

STUDY ON THE PROCESSING TECHNIQUE OF PIPA CURED CHICKEN
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SUMMARY: This study was aimed at processing a new cured chicken product, Pipa cured chicken, using broilers or fattened layers through the procedures of curing, shaping and air-drying etc. Pipa cured chicken, looking like a pipa (a plucked string musical instrument with fretted fingerboard), is thinly skinned, with red and tender flesh, and keeps the special flavor of Chinese hams. The product is quite storable, and the product ratio is 42-44%. The processing equipment is simple and procedures are easy to be mastered. The technique will be of great value in exploiting poultry products and promoting the development of poultry production.

INTRODUCTION: Abundant water resources in south China make it possible for widespread duck production. And the preserved duck products in south China have been well-known all over the world. In north China, especially in the loess plateau area of Shanxi province, however, lacking of water resources leads to a popular chicken production. Chicken raising has become an important family sideline. To fully use the local resources, the authors tried efforts to process a cured chicken similar to preserved duck product. The study was started in 1987. It has been proved by many experiments that the color, flavor, taste and shape of pipa cured chicken are favorably comparable to the preserved duck. Tasted and appraised by experts in food production, Pipa cured chicken is considered more delicious and more extracting than the preserved duck. The product has received fondness from consumers.

MATERIALS AND METHODS:

I. Experimental materials:

1. Raw materials: broilers and fattened layers;
2. Subsidiary materials: salt, star anise, ginger and florence fennel.

II. Experimental methods:

1. Processing flows: selection of live chickens --- leaving the chicken rest before slaughtering --- sticking to bleed --- scald-picking --- drawing internals --- extracting residual blood with cold water --- dry-curing --- stewing --- draining and shaping --- air-drying.

2. Operations:

Selection of raw chickens

Broilers are considered the best because they have big body, well developed breast and leg muscles, and tender flesh. The abandoned layers weighing more than 1.5 kg can be also used if they are fattened with cereal feed until the skin becomes white and muscles become plenty and tender.

Rest before slaughtering

Before slaughtered, the broilers should be given more than 4 hours of rest to recover from fatigue and turn physiological metabolism and blood circulation to normal status. This will be in favor of bleeding and preventing bacterial contamination and ensuring the quality of the product.

Bleeding

For better looking, broilers are killed by sticking inside the mouth to cut off the blood vessels. This will disable the chick's brain nerves and make it dies sooner.

Removing feathers

Feathers can be easily removed right after the broilers have been killed, because at this time, the whole body is still soft and easy to be immersed. When the body becomes stiff, feather pores start to contract, and it will be to pull out the feathers. The temperature of the immersing water is required to be 60-63 °C for broilers, and 65-68 °C for fattened layers. The immersing time is 30 seconds to a maximum of 1 minute. As soon as the broilers are fully immersed, feather picking should be right started.

Drawing Internals

Before the internals are drawn out, the two wings should be cut out from the waist joints, and the two legs from the hock joints. Then cut a line starting from the breast bone and ending at the anus. The two pieces of breast muscles should be cut open to make the breast bone exposed. With a sharp knife, cut out the breast bone and open the abdominal cavity; Take out esophagus, tracheas and all the other internals. On the two sides of the second or the third thoracic vertebra, cut off the ribs and muscles at an angle of 30 -40 degrees left or right-upward. In order to keep good shape, attention should be paid to not cutting the skin.

Extracting Residual Blood with Cold Water

Using clean water, rinse out the residual thin films, blood spots, lung and other crumbs; Place the cleaned chickens into a tank containing clean water for 3-4 hours to extract the residual blood remaining inside the body. After this has been finished, remove the beak, and cut a hole in the nose, hang the chicks up with a rope for draining.

Smearing salt and dry curing

Dry curing method is taken in processing pipa cured chickens. Dry the salt in a hot pan until there is no water steam, and the color becomes yellow. Cool the salt to room temperature for use. The amount of salt used is about 6% of the dried chick in weight. Salt should be smeared throughout the whole body. On some parts such as mouth, thigh, back and abdominal cavity, this procedure should be repeated several times. For the two thighs, smearing should be carried out in the direction of the lower part to the higher part because pressing the muscles in such a way will be in favor of disjoining the muscles from bones and penetrating the salt

into the flesh. Finally, put the salt-smeared chickens into a tank and placed layer by layer, with the back upward. On the top, spread one more layer of salt and place heavy stuff on for 12 hours.

Preparation of Curing Soup

Curing soup is made of salt, spice and water. The ingredients are listed in Table 1. In preparing the curing soup, bake salt and star anise in a hot pan until the color becomes yellow; then add water to make a saturated salt solution which is then filtrated into a tank. When the solution cools down, add sliced green onion, ginger, star anise and florence fennel to enhance the flavor.

The curing soup can be reused only by filtrating it again. The more times the curing soup has been used, the better.

Table 1. Ingredients of the Curing Soup

Clean Water	Table Salt	Star Anise	Ginger	Green Onion	Florence Fennel
50kg	25kg	10g	25g	37.5g	7.5g

Curing

Put the cleaned broilers into a tank containing the curing soup and covered with bamboo sheet. The height of the curing soup should excess the chickens by 1 cm. After 36-45 hours, the chickens can be taken out.

Pressing and shaping

Hang the cured chicks up to drain the excess curing soup, then put the chicken into a tank again layer by layer. The neck should be placed upward and the legs and wings should be fixed inward, looking like a pipa (Figure 1). Press then with heavy stuff for 2-3 days.



Figure 1. The shape of the pipa cured chicken (with the back upward).

Air-Drying

After press-shaping, the pipa-like chickens are then put into clean water to rinse out adherents. Hang the chickens in a well ventilated place. Generally, it takes 20-30 days to finish the drying procedure when the surface becomes uniformly glorious, without shrinks. When the whole body is dried, the neck bone is exposed.

Storing

Pipa cured chicken can be stored for 4-5 months or even longer. During storage, the temperature can not be too high in case to cause oil dropping and the product becomes shrunk and fat-oxidated.

RESULTS AND DISCUSSION:

1. The product ratio of pipa cured chickens ranges from 42 to 44% (Table 2). After the procedures of dry-curing, soup-curing and draining, large amount of water has been lost (Table 3). In the first 20 days, water loss is more rapid, reaching 24.2-26.5%. Water loss decreases in the last 10 days, about 4.66-6.76%. Temperature and ventilation during the period of draining greatly affect the quality and storability of pipa cured chicken.

Table 2. Product Ratios of Processing Pipa Cured Chicks.

No.	Weight (kg)				Product Ratio(%)
	Live	-blood & feather	-internals	after pressing 30rd day of drying	
1	2.60	2.40	1.85	1.78	44.04
2	2.36	2.15	1.82	1.18	43.01
3	2.36	2.15	1.75	1.17	42.37
4	2.71	2.51	1.47	1.85	42.80

Table 3. Weight Changes During the Drying Period (kg).

Group	Day										
	0	5	10	15	20	25	26	27	28	29	30
	Temp. (°C)										
	15	16	12	13	12	15	15	16	16	17	17
1	1.79	1.47	1.38	1.31	1.26	1.22	1.20	1.18	1.17	1.16	1.15
2	1.69	1.46	1.27	1.18	1.12	1.08	1.07	1.06	1.04	1.03	1.02
3	1.68	1.48	1.25	1.15	1.09	1.05	1.05	1.04	1.03	1.03	1.00
4	1.85	1.62	1.46	1.34	1.27	1.22	1.21	1.19	1.17	1.17	1.16

II. Factors Influencing the Quality of Pipa cured Chicken

1. Temperature

Temperature is very important to pipa cured chicken processing. Usually, the processing time is chosen in between the Great Snow (the 21st solar term) and the Winter Solstice (the 22nd solar term). The product made during this period can be stored longer. During the period from the Beginning of Spring to Clear-Bright, pipa cured chicken can be also made, but the product will be less storable. During other period, air temperature is usually high, oil dropping and fat oxidation will cause problems in processing.

2. Salt Smearing

Pipa cured chicken is properly salted and tastes delicious. The salt used for smearing must be baked to yellow. Smearing should be uniform in order to make the salt well distributed into the muscle fibers.

3. Shaping

High quality pipa cured chicken requires a nice looking with white skin and red flesh. Therefore, bleeding and residual blood extraction should be complete, cutting position should be accurate, and the cuttings should sharp and neat. Before pressed, the chickens should be properly shaped.

4. Air Drying

Air drying has great effect on the flavor, color and storability of pipa cured chicken. The temperature in the drying room should be kept at 4-15 °C. Under well ventilated conditions, when dried skin is formed on the surface of the bodies, and water activity is less than 0.85, the product will be stored for a longer time.

REFERENCES:

- Laste, L. (1988) Advance in the Processing and Storage of Meat Products 1:1-9.
- He, Y.Z. (1988) Processing Technology of Meat Products 1:251-257.