put one kilogram leaves in pot and roll for 5 min, then take out the leaves. The other way to fixation is that workers put the fresh leaves in boiling water for 5 to 10 min and then take out to dry.

Rolling: The above leaves are rolled on board by hand and from one side to another and step heavy to step slight. After extruding to 70% water from the leaves and become to strip, leaves can start to dry and cure.

Seasoning: Put the rolling leaves into heating pot, then stir to dry. When feel the leaves harden, leaves should be put out from pot and put on bamboo bake cage up the charcoal without fire. After the leaf pole can be broke easily, it is okay to move away the charcoal fire and cooling naturally.

Packing: The next should pick out the impurity and tea dust through dustpan and then pack the tea in nontoxic plastic bag or can. The products should be store the tea on dry and odor free place.

Benefits of *Gynostemma pentaphyllum* tea: The GP is a precious plant. There are many benefits of GP tea for people. Because of these benefits, dealers can market the GP tea easily.

Sleep promotion: To drink GP tea frequently can soothe the nerves, regulate the brain cortex excitatory and inhibitory balance of the reaction and the central nervous system have two-way adjustment and have sedative, hypnotic, anti-stress, de-fatigue, enhancing memory effects. Especially, it is much effective for treatment of insomnia (Hou and Fu, 2006). Generally the quality of sleep will be significantly improved within next to two days, sometimes some users have significantly improved their sleep that day.

Cosmetology and skincare: To drink GP tea frequently can promote blood circulation and promote metabolism regularly carried out for maintaining and restoring the skin's fitness. And GP also has functions of black hair, beauty skin etc.

Immunity enhancement: The sub-health refers to a non-health condition between health and disease. It also presents a physiological state of mind without organic disease indicators, but appears decreased immunity, physiological dysfunction, reduced vitality and decreased adaptability. GP tea is made of GP by manual work. GP has a function to improve the body's own immune system, which can effectively eliminate sub-health state.

Heart protection: GP can enhance brain activity, increase coronary flow and alleviate atherosclerosis based on reducing myocardial wall tension, easing cerebrovascular and peripheral vascular resistance, so it can promote overall circulation more vigorous and fluent.

Antianaphylaxis: People will have allergy to certain substances when a part of the human body function are weak, so that people may get the formation of bronchial wheezing, skin rash and joint pain embolism. GP has a quite good function for these patients. GP tea can make loss of appetite, insomnia, headache, anxiety and other symptoms relieved or disappeared.

Marketing status of *Gynostemma pentaphyllum* tea: There are many advantages and disadvantages of GP tea. Deals should think about the follow information. Only in this way can dealers sell the goods better:

Advantages of *Gynostemma pentaphyllum* tea: At present social situation, there are more than one thousand kinds of health care products which can be

selected by customers. The GP tea can earn a place in cruel and merciless market because of the follow advantages.

Firstly, it has precious composition which arise the concerns. Experts have detected four saponin compounds which are same as ginseng. Other kinds of health care products have no this feature. On the cheap price of health care products in market, GP tea is the first that has such a compound.

Secondly, the low price is an attraction for the consumers. As mentioned above, GP tea must be expensive for the precious composition, but the fact is that the price is cheap. For example, in Tianmao online market, customer can buy ginseng with 150-300yuan per 500g, but 40-80 yuan per 500g of GP tea. Sometimes customer can buy 500g with below 20 yuan. The two products have the same composition but with different prices, so many customers choose the GP tea as a kind of health care product.

Disadvantages of *Gynostemma pentaphyllum* tea:

Since GP tea has good composition and in a low price, but why it cannot earn a place in market. According to the study, experts can find out the follow problems. Firstly, customers know little knowledge about the composition of *Gynostemma pentaphyllum*. The fact is that the saponin composition are the same as ginseng's, but study does not show the full composition about GP. In another word, customers don't know whether the GP has the harmful compounds or not, so customers maybe think twice when buying GP tea.

Secondly, the diversification of plant area and price pull the sales back. There are many plant areas in China. The Pingli city, Shanxi Province, is the best plant area. But in market, the products produced in some other plant places except Ping Li city are pretend to the Pingli GP, so that customers always buy the another goods, so the customers lose confidence to GP and never buy the products.

Marketing strategies of *Gynostemma pentaphyllum* tea:

GP tea is a good kind of health care products. In order to market GP tea, dealers should pay attention to make marketing strategies. O2P theory is a new marketing theory. Nowadays few people know about the theory. This study will introduce the theory as follow.

O2P is the abbreviation of 'Online to Partner', innovated by DaoYixing CO., LTD Hangzhou. O2P is a new ecosphere business pattern built based on cloud service. The pattern is that the core is e-business platform, connected with manufacture, channel, shopkeepers, financing institution, software production and logistics enterprise. Through communicating with each industry, dealers can create an internet ecosphere with competitive edge. The pattern has three 'P' (Platform, Place, People).

Marketing strategies mainly include two aspects: one is the selected target market; the other is to formulate marketing mix strategies, in order to meet the needs of the target market.

Market positioning and target customers' analysis:

The terminal of marketing is the customer, so the product position and the target customers must be considered. When dealers know the positioning and target customers clearly, the marketing strategies can be made actually.

According to the plant area, experts distinguish eight kinds of GP tea. The best quality of GP is in Shanxi province. The fact is that the GP saponin has function to regular "the three high" people and protect the heart. So the products are pure natural health care products that fit for the "three high" people. According to consider value of the product, it will pass the health natural atmosphere.

Before giving the marketing advice, dealers must analyze the needs and hobbies of target customers. Only after analyzing the relationship can dealers know the real needs of customers. The old men are the main customers of health care products, so dealers need to analyze fully about their consumer psychology. The old, who like drink tea with the "three high", know that they have fight for life for half of their lifetime and have improved their life standard. When retired from work, the old only have a weak body because of doing work busily, so they want to have a health body to finish the unfinished dream. One of the ways to keep body health is to buy health care products. But there are too many kinds of products to choose in market and some products contain hormone. It is hard for the old to choose a kind of product which fit for them, so dealers need to care the product quality and enhance the branch of "original, natural, regimen".

Marketing mix strategies of *Gynostemma pentaphyllum* tea:

Customers want to buy goods for two reasons: one is the underlying reason, such as people know there are the three high people, so they will buy the pills for decreasing. Or sometimes customers want to care body situation and go to buy health care products. The other is the external reason. The external reason also has two aspects, one is that marketing element, such as goods promotion, discount activity etc. The other is external environment elements, such as political, economy etc. When making suitable marketing strategy, dealers must consider the consuming behavior to develop the purchasing stimulation.

In the process of selling goods, customers have no direct connection with enterprise, but with dealers, so the dealers play an important role in trade. So the channel selection will decide the success of building sale net. The building of traditional channel is the basic way to send goods to buyer, especially the health care

products. Buyers always care about the origin before deciding to purchase goods. Merchant must know that the origin is the most important element for selling. GP tea can be transformed through old channels. Dealers can make price according to the origin and promote the sales. In this way, it can improve the cognition degree of GP tea and passing the value of products.

Taking full advantages of the existing channels; The marketing channel of GP tea are consist to four members, manufacture, dealer, shopkeeper and householder. They are connected with each other. Therefore, to strengthen the management of marketing channel is important to maintain the corporate image and long profit. Now there are two marketing channels for GP. One is to sell GP tea in exclusive shops. The other is to sell in mobile stalls. According to this survey, the fact is to selling GP tea in exclusive shop mainly, such as to open exclusive shop in big cities.

Innovating the web side channel resource; due to the internet development, the e-business has been an important part of customers' daily life. More and more people feel like buying on the internet, so there are a lot of internet shopping platforms, such as Taobao, Dangdang and Jingdong. For this reason, many traditional industries started to push themselves open online shop. E-business has been an important way to expand the sale performance. So we must consider that even if the GP tea is a health care product, it can also open online store to promote sales.

With the popularization of internet, more and more customers must read the relative information about the product before buying the natural health care products, so they will know where the product is the best. Sometimes customers may not buy the best product in this location, so they will want to buy in online store. But the internet is a virtual world. There is no real good to check. The consideration made more customer give up to buy the goods, so that the fusion of online and offline dealer is the best marketing strategy. Customers can understand the information about goods on the internet and see entity in store for confirming to the information. When buying goods, customers can go to the network shop opened by dealer for buying goods. Only in that way can customer buy the wanted goods with a bottom price.

Platform means interoperability stakeholders of manufacturers, logistics companies and other financial institutions that connected with the electronic business platform resources. Online to Platform is just to connect the above platform with e-business resource. Dealers provide the cloud service and build the win-win cooperation.

Cloud service, win-win cooperation; in big data time, cloud computing and cloud services have inevitably become the themes of recent time. Each platform has its own big industrial data. But there is no connection with each platform. Dealers can not analyze the same customer based on one platform. If analyzing

one customer fully, dealers must connect with every date platforms. Dealers can analyze and know the customer's consumer behaviors with the help of cloud computing In that way. For example, dealers can know the consumer behaviors of old men that when and where to buy the health care products. After knowing the information, the dealers will promote the sale at best times. In other words, when one product is accepted by customer, the relative member can get profit from the industry chain. That can make GP tea cloud service and receive win-win cooperation.

The bottom of industry chain is the customers, who are the key point to decide the goods' quality. Consuming behavior is a dialogue activity among the customers, dealers and shopkeepers. In this dialogue, customers will know more information. At the same time customers also take action to reflect the goods' quality. Companies give information of goods to customer and influence the consuming behavior. Customers are easy to be influenced by friends when choosing goods, especially health care products that Customers prefer to buy the products of good brand. To sum up, dealers should take follow strategies in the marketing bottom.

Through the study, the fact is that the products are just to display on shelf. The dealers do not adopt any special way to promote the goods. To push goods on the marketing bottom can build the dialogue platform between the enterprises and customers. It can influence the customer's consuming behaviors and earn the market share. For example, the dealers can take activity to detect the "three high". The ginseng of GP can decrease the blood pressure. Dealers should let more people know the functions of GP tea, which can stimulate consumers, especially three high-population, the desire to buy and let them have the memories. That is important to improve the rate of repeated purchase, so that in the process of sales in terminal, the strong-train professional services sales men and the products exhibition suit for consumer psychology will be able to help businesses to sell effectively.

Enriching model of sales promotion in terminal; According to the analysis of result of experts (Hu, 2011), there are five phases: understanding the requirements phase, the information search phase, evaluation and decision phase, the actual purchase and post-purchase evaluation stage. For buying health care products, the customers will finish the first two stages once time when picking up goods, so to a large extent, the effective marketing methods will affect the purchase decision. The fact is that people feel like asking the person who has used the products about the effect. Customer may think the sale men are lying when talking about products. By asking user' feeling they can gain the credibility of products. At the same time, GP tea can provide the mass support for fitness activities or health section for promoting its effect. Nonprofit marketing is also a good choice, for example, the

company can give away part sales profit of GP tea to medical foundation, which not only gives consumers a conscientious corporate brand image, but also stimulate consumer consuming desire. The themes marketing, such as dealers have promotional activities on the Father's Day or Mother's Day which will pass the value of GP tea for three high-population health product features.

Enhancing marketing about customs relationship; In the process of GP tea sales, dealers should pay attention to communicating with customers and then dig their potential need. Dealers also care to build a long-term relationship with users. To fuse the kinds of marketing media is a good way to pass the information and the value of products. In that way, dealers can not only save the cost, but also promote to build communication with each other. Dealers should know the brand is an important part in sales promotion, so dealers must care the package of GP tea, packing material and advertisement when selling the goods. That can help to improve the brand loyalty.

Development prospects of *Gynostemma pentaphyllum* tea: GP, as a natural plant which can not be instead by other plant, has a big plant area in China. It has been a necessary resource in medicine, health care and daily use chemical, so that experts from home and abroad have paid much time to study about GP for species identification, planting cultivation, chemical composition and pharmacological functions. It shows that the chemical composition is rich, pharmacological activity is efficacy, adverse reactions are mild and the market is high. That has provided the technology date for the development of GP. The GP tea has the natural compound and the goods taste after made by manual work, so there is a beautiful market prospect.

CONCLUSION

With the enhancing population aging and the improvement of per capital income, more and more people like to buy health care products. There is a beautiful market prospect for health care drink products. But there are more kinds of GP tea in the market. Customers could not know the quality of products, so that GP tea wants to earn a place in cruel market, dealers must not only have a good brand and good marketing experience, but also deeply understand the market.

The marketing situation for GP have been analyzed in this study and studied and discussed GP tea marketing dilemma from a professional point of view of strategy and marketing as follows.

The fact is that GP tea is displayed in the market later than other similar products, so the GP tea is hard to be accepted in marketing. At the same time, customers maybe not trust the functions of GP tea. The

marketing strategy for GP tea is not good and specific. The target customer of GP tea are the old men with "three high" condition, who like drinking tea, so dealers must understand market positioning and target customers.

Finally, in this study, this is a new marketing strategy under the guidance of O2P theory. Through the research on marketing strategy of GP tea, the fact is that, this study finds that marketing dilemma of GP tea and analyzes the advantages and disadvantages of GP tea in external marketing environment, which help to use limited resources of GP tea to more variable and complex market to avoid waste and idle manpower, material and other resources. That provides a theoretical guiding basis about marketing the product successfully. Secondly, for other health products, the proposed marketing strategies in this study provide them with research ideas and methods, with some reference value and significance.

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