

Full Length Research Paper

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

Siddig Ibrahim Abdelwahab^{1*}, Ahmad Bustamam Abdul^{1,2}, Manal Mohamed Elhassan¹, Syam Mohan¹, Adel Sharaf Al-zubairi¹, Nagi A. ALHaj^{3,4} Rasedee Abdullah^{3,4} and Abdelbasit Adam Mariod⁵

¹UPM-MAKNA Research Laboratory, Institute of Bioscience, University Putra Malaysia, Serdang 43400, Selangor, Malaysia.

²Department of Biomedical Sciences, Faculty of Medicine and Health Sciences; University Putra Malaysia, Serdang 43400, Selangor, Malaysia.

³Laboratory of Immunotherapeutic and Vaccines, Institute of Bioscience, University Putra Malaysia, Serdang 43400, Selangor, Malaysia.

⁴Department of Microbiology and Pathology, Faculty of Veterinary Medicine, University Putra Malaysia, Serdang 43400, Selangor, Malaysia.

⁵Food Science and Technology Department, College of Agricultural Studies, Sudan University of Science and

Technology, P. O. Box 71 Khartoum North, Sudan.

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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*.