

Antimicrobial Compounds from *Coleonema album* (Rutaceae)

Lindy L. Esterhuizen, Riaan Meyer, and Ian A. Dubery*

Department of Biochemistry, Kingsway Campus, University of Johannesburg, P.O. Box 524, Auckland Park, 2006, South Africa. Fax: 27-11-489-2401. E-mail: iad@na.rau.ac.za

* Author for correspondence and reprint requests

Z. Naturforsch. **61c**, 489–498 (2006); received January 17/February 8, 2006

Coleonema album, a member of the South African fynbos biome, was evaluated for its antimicrobial activity associated with its secondary metabolites. Ethanol- and acetone-based extracts obtained from plants from two different geographical areas were analyzed. A bioassay-guided fractionation methodology was followed for rapid and effective screening for the presence of bioactive compounds. The TLC-bioautographic method, used to screen the plant extracts for antimicrobial activity and localization of the active compounds, indicated the presence of a number of inhibitory compounds with activity against the microorganisms (*E. coli*, *B. subtilis*, *E. faecalis*, *P. aeruginosa*, *S. aureus*, *M. smegmatis*, *M. tuberculosis*, *C. albicans*, *C. cucumerinum*) tested. Evaluation of the inhibitory strength of each extract by the serial microdilution assay indicated that the *C. album* extracts inhibited effectively all the microorganisms, with the minimum inhibitory concentrations in the low mg ml⁻¹ range. Identification and structural information of the bioactive components were obtained by a combination of preparative TLC and LC-MS. It revealed the presence of coumarin aglycones which were responsible for the observed antimicrobial activities. The results of this study indicate that *C. album* possesses strong antimicrobial activity against a wide range of microorganisms that warrants further investigation into the use of the extracts or their active constituents as a potential source for novel drugs.

Key words: *Coleonema album*, Antimicrobial, Coumarins