EFFECT OF POLYUNSATURATED FATTY ACIDS DIETARY SUPPLEMENTATION OF BROILER TURKEYS ON GROWTH PERFORMANCE AND FATTY ACID CONTENT OF MEAT

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Abstract

Fatty acids, especially essential fatty acids, are gaining importance in poultry feeding systems not only for improving the health and productivity of birds, but also because of our health-conscious society that prefers properly balanced diets to minimize adverse health issues. Numerous studies have shown that flaxseed and microalgae feed supplements could be a good source for supplementation of omega-3 fatty acids to poultry meat. The aim of this study was to investigate the effects of supplementation of rations of broiler turkeys with additives rich in omega-3 fatty acids on production and slaughter traits and fatty acid profile of meat.

The effect of dietary supplementation with microalgae meal All-G Rich (algae grown in a closed and controlled system) at two levels: 1% and 2% and Wisan®Omega (product based on flaxseed and selected cereals) at 0.5% in fattening broiler turkeys was investigated. The live weight, daily weight gain, feed conversion and slaughter traits were monitored. The fatty acid content of breast and thigh samples was determined by means of gas chromatography after extraction and transformation of fatty acids in methyl esters. Fatty acids were expressed as a percentage of the sum of identified fatty acids. The total PUFA content in breast and thigh turkey meat was calculated as well as omega-6 to omega-3 PUFA ratio.

Highest live weight was demonstrated by turkeys from groups supplemented with All-G Rich 2% - 8.935 кg and All-G Rich 1% - 8.418 kg compared to those fed fodder with Wisan®Omega - 7.903 kg and controls which were with lowest body weight (7.543 kg). Over the entire fattening period, turkeys supplemented with 2% All-G Rich had lower feed expenditure by 14% compared to control birds and birds that received Wisan®Omega. The meat of experimental groups supplemented with PUFA additives was outlined with higher omega-3 fatty acid content. The ratio of studied omega-6 to omega-3 PUFA in breast meat and thigh meat was lower in experimental groups compared to controls.

The results of this study prove that flaxseed and microalgae supplements can be a good source for improving productivity and enriching meat with omega-3 fatty acids in turkeys.

Key words: *Turkey's meat, Productivity, Algae, Linseed, Fatty acid ratio (ω6/ω3).*