

**TITLE:** PRODUCTION OF FRUCTOSYLTRANSFERASE BY *ASPERGILLUS TAMARII* KITA UCP 1279 USING AGRICULTURAL RESIDUES

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**ABSTRACT:** Fructooligosaccharides (FOS) are oligosaccharides termed unconventional sugars and have received a particular interest because of their biological and functional properties mostly for the use of prebiotic compounds. The global consumer market for FOS is promising, by 2017 the market reached a mark of US\$ 1,611.45 millions and by 2022 is expected to reach US\$ 3,030 million. The ingestion of these fructooligosaccharides (FOS) stimulate the growth of bifidobacterial and lactobacilli, consequently they moderate the pathogenic microorganisms present in the gut and facilitate the adsorption of calcium and magnesium. For the industrial production of fructooligosaccharides, it is necessary to implement the enzyme fructosyltransferase (FTase) in which it has the ability to perform a transfrutolysis reaction on sucrose residues, giving rise to oligomers, the fructooligosaccharides. Therefore, FTases of fungal origin has been shown as a useful alternative in the synthesis of fructooligosaccharides for food applications. The objective of this work was to produce fructosyltransferase by the fungus *Aspergillus tamaris* Kita UCP 1279, isolated from the Caatinga region (Northeastern Brazil), using different agroindustry residues, orange peel flour, passion fruit and soybean. The production steps were performed in MS-2 (soy medium-2) with statistical factorial design 2<sup>2</sup> varying the types of agroindustry residues (orange peel meal, passion fruit peel and soybean), at the concentrations (1%, 3% and 5%), at 30°C, 120 RPM and during 72h of production. The transfructosylation activity was determined at the end of the fermentation period. According to the statistical analysis, only the nitrogen source had significant influence on the production of the enzyme. However, the soybean meal concentration (3%) and orange peel flour (5%) showed the best results, with 1283 U/mL and 909 U/mL, respectively. Therefore, according to our data the fungal lineage *Aspergillus tamaris* Kita UCP 1279 is confirmed for fructosyltransferase production that can be applied in the industry for fructooligosaccharides synthesis.

**Keywords:** agricultural residues, fructosyltransferase, fructooligosaccharides, fungi.

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