

# Chemical Composition and Biological Activity of Propolis from Brazilian Meliponinae

Milena Velikova<sup>a</sup>, Vassya Bankova<sup>a,\*</sup>, Maria C. Marcucci<sup>b</sup>, Iva Tsvetkova<sup>c</sup>  
and Atanas Kujumgiev<sup>c</sup>

<sup>a</sup> Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria. E-mail: bankova@orgchm.bas.bg

<sup>b</sup> Institute of Microbiology, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

<sup>c</sup> Nucleo de Pos-Graduacao, Pesquisa e Ectenzao, Universidade Bandeirante de Sao Paulo, Rua Maria Candida, 1813, Villa Guilerme, SP, cep 02071–013, Brazil

\* Author for correspondence and reprint requests

Z. Naturforsch. **55c**, 785–789 (2000); received May 2/June 23, 2000

Propolis, Meliponinae, Antimicrobial Activity

Twenty-one propolis samples produced by 12 different Meliponinae species were analyzed by GC-MS. Several chemical types of stingless bees' propolis could be grouped, according to the prevailing type of compounds like: "gallic acid", "diterpenic" and "triterpenic" types. The results confirm that neither the bee species nor the geographical location determine the chemical composition of Meliponinae propolis and the choice of its plant source, respectively. This could be explained by the fact that Meliponinae forage over short distances (maximum 500 m) and thus use as propolis source the first plant exudate they encounter during their flights. The antibacterial, antifungal and cytotoxic activities of the samples were also investigated. Most samples had weak or no activity against *E. coli*, weak action against *Candida albicans*. Some of them showed significant activity against *St. aureus*., presumably connected to the high concentration of diterpenic acids. Samples rich in diterpenic acids possessed also high cytotoxic activity (*Artemia salina* test).