EVALUATION OF ANTIMICROBIAL ACTIVITY AND CHEMICAL COMPOSITION OF EXTRACT OF LEAVES FROM Cleome spinosa JACQ.

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Cleome spinosa (Jacq) is commonly used in phytotherapy and folk medicine to treat inflammatory processes and microbiological infections. Due to widespread use of this plant in traditional medicine, this study evaluated the antimicrobial activity and phytochemical screening of methanolic extract of leaves of C. spinosa. In vitro antimicrobial activity was performed by the microdilution assay in order to obtain the Minimum Inhibitory Concentration (MIC) and Minimum Microbicide Concentration (MMC) (Clinical and Laboratory Standards Institute, 2011). Against Gram-positive (Staphylococcus aureus and Bacillus subtilis) and Gram-negative (Escherichia coli and Pseudomonas aeruginosa) bacteria, as well as, against fungus (Candida albicans, Candida glabrata and Candida krusei). The phytochemical analysis of secondary metabolites was undertaken according to Wagner and Bladt (2009). The results showed that MIC (12.5 to 3.12 mg/mL) and MBC (50 to 3.12 mg/mL) of methanolic extract were active against Gram-positive bacteria; on the other hand, both, MIC and MBC against Gram-negative bacteria were active at 6.25 mg/mL. The antifungal assay showed MIC at 12.5 to 6.25 mg/mL and Minimum Fungicidal Concentration at 25 mg/mL. The phytochemical analysis revealed the presence of flavonoids, terpenoids, tannins and saponins in studied extract, this groups of compounds possess various benefits including antimicrobial properties against pathogenic and spoilage microbes (Hayek et al., 2013). Variations in the structure and chemical composition of these compounds result in differences in their antimicrobial action (Savoia, 2012). These results suggest that C. spinosa methanolic extract can be used as a potential natural antimicrobial. The use of natural compounds from plant by-products could open up the possibility of using these compounds as novel antimicrobials. Utilization of these products could also be a more cost-effective way to produce antimicrobials.

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