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Alcohol Production in Synthetic Medium Added with Different Sugars

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Abstract: The aim of this research was to obtain a preliminary sugar assimilation profile and to determine the alcohol production of two wild yeasts on different sugars. The wild yeasts identified as *C. glabrata* N1 and *W. anomalus* API-1 were isolated from fermented orange juice and fistulated bovine rumen, respectively, both from Yucatan, Mexico. Growth, alcohol production and their kinetic parameters were determined for both yeasts in minimal salt broth added with different carbon sources. Carbohydrate assimilation profile indicated that both strains assimilate preferentially, fructose, glucose and mannose. The alcoholic fermentation was carried out in static culture at 40°C and pH 4.5; where the N1 strain had a better performance than API-1 strain. The best substrate for N1 strain growth and alcohol production was fructose, while for API-1 strain it was glucose. Although both strains presented the ability to ferment glucose, fructose and sucrose, it was not possible to detect alcohol production on galactose or xylose as a carbon source. In conclusion, the strain and the carbon source showed a statistical effect over the kinetic parameters of growth and alcohol production, being more suitable for ethanol production *C. glabrata* N1 strain, reaching 12.53 g/L on fructose, 11.08 g/L on glucose and 6.87 g/L on sucrose as substrates.

Keywords: wild yeasts, bioethanol, assimilation profile, *Candida glabrata*, *Wickerhamomyces anomalus*

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