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Changes of antioxidant activity in honey after heat treatment

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We determined how the antioxidant activity and total phenolic content of honey changed after being subjected to a high temperature. Antioxidant activity was determined using two methods – FRAP (ferric reducing antioxidant power) and DPPH (1,1-diphenyl-2-picrylhydrazyl) assays. Total phenolic content was determined by modified Folin-Ciocalteu method. The research was conducted on 31 samples of acacia honey and 8 samples of chestnut honey. All measurements were done at two temperatures – at 23 ° C (room temperature) and after 5 min of heating at 95 ° C. The obtained results show uneven changes of antioxidant activity and total phenolic content among individual samples, i.e. in some samples antioxidant activity decreased after heating, while in others it increased. The

same applies to the total phenolic content. Statistical analysis of the results (*t*-test) showed no statistically significant differences between the results measured at two different temperatures ($P > 0.05$) in all three methods used, and in both types of honey. The only statistically significant difference ($P < 0.05$) was observed when using DPPH method in acacia honey.

Keywords:

heating; phenolic compounds; ferric reducing antioxidant power (FRAP); 1,1-diphenyl-2-picrylhydrazyl (DPPH)

[fulltext]