TITLE: IDENTIFICATION BY MALDI TOF AND BIOTECHNOLOGICALEVALUATION OF YEASTS ISOLATED FROM THE CANASTRA CHEESE PRODUCTION PROCESS

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ABSTRACT:
Canastra cheese is a type of Minas cheese, typically Brazilian produced in Minas Gerais at Serra da Canastra region. This cheese is produced from raw milk inoculated with commercial rennet and “pingo”. Despite the vast use of “pingo” as endogenous ferment in cheese, little is known about its yeast microbiota. The aim of the present study was to isolate and identify yeasts present in pingo, Canastra cheese, milk and whey; also to verify their biotechnology application focusing on lactose consumption and ethanol production. The raw milk, whey, pingo and cheese samples were collected in a farm localized in Serra da Canastra region, city of Medeiros – MG. For the yeast isolation was performed dilution of each sample followed by plating on YPD medium containing 0,1% chloramphenicol and incubation at 28°/24 h.
After macro and microscopic characterization, 145 isolates were detected and submitted to a lactose fermentation test in synthetic medium. Among the 145 isolates, 39 presented lactose fermentation capacity and were submitted to MALDI TOF analysis for identification and grouping. It was grouped and isolated 29 isolates as *Kluyveromyces lactis,* 7 isolates as *Torulaspora delbrueckii*e and 3 isolates as *Candida intermedia*. From the 39 isolates which fermented lactose, 14 demonstrated a better efficiency in the lactose consumption and were evaluated for its fermentation capacity in whey. In this fermentation 4 isolates, 3 *Torulaspora delbrueckii* (B14, B20 e B35) and 1 *Kluyveromyces lactis (*B10), presented better fermentative results. These 4 isolates were tested again in a new whey fermentation with pure or mixed cultures where it was evaluated the ethanol production, lactose, glucose and galactose consumption. Considering that the *Kluyveromyces lactis* B10 yeast was the most efficient in lactose consumption and presented intermediated values of ethanol production, also the *Torulaspora delbrueckii* B14 yeast presented efficiency in ethanol production and the highest monosaccharides consumption. Therefore, both yeasts were selected to compose a mixed inoculum for whey fermentation.

Keywords: fermentation, lactose, yeast.

Development Agency: FAPEMIG, CAPES, CNPQ.