

Phytochemical, antibacterial, antioxidant and anticancer activity study of *M. candidum* leaf acetone extract

ABSTRACT

M. Candidum has been frequently used as a traditional medicine to treat various diseases such as diarrhea, dysentery, haemorrhoids, cuts and wounds, toothache, and stomach ache. This research was aimed to identify the activity of *M. candidum* acetone extract as an antibacterial, antioxidant, anticancer and phytochemical. Antibacterial activity test was performed in vitro against each of the two Gram-positive and Gram-negative bacteria by paper disc diffusion method followed by determination of the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values. The antioxidant activity of the extract was tested against 2,2-diphenyl-1-picrylhydrazyl (DPPH), while the cytotoxic activity of the extract was evaluated against MCF-7 cells. Furthermore, the identification of secondary metabolite content was determined by ¹H-NMR spectroscopy. Activity test results revealed that acetone extract of *M. Candidum* leaf was active against four pathogenic bacteria, such as *P. acne* ATCC (27853), *S. saprophyticus* ATCC (49907), *S. Mutans* ATCV (35668), *C. freundii* ATCC 8090) with inhibition diameter of 5.70 ± 0.17 - 11.23 ± 0.23 with MIC values of 1250 - 2500 $\mu\text{g}/\text{mL}$ and MBC between 1250 - > 5000 $\mu\text{g}/\text{mL}$. *M. candidum* acetone extract has antioxidant and cytotoxic activity with IC₅₀ value = 22.4761 $\mu\text{g}/\text{mL}$ and IC₅₀ = 601.09 $\mu\text{g}/\text{mL}$ respectively. Also, the results of phytochemical tests indicated that *M. candidum* acetone extract contained terpenoids and aromatic compounds.

Keyword: *M. candidum*; Antibacterial; Antioxidant; Anticancer; Phytochemical