



ECCO XXXIII

Molecular Taxonomy: from Biodiversity to Biotechnology



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ABSTRACT BOOK

Isolation, identification and characterisation of endophytic and pathogenic *Colletotrichum guaranicola* isolated from guarana leaves (*Paullinia cupana* var. *sorbilis* (Mart.) Ducke) in the Brazilian Amazon

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At the commercial point of view, Brazil is the unique producer of guarana (*Paullinia cupana* var. *sorbilis* (Mart.) Ducke) in the world. It is estimated that about 70% of whole Brazilian guarana production is used by Brazilian manufacturers of soft drinks. The remain 30% are sold as syrup, cane, powder, extract, among others [1]. In 2008, the northern Brazilian State of Amazon has produced 751 tonnes of dried guarana seeds. The area of production encompasses 7,815 ha, with an average yield of 96 kg ha⁻¹. This is considered a low production when compared to that obtained in the Brazilian State of Bahia which yielded an average of 317 kg ha⁻¹ in the same year. One of the main limiting factors for the expansion of the guarana production in the Amazon Region is anthracnose disease. This disease is caused by the fungus *Colletotrichum guaranicola* Albuquerque [1]. The taxonomy and nomenclature of *Colletotrichum* species has been in a state of flux and has undergone a number of revisions [2]. The identification of *Colletotrichum* species relied mainly on the species of host infected, morphological and cultural characteristics, including the size and shape of the conidia, appressoria, acervuli and setae [2]. The aim of the present study was the isolation and identification of *Colletotrichum guaranicola* isolates from leaves of guarana in the Brazilian State of Amazon. Twenty-two fungal isolates identified based on the macro- and micro-morphological traits and then evaluated on the guarana leaf while their pathogenicity. Fifteen isolates were characterised as pathogenic fungi while seven of them were endophytic ones. However, proteolytic, pectinolytic, amylolytic, cellulolytic and ligninolytic activities were not discriminants to separate the endophytic from the pathogenic isolates. Molecular biology analysis as well fungal aggressiveness are under evaluation for a better understanding of how this fungal species colonising guarana leaves.

[1] Bentes, J.L.S.; Costa-Neto, P.Q. (2011) Acta Amazonica, 41, 251-256.

[2] Yang, H.C.; Haudenschild, J.S.; Hartman, G.L. (2014) Mycologia, 106, 32–42.