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Effect of honey on antibody production against thymus-dependent and thymus-independent antigens in primary and secondary immune responses.

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Abstract

The objective was to study the effect of natural pure honey on the antibody production against thymus-dependent antigen [sheep red blood cells (SRBCs)] and thymus-independent antigen (*Escherichia coli*) in mice. Forty-two mice (mean weight 28.33 +/- 3.44 g) were divided into two groups: group A (21 mice) fed regular diet and group B (21 mice) fed regular diet plus 0.8 g/kg of body weight/day of honey administered in four equally divided doses. Each animal was injected intraperitoneally with 0.1 mL of 5% SRBCs and 0.1 mL of killed E. coli. The same dose of both antigens was given after 17 days. At days 7 and 16 after primary immunization and at day 4 after secondary immunization, blood samples were collected from seven mice at each time interval from group A and group B to estimate antibody titer using the hemo-agglutination test. At day 7 after primary immunization, the mean antibody titer against SRBCs was 9.14 +/- 3.02 in group A and 13.7 +/- 3.9 in group B ($P < .05$), while the mean antibody titer against E. coli was 14.8 +/- 8.5 in group A and 14.8 +/- 9.35 in group B. At day 16, the mean antibody titer against SRBCs was 13.71 +/- 3.9 in group A and 20 +/- 9.8 in group B, while the mean antibody titer against E. coli was 14.69 +/- 935 in group A and 26.67 +/- 8.26 in group B ($P < .05$). Four days after secondary immunization, the mean antibody titer against SRBCs was 13.33 +/- 4.62 in group A and 16 +/- 8.7 in group B, while the mean antibody titer against E. coli was 42.67 +/- 18.4 in group A and 69.33 +/- 31.4 in group B. It might be concluded that **oral honey stimulates antibody production during primary and secondary immune responses against thymus-dependent and thymus-independent antigens.**

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