

**TITLE:** BIODIVERSITY OF FUNGAL FROM CHEESE INDUSTRY IN THE PERNAMBUCANO STATE.

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In the industrial sector, the production activities have as counterpart the generation of wastes which are not always correctly treated. For example, in the dairy industries, for the production of one kilo of cheese, nine liters of whey cheese are generated; residue rich in sugars, principally lactose (40-50 g/L), proteins and vitamins of nutritional importance. Due to the composition of residual sugars, whey cheese has been proposed for produce bioethanol. Principally, because of its high availability and low cost, and for give an adequate previous treatment, diminishing so the carbon load in the environment. In view of the above, this work aimed to isolate and identify yeasts present in the cheese manufacture, capable of produce ethanol from whey cheese as only carbon source. Initially, 889 yeast isolates from the 34 dairy establishments were collected in a six-month period in Garanhuns region (Pernambuco, Brazil). Isolation was done in Petri dishes with YPL culture medium (yeast extract 1%, peptone 2%, lactose 2%, agar 2%, chloramphenicol 6 mg/ml) and incubated at 30 °C for 24 h. From these initial collections, was carried out the isolation of 775 yeast strains with the capacity to grow in natural whey cheese. These isolates were stocked in 60% of glycerol at -80 °C and -20 °C. The isolates were submitted to identification by mass spectrometry technique (MALDI-TOF), through the analysis of the characteristic protein profile. As a preliminary result, it was possible to identify 12 fungal species: *Candida krusei* (94), *Candida tropicalis* (65), *Candida sphaerica* (29), *Candida guilliermondii* (27), *Candida kefir* (20), *Candida lipolytica* (19), *Geotrichum silvicola* (15), *Candida lusitanae* (10), *Magnusiomyces capitatus* (5), *Candida sorbosa* (2), *Geotrichum candidum* (2) and *Pichia manshurica* (1). From these, some yeast have industrial importance, with a predominance of genus *Candida* sp, such as *Candida kefir* (*Kluyveromyces marxianus*), *Candida sphaerica* (*Kluyveromyces lactis*) and *Candida lipolytica*, which are associated with ethanol and lipids production, respectively. The results obtained confirm the wide yeast biodiversity in cheese industry, with biotechnological potential to conduct future projects for ethanol 2G production. These results also highlight the need to carry out training, implementation and continuous monitoring of good practices to prevent microbial contamination in milk-derivate industries.

**Keywords:** whey cheese, residue, bioprospecting, ethanol second generation