

# The effects of oral administration of betain on mice humoral immune response against *Brucella abortus*

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Received: 20.08.2016

Accepted: 16.05.2017

## Abstract

The use of betaine in animal and human nutrition has been increased dramatically in recent years. The effects of betaine on humoral immune responses are to some extent unknown. The current study investigated the effect of oral administration of betaine on antibody response against *Brucella abortus* in mice. A total of 12 male adult mice were divided into two groups. Betaine was orally administered to the test group at a daily dose of 500 mg / kg / day for 31 days. *Brucella abortus* antigen were injected intraperitoneally to all of the mice on days 7, 21 and the blood samples were collected on days 0, 21 and 31. Immune response was evaluated by microagglutination test, 2ME and ELISA. The primary and secondary humoral immune responses were decreased insignificantly in the test group. The IgM / IgG ratio in primary and secondary immune response of the control group was 1: 1 and 1: 1.7, respectively. In the test group the mentioned ratios were recorded as 7: 1 and 3.2: 1, respectively. Also, there was no significant difference in ELISA titers. Based on the above results, it is concluded that, the main effect of betaine on humoral immune response is on antibody class switching.

**Key words:** Betaine, Homoral immune response, Mouse

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