Title: INFLUENCE OF pH AND TEMPERATURE IN COUNTING OF YEAST OF ORGANIC COCOA SEEDS AND NON-ORGANIC FERMENTED IN TWO AMAZONIAN LOCATIONS.

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Abstract:

One of the factors to achieve a good quality chocolate is the fermentation of the cocoa seeds, which are essentially driven by microorganisms among them yeast, acetic, lactic and acid bacteria, which are responsible for the biochemical reactions that occur during fermentation. Yeast are the first microorganisms to work in the cocoa fermentation process, which convert the sugars present in the pulp into ethanol, this phase is essential for the good conduction of the fermentation process. The growth of these microorganisms is influenced by weather conditions and factors of the fermentation process such as duration, substrate availability, temperature and pH conditions. The objective of this study was to identify the best pH and temperature conditions for the growth of yeasts during fermentation of organic cocoa from the city of Medicilândia (state of Pará) and not organic, from the city of Tucumã (state of Pará). For the isolation of yeasts, one sample of 25g was collected and aseptically transferred into sterile bags and homogenized in 225 ml of 1% buffered peptone water. After, from this dilution were performed decimal serial dilutions to 10-8 dilution, 1 ml aliquots were plated on plates containing Malt Extract Agar (Sigma ®), acidified with added tartaric acid and chloramphenicol, at the times 0h, 24h, 48h, 72h, 96h, 120h, 144h and 168 hours of fermentation and incubated at 30 °C for 72 hours. After incubation, the yeast colonies were counted by standard plate count (SPC) method, determining the number of colony forming units (CFU) at each time of fermentation. In the organic cocoa, yeast had a higher growth at the times of 24h and 144h, with 9 colonies isolated in both times, reaching the pH 5.49 and temperature of 45,5ºC at the time of 144h. However, in non-organic cocoa, yeast had higher multiplication with 168 hours, with 44ºC and pH of 6.63. The parameters studied showed to be satisfactory, since the higher numbers of isolated colonies in organic and non-organic cocoa have been found at times that achieved the higher pH and temperature during the fermentation process.

Keywords: yeast; cocoa fermentation; microorganisms; pH.

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