

# Bioactive Chemical Constituents and Comparative Antimicrobial Activity of Callus Culture and Adult Plant Extracts from *Alternanthera tenella*

Marcos J. Salvador<sup>a,\*</sup>, Paulo S. Pereira<sup>b</sup>, Suzelei C. França<sup>b</sup>, Regina C. Candido<sup>c</sup>, Izabel Y. Ito<sup>c</sup>, and Diones A. Dias<sup>d</sup>

<sup>a</sup> Curso de Farmácia, Departamento de Biologia Vegetal, Instituto de Biologia, Universidade Estadual de Campinas (UNICAMP), C.P. 6109, 13083–970, Campinas, SP, Brazil. E-mail: marcosjs@unicamp.br

<sup>b</sup> Unidade de Biotecnologia Vegetal, Universidade de Ribeirão Preto (UNAERP), Ribeirão Preto, SP, Brazil

<sup>c</sup> Departamento de Análises Clínicas, Toxicológicas e Bromatológicas, Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Universidade de São Paulo (USP), Via do café, s/n, 14040–903, Ribeirão Preto, SP, Brazil

<sup>d</sup> Departamento de Física e Química, Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Universidade de São Paulo (USP), Via do café, s/n, 14040–903, Ribeirão Preto, SP, Brazil

\* Author for correspondence and reprint requests

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Crude extracts of a callus culture (two culture media) and adult plants (two collections) from *Alternanthera tenella* Colla (Amaranthaceae) were evaluated for their antibacterial and antifungal activity, in order to investigate the maintenance of antimicrobial activity of the extracts obtained from plants *in vivo* and *in vitro*. The antibacterial and antifungal activity was determined against thirty strains of microorganisms including Gram-positive and Gram-negative bacteria, yeasts and dermatophytes. Ethanolic and hexanic extracts of adult plants collected during the same period of the years 1997 and 2002 [Ribeirão Preto (SP), collections 1 and 2] and obtained from plant cell callus culture in two different hormonal media (AtT43 and AtT11) inhibited the growth of bacteria, yeasts and dermatophytes with inhibition halos between 6 and 20 mm. For the crude extracts of adult plants bioassay-guided fractionation, purification, and isolation were performed by chromatographic methods, and the structures of the isolated compounds were established by analysis of chemical and spectral evidences (UV, IR, NMR and ES-MS). Steroids, saponins and flavonoids (aglycones and C-glycosides) were isolated. The minimum inhibitory concentration (MIC) of the isolated compounds varied from 50 to 500  $\mu$ g/mL.

**Key words:** *Alternanthera tenella*, Amaranthaceae, Callus Culture, Antimicrobial Activity