

Synergism Between Ethanolic Extract of Propolis (EEP) and Anti-Tuberculosis Drugs on Growth of Mycobacteria

Stan Scheller^{a,*}, Szymon Dworniczak^a, Krystian Waldemar-Klimmek^a, Marek Rajca^a, Anna Tomczyk^a and Jashovam Shani^{b,**}

^a Department of Microbiology and Immunology, Silesian Academy of Medicine, Zabrze-Rokitnica, Poland. Fax: # ++48-32-272-2554. E-mail: mikroimm@friko3.onet.pl

^b Department of Pharmacology, The Hebrew University School of Pharmacy, Jerusalem, Israel

* Author for correspondence and reprint requests

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Ethanolic extract of propolis exerts a strong anti-bacterial activity, in addition to antifungal, antiviral and antiprotozoal properties. In previous studies from these laboratories we have demonstrated that the intensity of the bactericidal activity of EEP is correlated with the virulence of the mycobacteria tested, and that EEP has a synergistic effect with antibiotics on growth of staphylococcus aureus. In the present study we investigated whether the same synergism and correlation exists between EEP and some anti-tuberculosis drugs on tuberculosis mycobacteria with different degrees of virulence. Six standard strains and 11 wild strains of mycobacteria were exposed for 30 days to EEP, with or without streptomycin, rifamycin, isoniazid or ethambutol. Out of the 17 strains, 8 were resistant to at least two standard antibiotics, and were considered “multi-resistant strains”. The rest were either susceptible or resistant to only one of the antimycobacterial drugs. Antagonism was recorded only in one case, when *Staphylococcus aureus* were treated with a mixture of EEP and ethambutol, suggesting that a chemical bond could have been formed between this anti-tuberculosis antibiotic and one of the active components of the ethanol extract of propolis.