



Maestría en Gestión e Innovación Tecnológica

Title

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Pleurotus ostreatus mushroom**

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# Standardizing conservation technology for *Pleurotus ostreatus* mushroom

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## 1. Introduction

Mexico is the largest producer of edible mushrooms in Latin America, it generates about 58.9% of total production and is the 16th producer worldwide. Marketing margins are competitive compared to other agricultural products; the champignon and the oyster mushrooms are the most consumed. *Pleurotus ostreatus*, known as *oyster mushroom*, has a pleasant taste and flavor, high nutritional value and medicinal properties. It is commonly eaten fresh but its shelf life is very short (from 1 to 3 days). That is why this work is focused on the need to extend its shelf life. The process conservation must maintain its nutritional quality and even improve the pleasant sensory characteristics (taste, smell, texture, color), using ingredients such as oils, spices, salt and vinegar. Food security is a global priority, therefore, it is necessary to develop new functional products that also enable food preservation.

## 2. Objectives

### 2.1. General objective

Getting a packaged food product mushroom *Pleurotus ostreatus* by standardizing a method of food preservation consider the sensory quality.

### 2.2. Specific objectives

- To establish a conservation process to obtain a food product made with *Pleurotus ostreatus*.
- To develop a packaged product mushroom *Pleurotus ostreatus*.
- To make a value proposition by identifying a target market.

## 3. Method

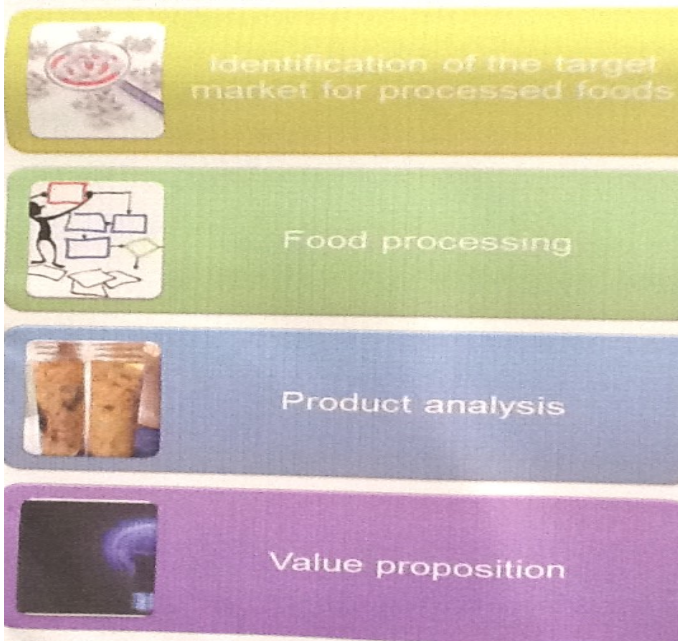


Figure 1. Methodology used to extend *Pleurotus ostreatus* shelf life

Table 1 Proposed formulations of canned mushroom. Spices are added in all the formulations

Formulations	Oil proportion Canola - Olive (%)	Proportion Vinegar - Water (%)	Proportion Salt (%)
T1	65 - 35	-	-
T2	75 - 25	-	-
T3	80 - 20	-	-
T4	90 - 10	-	-
T5	-	20 - 80	-
T6	-	25 - 75	-
T7	-	30 - 70	-
T8	-	35 - 65	-
T9	-	-	2.5
T10	-	-	2
T11	-	-	1
T12	-	-	0.5

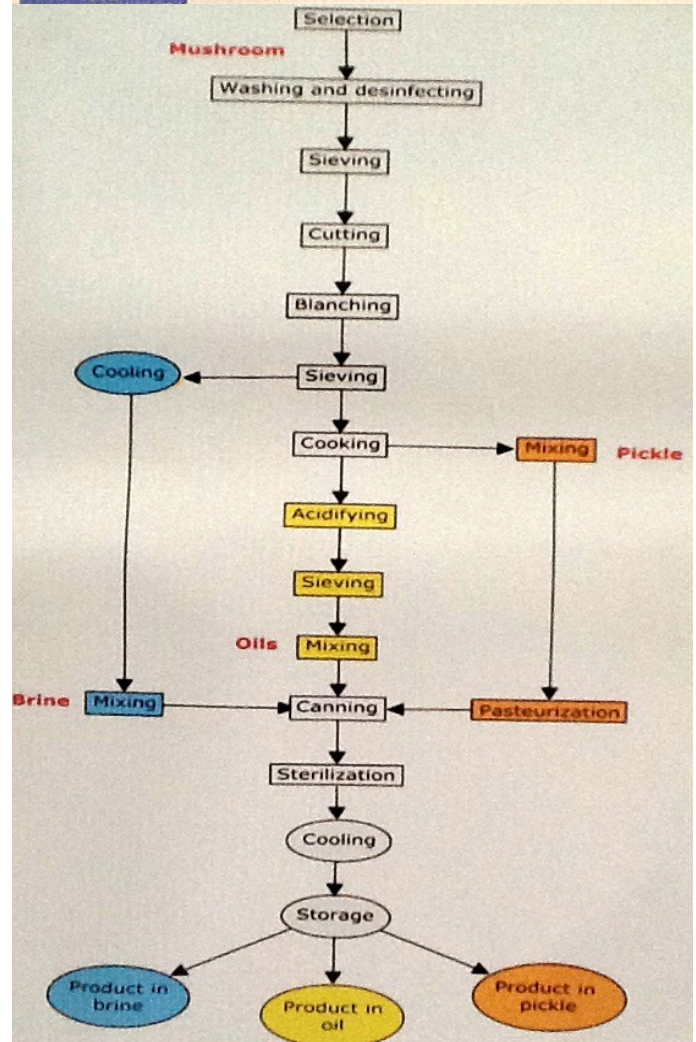


Figure 2. Operation units of conservation process

Table 2. Market value mmd Source: Euromonitor AAGR average annual growth rate

Categories	2014 mmd	AAGR
Dairy	471.5	4.4%
Bakery	365.0	2.4%
Sea food and meat	252.7	2.7%
Confectionery	195.2	3.2%
Rice and paste	143.8	4.6%
Sweets and salty snacks	124.8	5.1%
Sauces and dressings	122.4	3.5%
Oils and fats	120.5	3.6%
Bars	105.0	4.3%
Ready meal	91.8	2.1%
Baby food	61.3	9.2%
Ice cream	80.4	3.6%
Fruit and vegetables processed	56.4	1.9%
Cereals	30.8	2.0%
Spreadable	23.8	3.1%
Soups	16.0	2.3%

#### 4. Results

Table 1 shows the processing conditions of canned mushroom. The process block diagram is observed in Figure 2 and in Figure 3 the experimental procedure. The market value for processing food by categories is concentrated in the Table 2. Table 3 shows a compilation among consumption and production at global and national levels.



Figure 3 Above, experimental process. Below, final product after four months of storage

Table 3 Indicators of industry food Adapted from Pro México: Food processing

	Consumption	Production	Meal reading 2014-2020
Mexico mmd	143845	135493	385.8
Global mmd	4985	5022	91.8

\*Average Annual Growth Rate, mmd: billions of dollar, mmd: million million dollars

#### 5. Conclusion

The oils mix allows the preservation of the mushrooms through months, thus extending its shelf life until months. However, it is necessary to carry out microbiological and sensorial analysis to confirm the safety of this kind of food.

It has been identified the market value into processed food; the tendency shows business opportunities into the category of ready meal.

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