TITLE: ENDOPHYTIC FUNGI OF *PAULLINIA CUPANA* AND ITS ANTIMICROBIAL POTENTIAL

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Abstract:
Paullinia cupana (Mart.) Ducke is a native species of the brazilian Amazon with several medicinal properties. Medicinal plants and endophytic microorganisms are strongly investigated in order to develop new drugs. Endophytic are microorganisms that colonize the interior of plant tissues, at least one stage of its life cycle and perform various ecological relationships in the host without causing noticeable symptoms and has been excellent source for prospecting for new bioactive compounds. The objective of this study is to characterize *P. cupana* endophytic fungi and evaluate their antibiotic potential by agar diffusion test. Fruits and root fragments from 6 individuals were collected and sterilized with 70% ethanol and 2% sodium hypochlorite. To isolate fungi, 120 seeds and 960 root fragments were plated on plates with potato dextrose agar or tryptone soya agar medium added with antibiotics tetracycline, streptomycin and chloramphenicol. Isolates were purified and cultured on PDA for separation into morphological groups. The identification was made by morphological methods and by sequencing of the ITS region. The evaluation of the antimicrobial capacity was conducted by overlay method using susceptible strains of *Staphylococcus aureus* (ATCC 6538), *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 9027) as well as clinical multiresistant strains *S. aureus* (3A), *E. coli* (1A), *P. aeruginosa* (2A) and *Cryptococcus neoformans* (12F). There were obtained 256 strains of endophytic fungi on roots and fruits distributed in 47 morphological groups. These groups have been identified in 25 genera: *Diaporthe; Peyronellaea; Mycoleptodiscus; Melanconiella; Paraphaeosphaeria; Nectria; Phomopsis; Nigrograna; Pestalotiopsis; Xylaria; Periconia; Sydowiella; Fomitopsis; Parapleurotheciopsis; Colletotrichum; Mariannaea; Trichoderma; Pochonia; Fusarium; Paecilomyces; Arxiella; Gibberella; Humicola; Mycena e Glomerella*. The predominant species was *Xylogone ganodermophthora* (30.8% of isolates). *Xylogone ganodermophthora* and *Pochonia boninensis* inhibited *S.aureus* strains, while *Fusarium oxysporum* inhibited resistant *P. aeruginosa* strain and susceptible *S. aureus* strain. *P. cupana* hosts a large diversity of endophytic

fungi in the roots and fruits, which are able to inhibit pathogenic bacteria susceptible and resistant to antibiotics. Isolation and identification of antimicrobial substances are underway.

Keywords: Rainforest micology; infection control, antibiosis .

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