

TITLE: IDENTIFICATION OF ISOLATED YEASTS OF MULBERRY MUST AND ITS EVALUATION FOR POTENCIAL BIOTECHNOLOGICAL APPLICATION.

AUTHORS: ZIEGLER T.E., MARTINA P.F, FERREYRA D.J.

INSTITUTION: CÁTEDRA DE QUÍMICA BIOLÓGICA – LABORATORIO CENTRAL; FACULTAD DE CIENCIAS EXACTAS, QUÍMICAS Y NATURALES; UNIVERSIDAD DE MISIONES. (FELIX DE AZARA N°1552, POSADAS, CP 3000, MISIONES, ARGENTINA)

ABSTRACT:

Mulberry fruits (*Morus nigra*) are important micro-habitats for the development of varieties of yeast species in the wild. The production of artisanal wines based on fermented juices of mulberry fruit is a growing activity in the province of Misiones (Argentina). The objective of this work was to isolate, identify and characterize physiologically and molecularly native yeasts from fermented musts. Two yeasts (Mora01 IX and Mora01 X) were isolated after 120 hours of incubation from a mulberry juice supplemented with 3% ethanol and 10% glucose. Molecular identification was performed by sequencing the 26S rDNA gene. The D1 / D2 domain (approximately 600pb) was amplified using primers NL-1 (5'-GCATATCAATAAGCGGAGGAAAAG) and NL-4 (5'-GGTCCGTGTTTCAAGACGG). Both yeasts (Mora01 IX and Mora01 X) were identified as *Saccharomyces cerevisiae* using the BLAST tool from the National Biotechnology Information Center (NCBI). Partial physiological characterization was performed on Glucose Saboraud medium (agar / broth), at 28 ° C and under static conditions. The fermentative capacity of the strains was determined using the Durham bell technique, positive results were obtained for the production of gas (CO₂). The tolerance for ethanol (7 to 10%) was evaluated by following the growth (optical density increase) at 660nm for 10 days, concluding that at higher concentration of ethanol, 72 hours later the Mora01 IX strain reached the same values as the strain *S. cerevisiae* reference. Finally nutrient assimilation tests were carried out with using selective media, and it was corroborated that both strains are not able to assimilate lactose as a source of carbohydrates and also lysine as a source of nitrogen. The results obtained in this study may be useful for the selection of important yeasts in the biotechnology industry.

Keywords: *Morus nigra*, *Saccharomyces cerevisiae*, native yeast, ethanol tolerance.

Development agency: Secretaria de Investigación y Posgrado (SECIP) de la Universidad Nacional de Misiones.