

TITLE: Isolation and Identification of Endophytic Fungi of *Remirea maritima* (Cyperaceae) from the Restinga of Massambaba - Arraial do Cabo, RJ.

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The restinga ecosystem is characterized by sandy and dystrophic soils with low water retention capacity, making it favorable to the growth of symbiotic microorganisms. Currently, this environment has been directly and increasingly affected due to anthropogenic actions. Endophytic fungi and arbuscular mycorrhizal fungi (AMFs) are symbiotic microorganisms that exert functions of promoting growth and plant survival without apparently causing any damage to their hosts. Little is known about the biodiversity of these fungi in restinga and their fungal-vegetable and fungus-environment relationships. Based on previous research in which the colonization of *Remirea maritima* (Cyperaceae) from the restinga of Massambaba - Arraial do Cabo, RJ by AMFs was reported, the aim of the present work is to evaluate the plant colonization by other endophytic fungi, their isolation and identification. So, roots of *R. maritima* in the creeping-psamophyte area were collected, washed in water, sectioned into approximately 1 cm<sup>2</sup> fragments and disinfected in 2% sodium hypochlorite and 33% hydrogen peroxide for 2 and 1 minutes, respectively. The fragments were then macerated, placed on agar-malt medium plates containing 100 microG/mL amoxicillin and incubated for 15 days at 25 °C in the dark. After streak isolation, a total of five different types of fungal colonies were observed in solid culture. Each isolate was characterized regarding the presence and structures of conidia or appendices, melanized or hyaline and septate or non-septate hyphae. The fungi of two colonies produced significant amounts of enzymes able to degrade gelatin and carboxymethyl cellulose (CMC) as judged by zymography, and to oxidize the substrate 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) or ABTS. These colonies were analyzed and identified as: (i) a colony with hyaline and non-septate hyphae presenting many spores when grown in malt extract; and (ii) a dark brown velvety macroscopic colony with microscopic melanized and septate hyphae. This last one's morphology is similar to Dark Septate Endophytes (DSEs) typically found associated to plants in stressed environments. This observation may confirm the hypothesis that such fungal groups share light rainfall environments on a global scale. The results suggest a substantial biotechnological potential of the new fungal isolates and the importance of the fungal-vegetable relationship for the plant survival in stressed environments like the restinga.

Keywords: Cyperaceae, Dark Septate Endophytes, Endophytic fungi, Restinga.

Development Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)