

904-2 BEER FERMENTATION FROM A NOVEL STRAIN OF SACCHAROMYCES CEREVISIAE ISOLATED FROM NATIVE BEE NEST FROM THE AMAZON RAINFOREST.

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Resumo:

The Amazon rainforest is a unique and plentiful habitat with one of the most abundant biodiversity on the planet, having a symbiotic interaction for their maintenance and adaptation to environmental changes. Native bees are the most efficient pollinators of tropical and subtropical areas on Earth, being responsible for the conservation of the various biomes that they have been found. As important as these bees are the microorganisms that are related to the preservation of food in the hive, microbiological protection against pathogenic organisms and even the maturation and life cycle of these pollinators. The interactions among bees and wild yeast are poorly understood, especially when considering native bees, with an enormous variety of not yet identified yeast living together with different species of bees. Among those, novel yeast strains could be found with the possibility of biotechnological application, for bioethanol, pharmaceutical and food industry, especially those from *Saccharomyces* genus. Since *Saccharomyces* is a well-known domesticated species, their isolation at their ecological niches remain poorly understood. In this study we isolated yeasts from *Nannotrigona* spp from the region of Kaxinawá tribe near Jordan River at the Amazon Forest, Acre, Brazil. Samples were collected from the nest using a sterile falcon tube and from the honey using a sterile swab in November of 2019. Collected samples were diluted in NaCl 0,9% in a sterile falcon tube and 50uL of the solution were plated on YPD 6% RBC medium, after 3 days at 30°C, white creamy colonies were selected and transferred to the YPD medium and fermentation tests were performed in DME 10° and 17°. Two isolated yeast were selected, one from the nest (FAVO AM) and one from the honey (MEL AM2), their genomic DNA were extracted and after DNA extraction amplified, purified and quantified before being sequenced. Assembled contigs were subjected to a similarity search in the GenBank/EMBL/DDBJ database using Blast 2.10.1 software. For phylogenetic analysis, an alignment was created with Mega Version 3.1 using the default settings for multiple sequence alignments with reference to the sequences of each fungal species available in GenBank. Both samples were identified as *S. cerevisiae*, with more than 93% of similarity. To evaluate yeast potential to produce beer, fermentation was performed at a high-scale level (300 L batch) at Cybeerlab brewery. Those finds show the possibility to find and understand the ecological niches of wild *Saccharomyces* yeasts, their symbiotic relationship with native bees and their potential for biotechnological industry.

Palavras-chave:

Saccharomyces, fermentation, Stingless bee, beer, amazon

Agência de fomento:

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