

Título: Antibacterial and antifungal activities of extracts from Amazon plants

Autores: Bastos, I.S.¹, Pieri, F.A.², Yamaguchi, K.K.L.³, Lamarão, C.V.³, Veiga-Junior, V.F.³, Orlandi, P.P.¹

Instituição: ¹Fiocruz Amazônia (Rua Terezina 476, Adrianópolis, CEP: 69057-070, Manaus-AM), ²UFJF-GV, Universidade Federal de Juiz de Fora (Rua Israel Pinheiro, 2000, Bairro Universitário, CEP: 35032-220, Governador Valadares-MG), ³UFAM - Universidade Federal do Amazonas (Av. Gal. Rodrigo Octávio Jordão, 3000. Bairro Coroado I, CEP 69.077-000, Manaus-AM)

Resumo

The Amazon is considered the largest source for bioactive natural compounds in the world due to its vast biodiversity. Among therapeutic properties listed in traditional folk medicine in the region, it is the antimicrobial activity. In the meantime, due to the increasing emergence of resistant microorganisms to available drugs, this biodiversity is presented as a promising source for new natural antimicrobial compounds. The objective was to evaluate the inhibitory activity of plant extracts from Brazilian Amazon against one strain of *Candida albicans*, 13 strains of Gram-positive bacteria and 24 strains of Gram-negative. Hydroalcoholic and ethanol extracts of the bark, pulp and seeds of Açaí (*Euterpe precatoria*), Bacuri (*Platonia insignis*), Ingá (*Inga edulis*) and Pequiá (*Caryocar villosum*) were used. The minimum inhibitory concentrations (MIC) of the extracts were obtained by the microdilution broth method following the CLSI guidelines. The results showed low antimicrobial bioactivity of Açaí, Bacuri and Ingá extracts, and more relevant was just the action of ethanolic extracts of bark and seeds from Bacuri and Ingá against *C. albicans* with MIC 500µg/mL. The Pequiá extracts showed significant antibacterial activity against many pathogens. *Salmonella choleraesuis* was inhibited by hydroalcoholic extracts of bark, pulp and seeds with MIC ranging 125, 500 and 125µg/mL respectively and the ethanolic extract from bark and pulp with MIC 500 and 62.5µg/mL. *S. arizonae* and *S. Typhi* were also inhibited, with better results for the ethanolic extract of pulp on the first bacteria and the hydroalcoholic of bark to the second one with MIC 250 and 125µg/mL, respectively. *Streptococcus pyogenes* was sensitive to hydroalcoholic extracts of bark, pulp and seeds with MIC of 125µg/mL for the first two extracts and MIC 62.5µg/mL to seed extract. Other significant results were the activities of hydroalcoholic extract from the pulp of Pequiá against *Yersinia enterocolitica* with MIC 250µg/mL, and ethanolic and hydroalcoholic extracts of pulp against *Shigella dysenteriae* with MIC 250 and 500µg/mL, respectively and ethanolic extract of bark and pulp hydroalcoholic extract against *Bacillus licheniformis* both with MIC 500µg/mL. It was concluded that the Pequiá extract is presented as a promising source of antibacterial compounds with broad action spectrum, and that the other plants have antifungal activity as the most relevant when its compounds extracted with ethanol solvent.

Keywords: Açaí, Pequiá, Ingá, Bacuri, Antimicrobial activity

Agências de Fomento: CNPq, CAPES, FAPEAM, FAPEMIG