

Poster

Isolation and characterization of natural yeasts for beer brewing.



Altamirano Olmedo, Aurora(1), Ibeas Corcelles, Jose Ignacio*(1)

(1) Departamento de Biología Molecular e Ingeniería Bioquímica. Universidad Pablo de Olavide| Centro Andaluz de Biología Del Desarrollo.

Ctra.de Utrera, km.1, 41013, Sevilla.

Tutor académico: Ibeas Corcelles, Jose Ignacio

Keywords: ITS; non-Saccharomyces; fermentative capacity; brewing yeast

ABSTRACT

In the last two decades, there has been a rise in the craft brewery sector in our country. Although this industry operates on a small scale, craft brewers are willing to experiment with new flavors, produce native beer varieties, or develop healthier options in response to consumer demand, aiming to challenge the long-established and consolidated beer market [1]. One of the approaches to achieving these novel beer varieties is through the use of new yeast strains. Traditionally, brewing yeasts belong to a small group within the genus *Saccharomyces*. However, many brewers are inclined to explore alternative yeasts to introduce new characteristics into their beers. The main objective of this study is the identification and characterization of wild yeasts to assess their potential for beer production. The isolated yeast strains were classified through restriction fragment analysis of the ITS region. This method yielded distinct banding patterns corresponding to each isolated strain. Sequencing of the ITS fragment will allow for precise species identification [2]. To characterize the yeasts phenotypically, their fermentative capacity was evaluated. Sugar consumption was measured through growth curves in wort, and CO₂ production was analyzed by monitoring weight variation over ten days. Additionally, the ability to ferment maltose, the most abundant sugar in wort, was assessed using Durham tube assays in a minimal medium containing maltose as the sole carbon source [3]. Finally, we examined the killer activity of the analyzed strains to determine their ability to dominate fermentation over other brewing yeast strains. Commercial brewing yeast strains were used as controls in all experiments. Currently, we are analyzing the growth capacity of selected strains under different carbon sources, temperature conditions, and hop concentrations, as well as assessing their potential for producing undesirable phenolic compounds in beer. Finally, we will brew beer with selected strains to evaluate their brewing potential. Based on our findings, we conclude that we have identified new yeast strains with potential applications in beer production, which require further characterization.

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