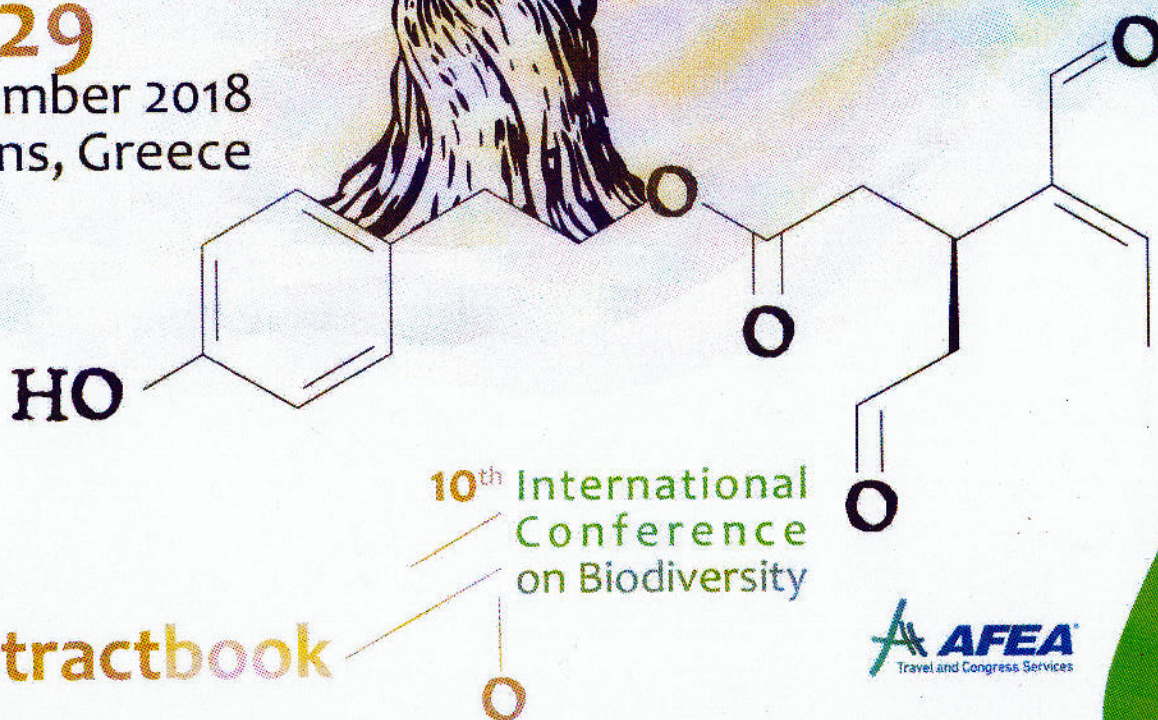


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Evaluation of antimicrobial, disinfectant and anti-inflammatory potential of *Garcinia cambogia*: A potent source for pharmaceuticals and disinfectants

Mayuri Napagoda¹, Sudhara De Soyza¹, Jana Gerstmeier², Hannah Butschek², Andreas Koeberle², Mallique Qader³, Sybille Loran⁴, Sanjeeva Witharana⁵, Gaya Bandara Wijayaratne⁶, Aleš Svatoš⁴, Lalith Jayasinghe³, Oliver Werz²

¹Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka, ²Institute of Pharmacy, Friedrich-Schiller-University Jena, Philosophenweg 14, D-07743 Jena, , Germany, ³National Institute of Fundamental Studies, Kandy, , Sri Lanka, ⁴Max Planck Institute for Chemical Ecology, Hans-Knoell-Strasse 8, D-07745 , Jena, Germany, ⁵Faculty of Engineering, Higher Colleges of Technology, PO Box 4793, , United Arab Emirates, ⁶Department of Microbiology, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka

Garcinia cambogia is extensively utilized in indigenous medicine in Sri Lanka to treat inflammatory conditions, skin diseases and related disorders. However, neither its pharmacological features nor the phytochemistry are explored in depth to rationalize the reported ethnobotanical significance. Thus, the present study is undertaken to investigate antimicrobial, disinfectant and anti-inflammatory activities of different extracts prepared from fruits of *G. cambogia* and to study its phytochemical profile. The antimicrobial activity of the extracts against Gram positive and Gram negative bacteria including clinical isolates of methicillin resistant *Staphylococcus aureus* (MRSA) was evaluated by the broth micro-dilution assay while the disinfectant potential was determined by surface disinfectant assay. Since 5-lipoxygenase (5-LO) and microsomal prostaglandin E2 synthase (mPGES)-1 are well-known target enzymes associated with inflammatory disorders, cell-free and cell-based assays were employed to investigate the suppression of 5-LO and mPGES-1 activities. Out of the tested extracts, a conspicuous antibacterial activity was observed in the *n*-hexane extract with minimum inhibitory concentration (MIC) of 31.25-125 µg/mL against *Staphylococcus aureus*, *S. saprophyticus* and MRSA. Interestingly, these MIC values were significantly lower versus those of most of the ubiquitous phyto-constituents. Moreover, the disinfectant capacity of this extract against *S. aureus* and MRSA isolates was comparable to that of the commercial disinfectant used as the positive control. Further, the *n*-hexane extract displayed highly potent anti-inflammatory activity with IC₅₀ of 0.15 and 0.92 µg/mL in cell-free and cell-based 5-LO assays, respectively, and an IC₅₀ of 0.29 µg/mL in mPGES-1 assay. These potencies are much superior over herbal extracts frequently used as anti-inflammatory remedies in Western countries. The plant contains phytosterols, fatty acids, sesquiterpenes, and several other types of secondary metabolites, as revealed by GC-MS analysis. Together, our findings demonstrated that *G. cambogia* possess significant biological activities, and further studies are in progress in the pursuit of new phytotherapeutics and disinfectants.