

Title: EXTRACELLULAR ENZYMATIC ACTIVITIES OF YEASTS ISOLATED FROM BROMELIAD SPECIES IN THE CAATINGA BIOME, NORTHEASTERN BRAZIL

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Abstract:

Microorganisms have shown a great biotechnological potential. Yeasts may survive in different substrates and one important strategy for their success is the production of extracellular enzymes. The Caatinga, an endemic semiarid biome of Brazil has hot and dry climate. Herein we focus on extracellular enzymatic profile of environmental yeasts associated with bromeliads from Caatinga. The bromeliads were collected in Santana do Ipanema and Maravilha municipalities, Alagoas State, Brazil. All samples were processed and the final products were spread on YM agar supplemented with chloramphenicol (pH 4.0). After incubation at 22-25°C for 5-7 days, representative colonies of the different morphological types were purified, and maintained on agar slants at 4°C, covered with sterile mineral oil. Besides the enzymatic assays (amylase, caseinase, cellulase, esterase and pectinase activities), urease/DBB and fermentation tests were performed. From 20 collected samples, 89 yeast isolates were obtained and 80% demonstrated basidiomycetic affinity. The predominance of Basidiomycota yeasts was expected regarding that this phylum is the most frequent yeast group associated with plant leaves. Sixty-five isolates were tested for glucose fermentation, only three were positive. For the extracellular enzymatic activities, 41% were amylase positive, 34.5% caseinase positive, 24.4% cellulase positive, 62% esterase positive, and 15.3% pectinase positive. The yeast isolates are under molecular identification process by PCR and sequencing of the D1/D2 region of 26S rDNA. Although the Caatinga is still little studied, this biome has demonstrated a great diversity of yeasts. The enzymatic production of these yeasts has potential for industrial development, and can contribute to the ecology of these microorganisms in this Brazilian endemic biome.

Key-words: microorganisms, Basidiomycota, enzymes, xeric environment

Funding agencies: CNPq and FAPEAL