Hubei flavor Bean curd residue innovation and nutrition

Hui Ding1,*
1College of Food Science and Technology, Wuhan Business University, Wuhan, China
Email: 20150481@wbu.edu.cn

Abstract: With the rise of rural tourism, Bean curd residue has gradually become a favorite food for tourists. While effectively driving the income of local villagers, it also promotes the inheritance and promotion of Bean curd residue making technology. Based on this, this study carries out innovative research.

1. Source of Bean curd residue
Bean curd residue is a local specialty of Shennongjia. Its production method is relatively simple, but it is a little hard at the beginning of the grinding stage. It is said that its appearance was due to an accident when a woman ground the soya beans but did not filter the bean dregs, which was then mixed with chopped vegetables and cooked. It turned out that it tasted delicious. Later, this practice was passed down. The dregs are very appetizing and refreshing. You can eat half a bowl of mixed dregs before eating dinner, and you can also eat some when you drink, especially when you eat bacon. One mouthful of Bean curd residue is very refreshing.

It is said that after the autumn harvest, during the winter fallow, every household should spread some Bean curd residue. Sharing Bean curd residue is a big event for every family. It is usually necessary to set a good date, and the days of each family should be staggered. Therefore, a housing stock often carries out joint action, and the whole housing stock will agree on the date of each family's sharing Bean curd residue, and then carry out it one by one. In general, every family should scale two or three hundred catties of grain to eat around the Dragon Boat Festival in the coming year. The family whose turn is to spread the Bean curd residue should do a good job in cleaning, preparing equipment and cleaning the site in advance. At that time, a lot of people will be concentrated in one shop. There will be a clear division of labor for washing, refining, mixing, cooking, cooking, conveying and operating. Everyone will perform his or her own duties. In general, the host has no fixed division of labor, only doing some emergency, running errands, scheduling, summoning and other chores, but also very busy. Sometimes the owner seems careless, but he is very seriously carrying out the task of technical supervision and quality inspection. At the same time, men and women were laughing and joking all the time. This is also a great opportunity for all the big girls and little daughters-in-law in the whole housing stock market to show off their skills and show off their abilities. Those who have the heart, who are skillful, who are the most capable and who are the most eloquent, want to be praised by others. The house was full of laughter and bustle. The host will treat everyone with fresh Bean curd residue until all the raw materials are ground, spread and cut. The helpers will go back one after another, usually until late at night.

It is an unwritten local rule to send a gift of fresh Bean curd residue to thank others for their help. At daybreak, the host asks the children to bring a basket full of fresh Bean curd residue and give it to relatives and friends in other villages as a present. Although the relatives may also send their own
fresh Bean curd residue the next day, people still enjoy it. The atmosphere of the Chinese New Year is gradually getting stronger and stronger in this mutual delivery of Bean curd residue.

2. The production technology and flavor formation of the Bean curd residue are as follows

1) Soak 300g soybeans with warm water, mix soybeans with water using a stone mill, and grind soybeans into soymilk after the ratio of soybeans to clear water is 1:8. Mix of 50 grams of refined Coix seed, sesame, peanuts can also be added.

2) Clean, chop, and set aside 600 grams of green vegetable leaves.

3) Put the ground soybean milk with water and dregs in the pot, boil the soymilk, put the vegetables in, boil twice, and eat directly. Seasoning according to your own preference.

4) In Changyang Tujia Autonomous County and Wufeng Tujia Autonomous County, Hubei Province, "acid Bean curd residue" is popular. Acid mixed residue is not finished with the Bean curd residue placed acid, or by stirring the method to make it sour, in the cooking, add pepper, ginger, garlic, minced meat, etc. to cook sour and spicy, especially for dinner. The nutritional collocation of mixed dregs is also very scientific. The protein in soybean is combined with vitamins and inorganic salts in vegetables to achieve the effect of reasonable diet.

3. Innovation and nutrition of Bean curd residue.

3.1. Add Gongmi and buckwheat rice.
The Gongmi and buckwheat rice were separately soaked in water for 8-10 hours, and the soaked Gongmi and buckwheat rice were respectively ground into pulp with a stone mill. Gongmi is good in quality, fine in grain, long in shape, free in texture and long in both ends after absorbing enough water. The rice is soft but not sticky, fragrant and delicious. It is rich in nutrition, with calcium content of 42-448.4mg/kg, zinc content of 16.4-21.4mg/kg, and iron content of 0.44-0.55mg/kg. Therefore, Gongmi has high nutritional value, but the content of lysine and threonine in rice protein is less.[1]

Buckwheat rice is rich in nutrients. According to relevant information, it contains 9.7-10.9% crude protein, 1.5-3.4% crude fat and about 70% carbohydrate. The content of lysine in protein is high, reaching 6.7 g per 100 g, 1.2 g higher than the recommended value of 5.5 g per 100 g protein recommended by the World Health Organization. In addition, buckwheat rice contains rich "rutin" ingredients, which is an ideal medicinal food for patients with hypertension and diabetes. Chlorophyll is an anticancer substance, which is extremely rich in buckwheat rice. Therefore, buckwheat rice is not only rich in nutrition, but also has incomparable medicinal functions compared with other foods. Regular consumption of buckwheat rice is beneficial to health. The mixed consumption of Gongmi and buckwheat rice can make up for the deficiency of lysine in soybean and improve the nutritional value. [2] In addition, buckwheat rice has medicinal function, Bean curd residue also has a certain health care function.

3.2. Add sauerkraut.
Sauerkraut is rich in nutrients, including a variety of essential amino acids, sugars, inorganic salts, trace elements and edible fiber, especially the content of vitamins and carotene is higher than ordinary vegetables. Pickled vegetables taste more delicious than ordinary vegetables, and more suitable for people with heavy taste. Sauerkraut contains 4.64g carbohydrate, 18.12g fat, 3.49g protein and 1.00g cellulose per 100g. Pickled cabbage has high nutritional value, not only in acid, but also some organic acids, amino acids, protein and other minerals. Sauerkraut contains a very magical nutrient: copper, which is one of the most indispensable nutrients for human body[3].

The biggest effect of sauerkraut is its appetizing effect. Its sour taste can better improve the taste. Taking it as one of the main raw materials of the Bean curd residue can make the taster have more appetite. Sauerkraut is also a green food, which not only has a great nutritional value, but also has the function of defecation, especially for some elderly people and some pregnant women.
3.3. Add shrimp.

The caloric value of green shrimp is 87 kcal / 100g. The main components are water, high-quality protein, cholesterol, calcium, scale, iron, magnesium, potassium and other mineral elements, as well as vitamin A, vitamin E, vitamin B, riboflavin and other trace elements, which have high nutritional value. The meat of green shrimp is tender, delicious and nutritious. It contains 16.40 grams of protein per 100 grams of food, and shrimp contains 20% protein. It is one of the foods with high protein content, which is several times or even more than ten times of fish, eggs and milk. Compared with fish meat, the valine, an essential amino acid for human body, is not high, but it is a source of protein with balanced nutrition. In addition, shrimps contain glycine. The higher the content of this amino acid, the higher the content of this amino acid, the higher the protein content of shrimp, the sweeter it is. Compared with fish and poultry meat, shrimp has less fat content and almost no animal sugar as energy source. The cholesterol content of shrimp is higher, and the content of taurine, which can reduce the human serum cholesterol, is rich. Shrimp is rich in potassium, iodine, magnesium, phosphorus and other trace elements and vitamin A. nutritionists believe that it has a certain function to nourish the brain [4].

In the process of Bean curd residue cooking, add a proper amount of green shrimps that have been picked over the shrimp line and then treated and starched. When the green shrimp turns red and the meat becomes soft, you can get a shrimp soup with Bean curd residue as the bottom, which is denser and granular than shrimp congee.

The production of mixed dregs can not only change the raw materials, but also add materials on the original basis. It can be seen that people like seas oning. Therefore, Bean curd residue is a highly innovative food with high nutritional value. It contains protein, lysine, vitamins, lecithin and other ingredients, which can strengthen the spleen and stomach and help digestion. It can reduce blood sugar, tonify kidney and nourish blood, and nourish yin and moisten dryness. It is used for dyspepsia and has the effect of regulating qi.

3.4. Add mushrooms.

Ingredients: 100g soybeans, 50g mushrooms, 20g cooked peanut kernels, 1 egg, 1 bowl of homemade rice. Seasonings: 5g salt, 2g monosodium glutamate, 3g chicken essence, 20g salad oil, 2g red oil, 3g fresh red pepper, 5g scallion. Production: 1. Soak the soybean in cold water for 6 hours (the ratio of soybean to water is 1:5), remove it, add water (the ratio of water to soybean is 1:1) and grind it into a paste with an electric mill. 2. Clean the pot with salad oil, brush a layer of bottom, put the ground paste into the pot, small heat boil twice (that is, after the first boiling, let stand for 1 minute, then boil, if only boil will not be cooked), add egg liquid, mushrooms, stir well, add salt, monosodium glutamate, chicken essence, scallion seasoning out of the pot, sprinkle with chopped peanut, fresh red pepper, sprinkle red oil on the table. If it is mixed with homemade rice, the flavor will be better. Homemade rice with gold and silver: moisten corn flour with water, mix well with steamed rice until eight ripe, and then steam for 10 minutes over high fire. When eating, the mixed residue has a unique flavor. Production key: Bean curd residue must be boiled with low heat, otherwise it will not be cooked; the whole process of cooking should be constantly stirred with a spoon to avoid paste pot. Mushrooms are excellent and good for health. The protein content of 1 jin mushroom is equivalent to that of 2 kg lean meat, 3 kg eggs or 12 kg milk. No wonder Europeans call it "plant meat". Mushrooms are also rich in B vitamins, especially in VB12, that its content is higher than meat. It can prevent pernicious anemia, improve nerve function and reduce blood lipid. The vitamin B1 contained in Amethyst bisporus and Auricularia is also higher than that in general plant food, which is beneficial to improve appetite, restore brain function and increase milk secretion of lactating women. People with heart disease, neuritis and nerve paralysis can eat this kind of mushroom more, which is helpful for the recovery of patients.
4. Nutrition.

| Component                        | Diet Advice                                                                 |
|----------------------------------|-----------------------------------------------------------------------------|
| Soybeans, Chinese Cabbage        | Rich in protein, calcium, potassium, phosphorus. The taste is light and suitable for all ages. |
| Soybeans, cabbage, chicken       | Rich in protein, calcium, potassium, phosphorus. The taste is light and suitable for all ages. |
| Soybean, cabbage, pepper, garlic, pepper | Rich in protein, calcium, potassium, phosphorus. It tastes hot and sour, suitable for teenagers and middle-aged people. |
| Soybean, cabbage, pepper, minced pork | Rich in protein, calcium, potassium, phosphorus. The taste is mild and spicy, suitable for teenagers and middle-aged people. |
| Soybean, cabbage, beef, pepper, garlic | Rich in protein, calcium, potassium, phosphorus, less fat. The taste is mild and spicy, suitable for teenagers and middle-aged people. |
| Soybean, cabbage, shrimp, garlic, pepper | Rich in protein, calcium, potassium, phosphorus, less fat. The taste is mild and spicy, suitable for teenagers and middle-aged people. |

5. Summary
In the innovation of Hubei flavor bean curd residue food, through the combination of raw materials and nutrition, the research and development of Hubei flavor bean curd residue food is promoted, which has certain reference significance for the food industrialization of Hubei flavor and bean curd residue food products.

Acknowledgment
This study is funded by construction of Wuhan University of Commerce in 2019: development and application team of Hubei characteristic food materials (team No: 2019TD004).

Reference
[1] Journal of Anshan Normal University, issue 6, 2013 by Guo Hua, Hou Dongyan, Diao Quanping, Hui Ruihua
[2] Science and technology of grain and oil in Western China, issue 4, 2001 by Wang Sumin, Yao miaoaui
[3] Yangtze River vegetables, Issue 9, 2002 by Liu Houcheng and Cao Zan
[4] Modern agricultural science and technology, issue 12, 2015 by Jiang Chunbo