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Effect of flaxseed supplementation on the innate immune response

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The phagocytosis assay allows quantitative measurement of the percentage of phagocytes and the enzymatic activity of each phagocyte. Immunomodulation of fatty acids in flaxseed may alter phagocytosis activity. The objective of this work was to compare the effect of feeding normal broiler chickens 15% of dietary flaxseed on phagocytic activity of monocytes and heterophils in the peripheral blood. One day old broilers were used. Upon hatching, all chicks were given the same basal diet for 13 days. Following this, dietary supplementation of flaxseed started at 14 days of ages until the end of the cycle at 35 days of age. At slaughter, samples of blood were collected from each bird. The quantitative analysis of the phagocytic activity of peripheral blood mononuclear phagocytes in whole blood was performed using PHAGOTEST commercial kits. Results were expressed as percentage of fluorescent cells (% phagocytosing cells) and mean fluorescence intensity (MFI). Feeding flaxseed at 15% did not affect either the percentage of cells participating in phagocytosis or the Mean Fluorescence Intensity (MFI). However, there was a trend towards a decrease in the percentage of monocytes involved in phagocytosis in birds fed diets containing 15% flaxseed. Also, there was a trend towards a decreased MFI (p=0.056) for monocytes. In general, results of the current study showed no effect of flaxseed on phagocytosis of peripheral blood cells.

Biography

Hanan Al-Khalifa has obtained her Master's degree in Parasitological Diseases and Immunology at University of Manchester and completed her PhD in 2007 in the University of Reading, UK, investigating the effect of n-3 fatty acids on the immune response and general health status. Her interests include but are not limited to immunological techniques, parasitological diseases, effect of nutrition, espicially fatty acids, on the immune status in both humans and expermental animals. She executed many research projects that focused on the effect of nutrition on immunology. She has attended many scientific events and published more than 60 papers in refereed journals and conference proceedings.

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