

TITLE: DIVERSITY OF YEASTS IN BROMELIADS AND THE RELATIONSHIP WITH FUNCTIONAL FLORAL TRAITS

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ABSTRACT:

Plants are important sources of microorganisms, being a hotspot for taxonomic and biotechnological prospecting. Microorganisms are associated to the aerial and subterranean compartments of plants, influencing the host's physiology and ecology. Functional traits of plants are characteristics considered relevant to their response to the environment and may have effect on the composition, diversity and abundance of the associated microbiota. Bromeliads are neotropical plants characterized, among other things, by a wide variety of floral structures. That are important micro-habitats for various microbial groups, including yeasts. Our aim was to analyze the yeast community associated with bromeliad inflorescences from Atlantic Forest in Brazilian Northeast and test the influence of functional traits related to pollinator syndrome (birds or bees). A total of 25 samples of bromeliad inflorescences (13 species) were collected from four regions of the Atlantic Forest. The inflorescences were washed and the final product was inoculated on modified YM agar (pH 4.0 and 0.04% chloramphenicol) and incubated for 7 days at 22-25 °C. The yeast isolates obtained were identified by sequencing the D1/D2 domain of the LSU rDNA gene. Kruskal-Wallis test was used to verify whether functional traits of different syndromes affected the yeast communities associated to bromeliads, and Bray-Curtis index to estimate beta diversity. We obtained 64 yeast isolates belonging to 27 species. The most frequent yeast species was *Papiliotrema flavescens*, a cosmopolitan and widely distributed species. Yeasts richness was higher in bromeliads which are pollinated by birds and the dissimilarity of yeast communities among plants with different pollinator syndromes was ~85%. Functional traits such as flower length, inflorescence length, nectar volume and sugar concentration in nectar were significantly different between pollinator syndrome ($p < 0.05$) and may be related to the high beta diversity found in yeast communities. The results indicate that bromeliad inflorescences are rich sources of yeasts and, different from nectar micobiota are dominated by cosmopolitan species and may be responding to functional traits that are related to pollinator syndrome in bromeliads.

Keywords: Atlantic Forest, pollinator, fungi and flower.

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