

## Antimicrobial Activity of Special Propolis Extract

Akram Astani\*<sup>1</sup>; Jürgen Reichling<sup>2</sup>; Stefan Zimmermann<sup>3</sup>; Karl Heinz Sensch<sup>4</sup>; Paul Schnitzler<sup>1</sup>

1- *Shahid Sadoghi University of Medical Science, Yazd, Iran*

2-*Institute of Pharmacy and Molecular Biotechnology, Department of Biology, University of Heidelberg, Heidelberg, DE*

3-*Department of Infectious Diseases, Microbiology and Hygiene, University of Heidelberg, Heidelberg, DE*

4- *Department of Research and Development, Eurasburg, DE*

astani\_ir@yahoo.com

**Background & Objectives:** Propolis is a hive product that bees manufacture from balsamic resins actively secreted by plants on leaf buds and barks. Propolis composition is highly variable, depending on the plant species and on the season of collection. A special purified Propolis extract (Gh 2002) preparing in a special procedure was examined to evaluate the antibacterial activity against methicillin-susceptible and methicillin-resistant *Staphylococcus aureus* (MRSA), *Streptococcus pyogenes*, vancomycin-susceptible and vancomycin-resistant *Enterococcus faecalis* (VRE) reference strains and clinical isolates.

**Methods:** The microdilution Methods was used to determine minimum inhibitory concentration (MIC) and the minimum bactericidal/microbicidal concentration (MBC). Killing curves were set up to detect the antimicrobial kinetics on MRSA and VRE strains.

**Results:** Special propolis extract had high inhibitory activity against Streptococcus in the range of 0.03-0.06 mg/ml. Most MRSA, VRE strains were inhibited by propolis in the range of 0.125- 0.5 and 0.125- 2 mg/ml of propolis, respectively. Special propolis extract was bactericidal against most MRSA, Streptococcus and VRE in the range of 0.5-1, 0.06-0.25 and 2-> 4 mg/ml, respectively. Special propolis extract (Gh2002) demonstrated concentration-dependent as well as time-dependent antimicrobial activity. Bactericidal activity of special propolis extract was achieved after 4 h of incubation of MRSA and VRE strains.

**Conclusion:** It may be concluded that this special propolis extract is suitable for resistant strains or isolates from patients

**Keywords:** Propolis Extract; Antimicrobial Activity; MIC; MB