MINERAL CONTENT AND ANTIMICROBIAL ACTIVITY OF BINGOL ROYAL JELLY

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ABSTRACT

Royal jelly is a bee product which is used as a basic nutrient and energy source, as well as human health. Royal jelly content is rich in terms of water (66%), protein (12-15%), sugar (10-16%), fatty acids (3-6%), free amino acids, minerals (0.7-1.2%; iron and calcium) and vitamins (thiamine, niacin, riboflavin) (Nabas et al. 2014). Detailed literature search revealed there is no study on the chemical content of the Bingol royal jelly and the potential and antimicrobial properties of this content. Antimicrobial effect of the royal jelly is reported to cause by royalisin, apisimin, jellein, apalbumin peptides and fatty acids such as 10-Hydroxy-2-Decanoic acid (10-HDA) (Barnutiu et al., 2011). In addition to its antimicrobial effect, there are some studies that describes there is no effect of royal jelly on some probiotics (Nabas et al. 2014). Antibiotics that are naturally present in royal jelly (10-Hydroxy deconoic acid, Royalisin and Jelleines) have been reported to have the effect of synthetic antibiotics such as penicillin / streptomycin and have no side effects (Fujiwara et al. 1990; Fontana et al. 2004). The aim of this study was to determine the chemical content of Bingol royal jelly and investigate its potential antimicrobial activity against gram negative and gram positive bacteria and yeast. The results demonstrated that Bingol royal jelly inhibits growth of Escherichia coli, Staphylococcus aureus, Salmonella typhimurium and Saccharomyces cerevisiae. The chemical content studies were carried out for mineral analysis revealing absence of lead (Pb) and mercury (Hg) while presence of potassium (K), calcium (Ca), Magnesium (Mg) and sodium (Na) at high proportion.

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