

TITLE: ESTERASE PRODUCTION OF YEASTS FROM ATLANTIC FOREST AND CAATINGA BIOMES

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ABSTRACT:

Extracellular enzymes are very important resources to microorganisms since these enzymes provide low-molecular weight nutrients derived from organic macromolecules which allows the establishment of a high diversity of microorganisms in various environments. Caatinga and Atlantic Forest are two tropical biomes found in Brazil and both of them support a high biodiversity, which can represent a great environment to enzymes prospection. The bromeliads are predominant in the neo-tropical environment and are known as model systems to ecology since that there are many relations of macro and microorganisms already were reported in literature. Esterases are of great importance to many industrial processes as animal food, paper industry, cosmetics production and degradation of pollutants besides its ecological roles. In this context, the study aims to relate the esterase production of yeasts isolated from the phylloplane of bromeliads collected from Atlantic Forest and Caatinga from the state of Alagoas, Brazil, and also compare with results found in the literature about other environments. Samples were collected from bromeliads of four points of Atlantic Forest and two of Caatinga. The isolates obtained were stocked, and then tested after 48 hours of growth in YPD agar plates. The esterase production was performed using a semiquantitative method where colonies were inoculated in tween 80 agar at 25°C for 7 to 10 days and then the size of the degradation halo and the colony were measured. The isolates tested were identified by DNA extraction, followed by amplification of D1/D2 region of rDNA and sequencing. A total of 222 isolates were tested from Caatinga and 254 were tested from Atlantic Forest. A great number of isolates (61% and 62%, respectively) of the Caatinga and Atlantic Forest were capable to produce esterase. This result shows that there is no difference between the esterase productions on both biomes, but when compared to the production of this enzyme from different habitats like polar environments, it seems to be higher than reported in literature, where 32% from yeasts collected in Antarctica were able to produce esterases, for instance. This difference may be observed due to the smaller biodiversity of cold environments which affects the physiological need of this mechanisms. The biotechnological prospection is very important to discover enzymes with different properties and characteristics, which makes possible a great range of applications.

Keywords: Biotechnology, Enzyme prospection, Phylloplane.

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