UNTARGETED METABOLOMIC OF Andira legalis EXTRACTS FROM JURUBATIBA SANDBANK OF THE RIO DE JANEIRO STATE AND THEIR ANTIBACTERIAL AND ANTIBIOFILM POTENTIALS.

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The National Park of Jurubatiba Sandbank is a Federal conservation unit, located along the north coast of the RJ State. Among the plants found in Restinga, *Andira legalis* (AL) is common in Clusia Open Shrub Formation (COSF) and Post-beach Formation (PBF). The aim of the study is to search for antibacterial and antibiofilm compounds of AL extracts. Leaves of AL (n= 20; COSF and PBF) was collected in the summer (-S) and autumn (-A) seasons, and was stored at -80ºC. The dried and crushed material was extracted with MeOH:H2O (8:2). The chemical analyses were performed in the Agilient 1290 infinity II HPLC system coupled to timsTOFBruker®. Data processing was performed in MetaboScape® while the data analysis in the Sirius, Metlgel, GNPS2, and Metaboanalyst. The MIC (*solid medium*) of the extracts was measured using the *Steers* replicator inoculation method, at 128 to 512 µg/mL, in duplicate. There were tested 32 multidrug-resistant bacteria isolated from nasal colonization of neonates. The MBC and MIC (*liquid medium*) were also evaluated at concentrations varying from 16 to 512 µg/mL. The active extracts were further evaluated for their ability to prevent biofilm formation at sub-MIC concentrations (<256 µg/mL) against the bacterial strains that demonstrated higher susceptibility. Epigallocatechin, procyanidin A- and B-types, *O*- and *C*-glycosyde flavonoids were anottated. AL specimens from COSF and PBF, collected in summer (-S) and autumn (-A), inhibited *S. haemolyticus* at 128µg/mL. One specimen (COSF-S) inhibited *S. epidermidis* at 128 µg/mL, while one specimen COSF-A inhibited *S. aureus* at 128 µg/mL. By the MIC assay, in *liquid medium,* these same specimens inhibited *S. haemolyticus*, *S. epidermidis* and *S. aureus* at 32 µg/mL,32 µg/mL and 128 µg/mL, respectively. In the antibiofilm activity evaluation, two AL specimens from COSF-S, showed 39% and 44% inhibition of *S. haemolyticus* at 256 µg/mL. In the future, LC-HRMS/MS data will be correlated with environmental conditions, such as soil mineral components, temperature, pH and humidity, by the use of local sensors.

Keywords: Healthcare-associated infections; metabolomics; bioinformatic tools; antimicrobial activity.