

TITLE: THE EPIPHYTIC COMMUNITY OF YEAST IN THE BRAZILIAN SEMIARID (CAATINGA) AND THE POSSIBLE INFLUENCE OF RAINS

AUTHORS: FÉLIX, C.R.; ANDRADE, D.A.; LANDELL, M. F.

INSTITUTION: UNIVERSIDADE FEDERAL DE ALAGOAS (LOURIVAL MELO MOTTA AVENUE s/n CEP 570729-000, MACEIÓ – AL, BRAZIL)

ABSTRACT

Caatinga is a semiarid environment that occupies 10% Brazilian territory. Its main characteristic is the low and irregular rainfall that causes long periods of drought, which is closely related to plant productivity in semiarid environments. The nutrients used by the epiphytic microbial community are mostly produced and made available by the plant itself. Yeasts are recurrent colonizers of phylloplane (leaf surface) and, in this environment, are subject to nutrient fluctuations, temperature, and water availability. Therefore, our objective was to verify the possible influence of rains on the diversity and abundance of the epiphytic yeast community associated with bromeliads from Caatinga. So, adult and healthy bromeliad leaves were collected at two points of Caatinga in the state of Alagoas, Brazil. Three collections were executed at each of the sampling points, totaling 60 samples. After collection, the samples were washed several times and the final product was inoculated in modified YM agar and incubated for 7 days at 22-25 °C. For the molecular identification of the yeast isolates, the D1/D2 LSU rDNA region were amplified and sequenced. The diversity index of Shannon H' was calculated in PAST software. A total of 191 yeast isolates, grouped in 82 species (13% Ascomycota and 87% Basidiomycota) and distributed in 41 genera. The species with higher average abundance were *Pseudozyma hubeiensis* and *Cystobasidium minutum*, 5.62×10^3 and 10^3 CFU/cm² respectively. However, more than 90% of the species found had an average abundance less than 10^3 CFU/cm². Rainfall was a factor that significantly influenced the diversity and abundance of the yeast community ($p < 0.05$), however, its explanatory power was not high ($R^2 = 0.14$ for abundance and $R^2 = 0.46$ for diversity). As well known, epiphytic microbial communities are influenced by a range of variables. It is likely that rainfall is only one of the factors modulating the epiphytic community of yeasts in Caatinga. However, considering that Caatinga is currently suffering the worst drought of the century and that this can be intensified with climate change, understanding how the rainfall regime influences the microbiota can help to predict the effects of climate change on microbiota and, consequently on hosts. Yet, more studies are still necessary.

Keywords: Bromeliad, fungal and dry forest

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES, Fundação de Amparo à Pesquisa do estado de Alagoas - FAPEAL, Conselho Nacional de Desenvolvimento Científico - CNPq.