GC/MS determination of bioactive components and antibacterial properties of Goniothalamus umbrosus extracts

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In this study, the antibacterial activity and chemical composition of Goniothalamus umbrosus leaves extracts were evaluated. The antibacterial activity was investigated using two gram-positive bacteria, Methicillin resistant Staphylococcus aureus (MRSA) and Bacillus subtilis B29, and two gram-negative bacteria, Pseudomonas aeruginosa 60690 and Salmonella choleraesuis. The activity was tested using disc diffusion and minimum inhibitory concentration assays. The chemical compositions of the ethyl acetate extract of G. umbrosus were investigated using Shimadzu gas chromatography–mass spectrometry (GC-17A) while the mass spectra of the compounds found in the extract was matched with the library. The results showed that the extracts demonstrated broad spectrum antibacterial effects against all tested bacteria. GC/MS analysis of ethyl acetate extract of G. umbrosus revealed the existence of 1-butyl-2-cyclohexen-1-ol (46.84%), benzaldehyde (4.42%) and globulol (4.07%). The results of this study offer a platform of using G. umbrosus as herbal alternative for the current synthetic antimicrobial agents.

Key words: Goniothalamus umbrosus, GC/MS, antibacterial properties.