International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.10, pp 567-571, 2017

Development of a Food Product Type Based Sauce Egg plant (*Solanum melongena*)

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Abstract : In this research the development of a sauce type of food product based low calorie eggplant (*Solanum melongena*) was sought. For this physico-soluble solids, pH, brix, moisture, ash and yield three types of eggplant variety esculetum including Violet Long, Long Residence and Black Beauty they were made; conservation tests used were: physical methods, low temperatures, steam and addiction antioxidant. Within the result is that the product is classified as a sauce, as these are concentrated to 25 ° Bx and 35 and has obtained 20º Bx.el physical vapor preservation method is the best performing and Antioxidants better behavior presented were natural (vitamin E and Ascorbic acid), highlighting vitamin E which kept organoleptic characteristics of the pulp at 90%. Based on the results it is concluded that the species Black Beauty has better conditions of use compared with long purple and violet species long.
Keywords : Dressing, Food, Low calorie, Sauces.

Introduction

Essential nutrients in the daily diet are vegetable products, they have the disadvantage of rapid decomposition, so they are available for a short time, either by internal causes (enzymatic reactions) or by external causes (physical-chemical agents) [1,2,3,4].

Eggplant (*Solanum melongena* L.) is the most important vegetable solanaceous in the Colombian Caribbean, after chili and tomato. It is native to tropical eastern areas, cultivated for more than 4000 years by the Chinese and Arabs and its center of genetic diversity is India and Indochina [5,6]. It has economic and social importance in the sinuana culture, since it was introduced by the Arabs in the last century and, from the genetic variability of the introductions, the plants of greater adaptation were selected, contributing to the enrichment of the food base of this one Region of the country, along with their customs, traditions and cultural diversity [7,8].

According to statistics from Agronet[9], in 2006, 220 hectares were cultivated, with average yields of 7t· ha-1, which yielded a production of 1,487 tonnes, lower than that of the department of Valle del Cauca, which recorded Yields of 38t · ha-1, and those of Spain and Mexico, the main exporters, with yields of 31.25 and 61.8t· ha-1, respectively[10], thanks to the use of improved cultivars, especially , First-generation hybrids [11,12,13].

Given the agrochemical characteristics of the fruit the possibilities of preparing a variety of dishes for edible purposes are very small as it contains alkaloids detrimental to human health, such as solanine, hence can only be consumed cooked by causing it to decompose by heat . It is consumed boiled, fried, roasted, steamed or

baked. This plant has a high nutritional value because it contains many minerals and proteins that are important for a correct functioning of the human organism[14,15].

Salsus is a composition or mixture of several unhealthy edible substances and is used to season or season the food, and serves to moisten, mask, contrast, provide flavor or delight[16]. This study aims at the elaboration of a food product type sauce based on a tropical vegetable (Solanum melongena).

Experimental

In Physicochemical analysis

Eggplant is considered a food of great importance in human health given its low energy value, its low calorie intake is the difference with other vegetables[17,18]. The eggplant belongs to the genus solanum of this part three varieties are esculetun, ovigevum and insanum. Three species of the esculetum variety (Long Violet, Long Morada and Black Beauty) were selected to obtain the pulp. The methods of physico-chemical analysis used are listed below:

• Determination of brix degrees: refractometric method A.O.A.C
• Determination of pH: Method A.O.A.C
• Determination of humidity: Method A.O.A.C
• Ash determination: Method A.O.A.C

Conservation

For the physical method, a scald to the eggplant was carried out between 50 ºC and 75 ºC between 5 min and 15 min. Subsequently a cooling at 4 ° C; The pulp was extracted artisanally and filled into bottles of transparent, completely sterile glass. The long violet eggplant pulp of lot No. 001, packed in transparent colored jars was preserved an average time of 6 min at room temperature, after which the product presented oxidation. The long purple eggplant pulp of lot No. 001, packaged in transparent colored jars was preserved for an average time of 9 min at room temperature, after which the product presented oxidation. The Black Beauty eggplant pulp of lot No. 001, packaged in transparent color bottles, preserved an average time of 12 minutes at room temperature, after which the product presented autoxidation.

At low temperature, the eggplant of optimum maturity stage and concentration of 5 º Bx was scaled at 70 º C for 5 minutes, preservation at low temperatures. Then it underwent a thermal shock, after which it was peeled to the eggplant; To obtain the pulp then it is packed in bags of sterile polyethylene. The first batch was maintained for 10 min at a cooling temperature of 8 ° C. The second batch was maintained at 10 min at-4 ° C freezing temperature, also packed in a polyethylene bag.

For steam preservation, 1 eggplant sample was selected for each species (blackbeauty, long purple and long violet), wrapped in aluminum foil and brought to a temperature of 70 ° C for 15 minutes, heat shock was performed, allowed to stand And the pulp was obtained and filled into previously sterilized clear glass vials. It was left at room temperature and refrigeration, then proceeded to observe the results. Taking into account that previous eggplant pulp tests did not give the expected results we subjected the pulp to subsequent trials using natural and chemical antioxidants. To standardize this process several trials were made.

The addition of antioxidants is another form of preservation, in this case I use alpha tocopherol or vitamin E and vitamin C; And trials with ascorbic acid were also carried out, which have been successful in the food industry. The behavior of the three antioxidants was satisfactory, although it should be noted that vitamin E allowed the preservation for longer time maintaining the organoleptic characteristics of pulp, mainly odor, color, texture and flavor. Antioxidants were applied according to resolution 4124 of 1991. Once the eggplant pulp was obtained with the steam method, the shelf life was prolonged by adding the following antioxidant: B.H.T. Liquid in permissible quantities by resolution 4124 of 1991, the addition of this to the pulp, allowed its conservation, but unlike the natural antioxidants presented changes in the organoleptic characteristics as were the color, smell and texture, completely undesirable.

Standardization

Once the preserved pulp was obtained, we proceeded to the elaboration of the sauce. The preserved pulp was taken and we cooked it and we added the following ingredients (Paprika, onion and garlic), stir until obtaining a homogenous mixture of salt and monosodium glutamate, then at 5 min. We add the thickener (xanthan gum (0.1 g.) And continue stirring; at 10 min we add the thickened vinegar and the preservatives sodium benzoate and potassium sorbate (1000 mg the mixture of both) that is below the Total cooking time of the sauce: 80 ºC for 15 min.

Results and discussion

In Table 1, it can be shown that the best behavior is Black Beauty since it presents a yield of 80%. Regarding physical methods of preservation, the best performance was steam treatment compared to other methods used. This product is classified as a sauce with 20 º Bx as these are concentrated up to 25 and 35 º Bx. Sauces can reach a maximum pH of 4.3, in our case it is 4.2.

Table 1.Physicochemical characteristics of vegetables

Long Violet

Characteristics	%
º Bx	5
pH	5.2
Humidity	92
Ashes	0.29

Long Mora

Characteristics	%
º Bx	5
pH	5.7
Humidity	90
Ashes	0.36

Black Beauty

Characteristics	%
º Bx	5
pH	5
Humidity	92.6
Ashes	0.5

Table2. Sensoryanalysis

I likeverymuch	I likeit	I do notlikeordislike	I likelittle	I do notlike	Total
20	70	6	2	2	100
20%	70%	6%	2%	2%	100%

To be classified as low in calories, the product must contain at least one third of calories below the conventional product[11]. Sauces low in calories, do not use oil and its fat content is between (0.5% and 4%) and the energy supply (none of them reaches 100 calories per hundred grams) are very modest, so are the least calories and Which with less reserves can consume those who watch their weight. The product is in the classification of low calorie sauce as it provides 1.9 calories per serving of 10 grams and a sauce usually provides 15 calories[15].

In Table 2, the data obtained from the sensory analysis of the sample of sauce was carried out with the measurement test of the degree of satisfaction that is the one used to evaluate one or more samples at sight or when it is desired to obtain more information about Of a product. To carry out this test were used the hedonic scales, these are an instrument for measuring the pleasurable or unpleasant feelings produced by a food to those who test it. The hedonic scales may be verbal or graphical and the choice of scales depends on the age of the panelists and the number of samples to be evaluated[8].

In order to evaluate the low-calorie eggplant sauce, the questionnaire was chosen to evaluate the degree of satisfaction[2]. It consists of using a hedonic scale to qualify the degree of overall sample satisfaction and to include a section on Which gives the opportunity to the judges to express their comments.

Conclusions

From the results obtained, the following conclusions can be drawn: 1) The performance study allows us to conclude that the species Black Beauty presents better conditions of use compared to the species long purple and long violet; 2) From the egg pulp Black Beatyse obtains a sauce rich in minerals as they are (phosphorus, potassium and magnesium) essential in the diet; The product has a green color, pleasant odor and smooth texture homogeneous.

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