

Title: Potential use of *Euphorbia hirta* and *Euphorbia jolkinii* extracts as antimicrobial agents against three clinical bacteria

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Abstract

Euphorbia hirta and *Euphorbia jolkinii* are two plants belonging to the Euphorbiaceae family. *Euphorbia hirta* has been traditionally used in the folk medicine of different cultures, awakening the interest of the scientific community because of the link of its bioactivities to the compounds present in this species. Studies regarding *Euphorbia jolkinii* are scarce, although the phenolic profile of this plant is also attractive. Considering the need of society to find new antibacterial extracts and the potential use of these plants for this goal, the antibacterial activity of ethanol extracts (10 mg/mL) against eight food and nine clinical bacteria have been characterized. By a colorimetric assay, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined, being streptomycin (1 mg/mL), ampicillin (10 mg/mL), and methicillin (1 mg/mL), the antibiotics used as controls. The results showed an antibacterial activity comparable to or superior to ampicillin when extracts were tested against three clinical bacteria (*Pseudomonas aeruginosa*, *Morganella morganii*, and *Klebsiella pneumoniae*). Thus, the MIC values obtained when *E. hirta* extract was used were: 5, 1.25, and <10 for *K. pneumoniae*, *M. morganii*, and *P. aeruginosa*, respectively. For the *E. jolkinii* extract, MIC values were 1.25 for the three bacteria, while MIC values for ampicillin were 10, <10, and <10 for *K. pneumoniae*, *M. morganii*, and *P. aeruginosa*, respectively. Considering the data provided, both extracts could be alternatives since they showed high antibacterial activity against three clinical bacteria, with *E. jolkinii* having the best results.

Keywords: *Euphorbia*, antibacterial activity, *Pseudomonas aeruginosa*, *Morganella morganii*, and *Klebsiella pneumoniae*.

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