

TAL 797 – SEMINÁRIO

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POTENTIAL OF STINGLESS BEE PRODUCTS AS SOURCES OF YEASTS FOR BIOTECHNOLOGICAL APPLICATIONS

Pós-graduando: Polyanne Gonçalves Messias

Orientador: Monique Renon Eller

(Departamento de Tecnologia de Alimentos)

Nível: (x) MS () DS

Products from stingless bees have been shown to be ecological niches of microorganisms with biotechnological potential. This occurs since bees incorporate non-pathogenic microorganisms to make pollen palatable and available as food. In honey, fermentative microorganisms are incorporated to ensure its preservation by the production of ethanol and organic acids. Thus, bioprospecting yeasts from these substrates allows the discovery of strains adapted to osmotic environments and with high fermentative activity, such as the *Saccharomyces cerevisiae* JP14, IM8, and IP9 strains, isolated from pollen and honey from Jataí (*Tetragonisca angustula*) and Iraí (*Nannotrigona testaceicornis*) bees. These microorganisms showed tolerance to environmental stresses, the ability to produce volatile compounds, and high alcohol yield, valuable attributes for the production of beverages such as mead and braggot. In addition to practical applications, genomic studies have shown that these yeasts have specific selective pressures associated with sugar and nitrogen metabolism and defense mechanisms such as the production of toxins lethal to other microorganisms, reinforcing their competitive potential in industrial fermentations. Co-cultures of these strains have also been shown to increase the aromatic complexity of the products and improve the sensory acceptance of beverages. The rational exploitation of this microbial biodiversity through bioprospecting contributes to the development of sustainable bioprocesses, in addition to promoting the conservation of ecosystems associated with stingless bees. Thus, apicultural products not only represent promising sources of technological yeasts, but also consolidate the intersection between environmental microbiology, biotechnological innovation, and the valorization of Brazilian biodiversity.

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Orientador(a)

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