

**TITLE:** SELECTION OF YEAST STRAINS ISOLATED FROM FRUITS WITH POTENTIAL FOR PRODUCTION OF BIOSURFACTANTS.

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**ABSTRACT:**

Biosurfactants are fully or partially extracellular polymers that can be produced by bacteria, filamentous fungi and yeast. These substances are amphipathic molecules, presenting both hydrophobic and hydrophilic portions in their structures, which allow them to form micelles that accumulate at the interface between liquids of different polarities like water and oil. Such behavior reduces surface tension and interfacial tension facilitating the absorption of hydrocarbons, production of micelles and micro emulsions. Biosurfactants occur naturally in the form of complex molecules such as: glycolipids, phospholipids and lipopeptides, protein complexes, polysaccharides and fatty acids and lipopolysaccharides. Produced by microorganisms they offer several advantages over their synthetic equivalents, generating new possibilities for industrial application. They have different chemical structures and surface properties since they can be produced by a wide variety of microorganisms in different nutritional and environmental conditions. Based on their diversity they present different specific applications allowing the potential use in different industrial fields. The aim of the present work was to select strains of yeast-forming biofilms during fermentation of different carbohydrates for prospection of strains producing biosurfactants. Twenty-four strains of yeasts previously isolated from fruits, purified and maintained in YEPD medium were reactivated in BDA medium and evaluated in fermentation tests. The fermentation medium used was the phenol red carbohydrate broth with pH 6.5, containing: glucose, xylose, sucrose, maltose and lactose. For these tests, inoculum solutions of the 24 yeast strains were standardized on the Mc Farland 4.0 scale. From this solution 1 mL was inoculated in test tubes containing inverted Durhan tube incubated at a temperature of 30 °C for 72 hours. Visual observations for surface biofilm production were performed after 24, 48 and 72 hours. Thirteen (54 %) out of the 24 evaluated strains did not present surface biofilm production for any of the tested carbon sources. Only strain BB.149 produced surface biofilm under all conditions. Strains BB.148, BB.154, BB.155, BB.156 and BB.158 produced surface biofilm in at least 4 of the 5 carbon sources tested.

**KEYWORDS:** glycolipids, phospholipids, lipopeptides, protein complexes, polysaccharides