

Biological and phytochemical investigations of *Goniothalamus umbrosus* leaves hexane extract.

ABSTRACT

Antibacterial, antioxidant, anticancer properties and chemical compositions of *Goniothalamus umbrosus* (GU) hexane extract was investigated using disc diffusion method, DPPH assay, MTT cytotoxicity test (MCF-7 breast cancer cell line, HT-29 colon cancer cell line and CEMss leukemia cell line) and GC-MS, respectively. Anti-tumor effect of GU was further confirmed morphologically under inverted and fluorescent microscopy. Anticancer properties were only observed on MCF-7 with an IC₅₀ of 20 ± 4.469 µg/ml. Morphology of MCF-7, after exposure to the extract, has suggested strongly the incidence of a cell death that might resemble to apoptosis. Antioxidant activity was not comparable significantly to the commercial standard antioxidant butylated hydroxytoluene (BHT). The extract failed to exhibit any antibacterial activity towards two Gram-positive bacteria, Methicillin Resistant *Staphylococcus aureus* (MRSA) and *Bacillus subtilis* B29, and other two Gram-negative bacteria, *Pseudomonas aeruginosa* 60690 and *Salmonella choleraesuis*. Analyses of the extract by gas chromatography and GC-mass spectrometry (GC-MS) tentatively identified 68 compounds, including a group naphthalene derivatives (18.33%) and eudesma-4(14),7(11)-diene (5.97%). A further research is recommended to verify the mechanism of oncolytic action of the hexane extract of *G. umbrosus*

Keyword: Anti-oxidant; anti-tumor; Antibacterial; GC-MS; *Goniothalamus umbrosus*.