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Improving the hygienic quality of milk products (Jben Jben melted and cooked) prepared in the laboratory

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Abstract

In order to improve dairy products prepared in the laboratory and at the end to highlight bacteriological quality and compare with the controlled cheese already prepared. Jben samples of cooked and melted jben were prepared.

The results obtained show that the pH of the medium is controlled to respectively 4.18 Jben, against 4.04 for the 4.09 and cooked Jben molten Jben. The acidity of the medium generate values between 76 and 97 ° for the D jben cooked while it is molten and of the order of 83 ° for the D jben controlled.

Loading MTAF records an average of 2.12. 105 cfu / g to 1.74 against the controlled jben. 103 CFU / g for cooked and 4.67.102ufc / g melted jben jben. Flora of fecal contamination is absent in the three types of Jben, except for the third sample Jben controlled marking a value 1,1.102 cfu / g for total coliforms and 1,09.102 cfu / g for fecal coliforms.

Charge for the yeasts, it is absent in the molten Jben and jben cooked while they oscillate between 1.1. 6,2.103 and 103 cfu / g to the filler Jben contrôlé.La lactic bacteria is between 5.2 and 8,4.104 cfu / g and the cooked jben between 3.4 and 7,6.104 cfu / g for jben melted. The Jben controlled brand values between 4.3 and 9,7.104 cfu / g. We also noted the total absence of Staphylococcus, Salmonella and clolstriduims in all samples analyzed.

Keywords: dairy products, baked jben, jben melted jben controlled bacteriological quality

1. Introduction

Feeding behavior has undergone a significant change through the recovery and identification of agricultural land and agri-food products. In this sense, scientific research with faculties and Regional Agricultural Research Centers have specific target for the development of agriculture through improved breeding cows and its products. These studies on the links between indigenous knowledge, local knowledge and technology have ensured a fine taste of dairy products and diversify these supplements milk. Research activities relate to the adjustment of diet, rangeland management, food technology, process cheese and the incorporation of aromatic plants and essential oils to refine and customize the quality of the cheese processing.

Cheese is one of the most esteemed by man long dairy products. However, there are more than 1,000 varieties produced worldwide (Hayaloglu et al, 2002). the name "cheese" in the prescribed project Moroccan dairy products is reserved or not fermented product obtained by coagulating milk, cream, skim milk or a mixture thereof, followed by dewatering. The cheese contains at least 23g per 100g of solids (MAMVA, 1994). In Morocco cheese production had a very slight change in the half of the last decade from 21,500 tons in 2000 to 27,500 tonnes in 2005 (DDFP 2010).

Cheese production is carried out either by the traditional method (Jben) in the rural and traditional dairies (mahlabas) or semi-industrial or industrial method method is limited. This is a dairy product known and consumed in Morocco for a long time in both rural and urban areas (El Marrachi and Hmmama 1996).

The present study aims to assess the bacteriological quality of Moroccan traditional fresh cheese made laboratory scale (jben controlled) and try to improve this product jben melted and cooked jben end to draw conclusions concerning the adoption of good cheese manufacturing practices. We tried, through this work, to adopt the

traditional production technique but according to good manufacturing practices and hygiene. The challenge is to reduce biological contamination.

2-Materials and Methods

2.1. Preparation of Jben (white cheese) melted and cooked Jben laboratory

a. Preparation of cooked and melted

Preparation Jben cooked and melted following the same protocol of controlled manufacturing Jben. This means that the raw material is melted and cooked Jben controlled Jben. The latter is transformed according to the following arrangement:

- Incubation of the controlled 37 ° C for 48 hours Jben;

- Addition of a mixture of pasteurized beldi butter, a natural citric acid solution until pH = 4 and the powdered milk. The whole is mixed until a heavy mass. For comparison purposes three concentrations were tested beldi butter (5%, 10% and 15%).

At these steps follows subjecting the mixture to boiling for five minutes to obtain the baked or Jben incubating the mixture at 65 ° C for 30 minutes to obtain the molten Jben.

b. Analytical Evaluation of the two products

After transformation of milk, both the products obtained (Jben Jben molten and baked) were subjected to an analytical assessment. We have made their physicochemical analysis (pH and acidity) and microbiological analyzes.

2.2. Physicochemical analyzes

- measurement of pH

The pH is measured using a pH-meter Orion Research after such calibration pH 7.02 and 4.

- Measurement of acidity

The acidity is measured by titrating 10 ml of the supernatant with an alkaline solution (NaOH, 0.11 N) in the presence of phenolphthalein.

2.3. Microbiological analyzes

Microbiological analysis of waste is made before and after making Jben cooked and melted Jben. The count takes place as follows:

total aerobic mesophilic flora-(FMAT) agar PCA [Plate Count Agar] incubated 24-48 h at 30 ° C; it is a good indicator of the overall contamination of fermented waste.

-lactic acid bacteria on MRS agar and incubated 48 h at 30 ° C.

on yeast-dextrose medium Sabouraud 4% were incubated 5 days at 22 ° C.

coliform-lactose agar désoxycolate (DCL) incubated 24 h at 30 ° C for total coliforms and 44 ° C for fecal coliforms.

-faecal streptococci on sodium azide incubated 48 h at 37 ° C.

-staphylococci on Baird Parker agar with egg yolk and potassium tellurite and incubated 48 h at 37 ° C.

sulphite-reducing clostridia-on reiforced Clostridium agar medium in tubes for promoting anaerobic conditions, with a heat treatment of 80 ° C for 10 min to activate the spores. After 48 h incubation at 37 ° C, only the black colonies are counted.

after pre-salmonella-enrichment medium sélinite-cystine, followed by enrichment in tetrathionate broth, incubated 24 hours at 37 ° C on SS [Salmonella-Shigella] medium. Le schéma suivant illustre le protocole de fabrication du Jben cuit et Jben fondu.

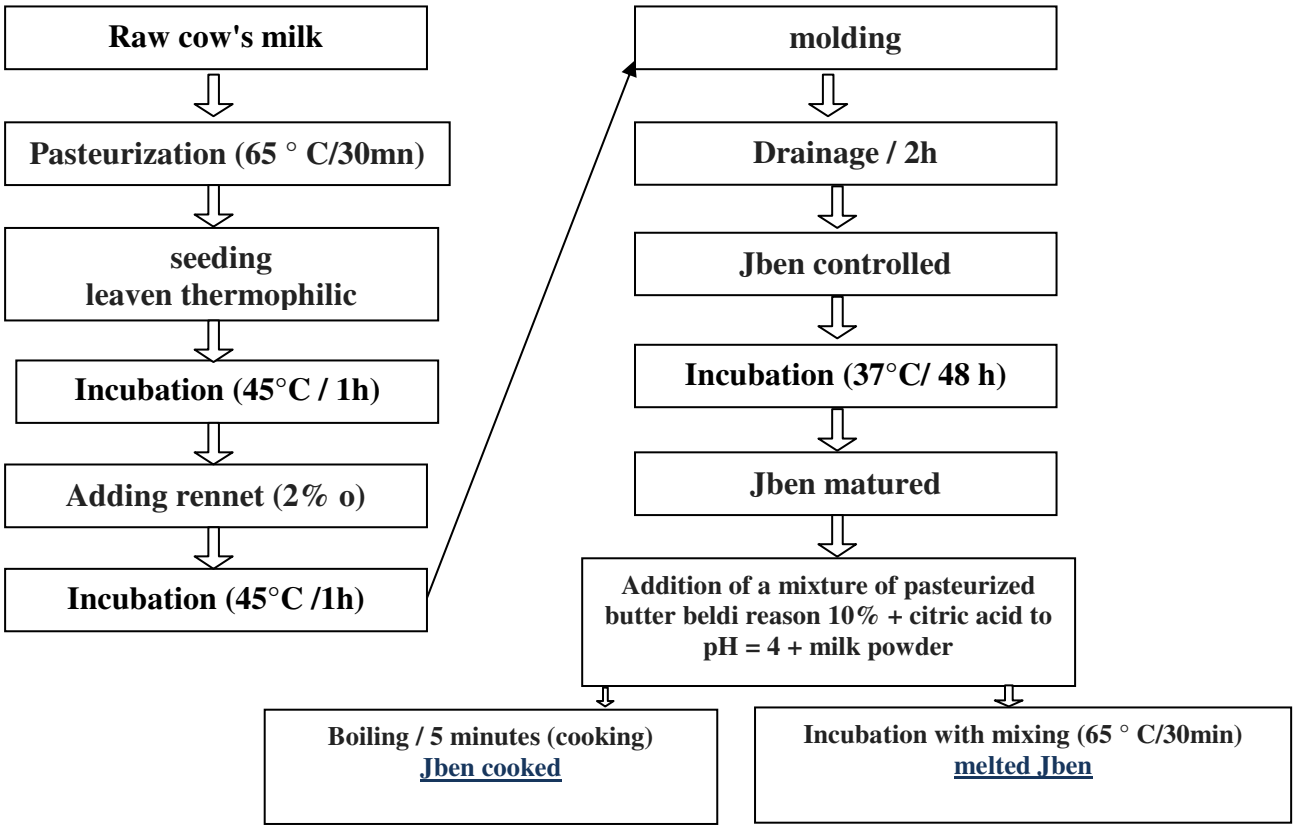

Figure 1: Procedure for the preparation of cooked and processed Jben

3- Results and disscussion

3.1. pH and titratable acidity

The pH of the medium is controlled to respectively 4.18 Jben, against 4.04 for 7 and 4.09 Jben cooked for molten Jben (Table 1). These values are close to those reported by Bayi 1990 (4.02), but they are better than those found by Kibibou; 1987 Hammama, 1989 (4.20), Mahi; 1992 (4.22). and Mahfoud; 1997 (4.16). the values found by Mennane, (2008) have a maximum and a minimum of 4.70 to 3.80. Sritih, 1996 found an average of 4.54.

The average acidity generate values between 76 and 97 ° D located in the range of average announced by Hammama 1989b (99 ° D) and Kbibou, 1987 (111.60D °).

3.2. Microbiological analyzes

Microbiological analyzes raise the following points:

- The load MTAF records an average of 2.12. 105 cfu / g for the controlled jben (Rhiat et al, 2011 and Rhiat et al 2013) against 1.74. 103ucf / g for cooked and 4.67.102ucf / g melted jben jben. registered in our values and microbiological analyzes are lower than those found by Mennane, 2008 and ranging from 1.43. 105 cfu / g to 1.01. 106 cfu / g and other Moroccan researchers as Hammama 1989b Mahi et al, 1995, Aboulala et al, 1994 Zahar et al, 1997 and El marrakchi, 1988.

- The Flora of fecal contamination is absent in the three types of Jben, except for the third sample Jben controlled marking a value 1,1.102 cfu / g for total coliforms and 1,09.102 cfu / g for fecal coliforms. The Flora pathogen is absent for three types of Jben.

Charge for the yeasts, it is absent in the molten Jben and jben cooked while they oscillate between 1.1. 6,2.103 and 103 cfu / g for Jben controlled.

Loading lactic acid bacteria vary between 5.2 and 8.4104 cfu / g for cooked jben and vary between 3.4 and 7,6.104 cfu / g for the molten jben. The Jben controlled brand values between 4.3 and 9,7.104 cfu / g (Table 2). The values quoted by Mennane et al, 2007 are between 103 and1, 2104 cfu / g.

In an earlier study by Tantaoui-Elaraki et al. (1983a, b), it was demonstrated that the dominated by mesophilic lactic acid bacteria L. lactis and Leuc. mesenteroides species are responsible for the fermentation and flavor development in the "Lben". The presence of a limited number of species of lactic acid bacteria in "Lben" can be explained by the fermentation process that generates a significant decrease in acidity and inhibiting the development of many species as reported by Wouters et al. 2002.

4. Conclusion

The objective of this work is to try to make the Jben with the traditional procedure and the laboratory scale, with a physicochemical and microbiological comparative study to highlight the nutritional and hygienic quality of these products.
Microbiological analyzes showed that the load in the FMAT Jben controlled is apparently low. This charge decreases markedly in Jben cooked and melted Jben.
Flora of faecal contamination (total coliforms and fecal coliforms) and Flora pathogen are absent in the three types of Jben except for controlled 3 Jben. This is explained by the action of lactic bacteria which slowed the proliferation of other microorganisms due to the effect of low acidity and heat treatment but also pH. Charge in yeast, is absent in the molten Jben and Jben cooked, then it has a low value for the controlled Jben. The result of these analyzes that the hygienic quality of the molten and baked Jben Jben is better than that in the controlled Jben, this is due to the combined action of heat treatments and citric acid.
The milk used to manufacture cheese must come from herds according to specific health conditions concerning certain serious diseases that can be transmitted to humans through milk and dairy products. Health and qualification is required to manufacture and sell these products (Jben Jben melted and cooked). It is issued by the veterinary services as a result of checks carried out in the framework of collective prophylaxis.
Beyond these signs of hygienic quality of our production, there are also indications such as rewarding the efficiency of the process applied and the characteristics of milk. Why our perspective is intended to encourage organizations and cooperatives by providing financial support for the development of all collective quality initiatives that meet specific specifications or origin. This support aims to:
The development of new approaches to segmentation or quality assurance and enhancement of products developed under these approaches.
Improving the health, technological and organoleptic quality of milk products and marketing initiatives.

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Table 1: pH and titratable acidity of jben controlled, Jben cooked and melted Jben

samples	pH	Acidity (D°)
Jben 1	4.18	83
Jben 2	4.22	87
Jben 3	4.14	92
Jben cooked 1	4.02	96
Jben cooked 2	4.04	91
Jben cooked 3	4.08	89
melted Jben 1	4.06	88
melted Jben 2	4,13	94
melted Jben 3	4.09	91

Table 2: Microbiological analyzes of jben controlled, Jben cooked and melted Jben

samples	FMAT ucf/g	Coliformes ucf/g		Staph ucf/g	Clost ucf/g	Salm ucf/g	Bac Lac ucf/g	yeasts ucf/g
		totaux	fécaux					
Jben 1	$2{,}8.10^5$	0	0	0	0	0	$9{,}7.10^4$	$6{,}2.10^3$
Jben 2	$03{,}10^5$	0	0	0	0	0	$5{,}9.10^3$	$2{,}8.10^3$
Jben 3	$0{,}57.10^5$	$1{,}1.10^2$	$1{,}09.10^2$	0	0	0	$4{,}3.10^4$	$1{,}1.10^3$
Jben cooked 1	$2{,}8.10^3$	0	0	0	0	0	$6{,}3.10^4$	0
Jben cooked 2	$1{,}6.10^3$	0	0	0	0	0	$8{,}4.10^4$	0
Jben cooked 3	$08{,}3.10^2$	0	0	0	0	0	$5{,}2.10^4$	0
melted Jben 1	$02{,}1.10^2$	0	0	0	0	0	$5{,}4.10^4$	0
melted Jben 2	$06{,}3.10^2$	0	0	0	0	0	$3{,}4.10^4$	0
melted Jben 3	$05{,}6.10^2$	0	0	0	0	0	$7{,}6.10^4$	0

Figure 2: Jben cooked and melted Jben prepared in the laboratory

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