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The manufacture and nutritional analysis of the colocasia esculenta jam

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ABSTRACT

In order to further develop the use of *Colocasia esculenta* and carry on the intensive processing to the *Colocasia esculenta*, use the *Colocasia esculenta* entity as the raw material. After cleaning and grinding into the sauce and mixing with the supplementary material, the bottling sterilization becomes the *Colocasia esculenta* jam, and making the nutrition ingredient analysis separately to the *Colocasia esculenta* jam with chemistry method and the instrument method. The result indicates that the *Colocasia esculenta* jam color is bright and light red brown, flavor tasty, the nutrition is rich, the protein content is 4.87%, including 17 kinds of amino acids and the 8 kinds of essential amino acids of the human body, the fat is 1.97%, as well as the rich mineral substance, with the vitamin. The *Colocasia esculenta* jam is one of the nutrition for the old and seasions young. This has provided the scientific basis for the *Colocasia esculenta* thorough research and the development. © 2013 Trade Science Inc. - INDIA

KEYWORDS

Colocasia esculenta;
Jam;
Nutrition;
Process;
Analysis.

INTRODUCTION

The *colocasia esculenta* is perennial plant in the *Araceae, colocasia*. It originally grows in China, India, the Malay peninsula and other places on the marsh area, and it has 2000 years' growing history in our country^[1,2]. There are good prospects of marketplace in the international and internal. As a result of the nourishing, high output, good storage of the lasting long, it is also an important traditional Chinese medicine. The *colocasia esculenta* has formed good breed in Zhejiang, Fujian, Shandong, Shanghai and other places in China's provinces, and far sold to the overseas. It grows broadly in our country and has high output and

breed, there are 1431t in the year, 2000 in the Chinese Xiao Wang Miao fown of the Feng Hua market^[3]. Although there are various edible methods, yet there is a feeling of the indigestion. so the consumption is of the *colocasia esculenta* is limited. There is no research report of the *colocasia esculenta* in the document means of the examination. The purpose of the research is to use *colocasia esculenta* to process *colocasia esculenta* jam, This way not only retained nutrition and special flavour, but also provided the need for the market, and that is a new type of flavouring with the colours, sweet smell for the grown-ups and children. This has provided the *colocasia esculenta* thorough research and the development.

MATERIALS AND METHODS

Materials

Colocasia esculenta

Colocasia esculenta stem tuber is purchased from free market of Sha-ping-ba in Chinese Chongqing.

Reagents

Gln, Ala, Gly, Leu, Ileu, Arg, Lys, Thr, Val, Phe, Tyr, His, Asp, Ser, Try,

Vitamin A, Vitamin B₁, B₂, B₅, B₆, B₁₁, B₁₂, Vitamin C, beef extract, peptones, NaCl, H₂SO₄, HCL, K₂SO₄ and so on.

Instrument equipment

fat draw appearance, KJELTEC2300 protein analyse appearance, UV-9100 ultraviolet spectrometer, JJ-2 mould tissue pound to pieces machine, Aas vario 6 mould amino acid automatic analyse appearance, Atom absorb spectrometer, Soxtec Avanti 2055 fat analyse appearance, Air be overanxious work table, Sterile room, Hot-air sterilizer, Autoclave and so on.

Methods

Technical process

colocasia esculenta Raw material → Elimination belt putty and insect pest part → Cleaning silt! Steam boiling block stem → Putting it in the grinder and add 50-80% water, beating → Adding supplementary materials such as salt, etc. → Bottling → Pasteurization → Spot-check → Warehousing.

Colocasia esculenta jam processing technology:

The block stem has much clay on it due to its growth in the soil. So, before the processing.

Clay must be remove. After removal of the skin and completely cleaning, then steam boiling carries on the beating again, and add the right amount of water (50-80%) for the beating, the thick liquid should be as tiny as possible. In the processing, the clean and healthy environment is required (to carry on in sterile room), the beater and each kind of apparatus, the vessel should be disinfected first. Add the table salt 8-12%, the Chinese prickly ash 1%, the hot pepper 5-8%, helps the fresh medicinal preparation 1%, the ginger 6-8%, the vegetable oil 2-5% to the thick liquid and make it even. After the bottling for the quality the Pakistan disinfect-

tion and the spot-check, going into storage, under the low temperature or the normal temperature presevation.

Colocasia esculenta jam nutrition ingredient analysis determination method:

Determines the protein content with the KJELTEC2300 protein analyzer. Determines the fat content with the Soxtec Avanti 2055 fat instrumentation law^[4]. Determines the Vitamin with the liquid chromatography capacity law^[4]. Determines the amino acid content with the Hitachi L- 880 amino acid autoanalyzers^[4]. Absorbs the spectrophotometer law determination mineral substance with the Hitachi Z-5000 atoms the content^[4]. Determines the carbohydrate content with the capacity law^[4]. Determines the color fragrance with the sense organ law^[5].

RESULTS AND DISCUSSION

Colocasia esculenta jam nutrition ingredient analysis

colocasia esculenta jam According to Li Heng, Wang Jirang, the Qu Ming Xun food sense organ appraisal method carries on the sense organ appraisal, its nutrition is rich, the flavor is tasty, the color fragrance body is complete, in which protein, the fat, the carbohydrate, the cellulose content analysis, finally see TABLE 1 and Figure 1.

TABLE 1 : In *colocasia esculenta* jam main nutrition ingredient content

component name	In jam content) (g/100g)	In raw material conte(g/100g)
Crude protein	4.87	2.95
crude fat	1.97	0.31
carbohydrate*	26.20	25.0
crude fiber element	1.10	0.91

*Mainly is the starch

We may the Resul see from TABLE 1, in the *colocasia esculenta* jam the protein content 4.87%, the fat 1.97%, the carbohydrate 26.2%, in the cellulose 1.1%. showing sauces the nutrition is rich,

The protein is the main nutrition essential factor which the human body needs, it is closely linked with the vital activity, does not have the protein existence, any vital activity is unimaginable, the life is the protein existence

FULL PAPER

way.



Figure 1 : *Colocasia esculenta* jam Product and *Colocasia esculenta* Materials

In the *colocasia esculenta* jam amino acid type and content analysis

With the Hitachi L- 8800 amino acid autoanalyzer determination *colocasia esculenta* jam in the amino acid type and the content, finally see TABLE 2.

We may see from TABLE 2, in the *colocasia esculenta* jam the amino acid is complete. It contains 17 kinds of amino acids, 8 kind of human body essential amino acids, this is one kind of new complete amino acid seasoning.

In the *colocasia esculenta* jam Vitamin content analysis

In the serial number *colocasia esculenta* jam Vitamin content after the liquid chromatography volumetric determination determination, finally see TABLE 3.

From TABLE 3, in the sauce Vitamin content is quite rich, in which Vitamin C content is highest, for 4.0mg/

100g, next is the nicotinic acid amide for 0.07mg/100g and Vitamin B₂ is 0.03mg/g. The Vitamin is one of six big essential nutrition human body need factors, and is an important nutritious ingredient for health. If the human body lacks some kind of Vitamin for a long time, it is possible to cause this kind of Vitamin the model deficient symptom. So, the human body must have enough quantity of the Vitamin, and guarantee organism the normal physiological function need. The *colocasia esculenta* jam is satisfactory for this requirement.

TABLE 2 : *Colocasia esculenta* jam In sauce amino acid content

Serial Number	Component name	Content (mg/100g)	Serial Number	Component name	Content (mg/100g)
1	Ile	23.84	10	Asn	137.94
2	Thr	36.35	11	Ser	48.43
3	Leu	60.61	12	Tyr	35.62
4	Phe	49.54	13	Glu	245.09
5	Lys	47.92	14	Gly	40.71
6	Ala	48.08	15	His	43.47
7	Cys-Cys	18.07	16	Arg	71.08
8	Val	40.94	17	Pro	39.81
9	Met	14.19			

TABLE 3 : In the *colocasia esculenta* jam Vitamin content

Component name	Content (mg/100g)	Component name	Content (mg/100g)
Vitamin A	0.0 2	Vitamin C	4.0 0
Nicotine acid	0.0 7	Vitamin B ₂	0.03
Vitamin B ₃	0.01	Vitamin B ₁	0.06

In the *colocasia esculenta* jam mineral substance content analysis

The *colocasia esculenta* jam after the Hitachi Z-5000 atom absorption spectrophotometer law analysis, its mineral substance content, see TABLE 4.

TABLE 4 indicated that in the *colocasia esculenta* jam the mineral substance type is complete. The K,Ca,Mg, Fe,Zn content is rich. They all are essential elements for the human body. The calcium content high for 55mg/100g, it is most important in the human body and organism, the calcium is essential mineral element of the body. If the human body lacks the calcium, it is possible to cause rickets and the osteoporosis symp-

tom. The potassium content is highest, the potassium can promote the human body cardiac muscle activity, and certain curative effect on the hypertension sickness and feeble heart as well. The magnesium and the zinc next best, the zinc is the extremely important element this. The hard content 1.6mg/100g, it is some enzymes (for example decarboxylase) the accessory factor, lacks of the iron will be able to cause the poor hemopathy. Therefore, mineral substance and calcium, iron, zinc, potassium, etc. are playing the vital role in the human body, is the present people to the food middling material element research important content, also is the people weighs one of food nutrition important symbols. The *colocasia esculenta* jam in this aspect is the seasoning which is characteristic.

TABLE 4 : In the *colocasia esculenta* jam mineral substance content

Mineral prime abbreviation	Content(mg/100g)
K	218.0
CL	33.0
C _a	55.0
M _g	32.6
F _e	1.60
Cu	0.46
Z _n	0.09
Na	1.60
P	76.00

CONCLUSION

The findings indicated that, the *colocasia esculenta* jam manufacture craft is simple, the cost is low, does not need the expensive specific installation, is advantageous in the *colocasia esculenta* jam production processing technology promotion and the *colocasia*

esculenta jam development intensive processing. In the sauce the nutrition is rich, the amino acid is complete, including 17 kind of above amino acids and the human body 8 kind of essential amino acids, the protein content 4.87 %, fat content 1.97 %, cellulose content 1.1 %, carbohydrate content 26.2%. Vitamin C quite is specially high for 4.0mg/100g, the potassium, the calcium, the iron, the zinc content are rich, respectively is 218.0 mg/100g, 55.0mg/100g, 1.6mg/100g, 0.09mg/100g. Moreover the flavor is tasty, it is easy to digest, enhances the nutrition the use factor, and also eliminated *colocasia esculenta* the general edible method to cause the inflation shortcoming. It is one kind concurrently suitable nutrition rich newest seasoning for the old and young.

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