

THE EFFECT OF THE USE OF CRUDE SOYBEAN IN THE FINAL MIXTURES FOR BROILER CHICKEN ON CHEMICAL AND AMINO ACID COMPOSITION OF MEAT

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Abstract

The aim of this study was to determine the effects of using different varieties and levels of participation of raw soybeans in the final mixtures for broiler chickens on chemical and amino acid composition of dark and white meat. The research was conducted at the experimental farm of the Institute for Animal Husbandry in Zemun using Hubbard F15 heavy line hybrid broilers. A total of 2000 one-day broilers were distributed in 40 equal boxes reared on deep litter (50 chickens per box, 4 boxes replicates per treatment diet). Chickens in all groups had uniform requirements in terms of population density, food area, temperature and light. Until the age of 35 days all birds in the experiment were fed the same diets. The study was carried out on chickens at the age of 35-42 days, according to the principle of two-factorial trial 2 x 5 (2 varieties of domestic varieties x 5 levels of participation of raw grains in the mixture) with a total of 10 treatments. At the end of the experiment, 6 broilers per each tested treatment and gender were randomly selected, a total of 120 chickens, from which the sample of breasts and thigh muscle tissue was taken after the slaughter in order to determine the quality of the meat. It was established that increased concentration of trypsin inhibitor in the final mixtures for chicken had no negative impact on the quality of meat (basic chemical and amino acid composition of dark and white meat).

Key words: *nutrition, soybean, trypsin inhibitors, broiler chicken, chemical and amino acid composition of meat*

Introduction

The nutrition of broilers, in addition to genetics, is the most important factor that can influence the chemical composition of chicken meat. The soybean in chicken diet is the number one protein component and is valuable feed in terms of amino acid composition (*Tan Wilson et al., 1987; Kho and Lumen, 1988*). In comparison with grains and leguminous species, soybean has the highest percentage of proteins (on average of about 38%, with 2.1 to 2.5% lysine). The nutritional value of raw soybean is reduced by the presence of numerous anti-nutritive substances such as trypsin inhibitors (TI) (*Palacios et al., 2004*) and lectins (*Douglas et al., 1999*). The nutritional value of soybean can be increase by proper heat treatment and deactivation of anti-nutritional factors which are mainly proteins, but this procedure also increases its price.

Selection/breeding work has resulted in soybean varieties with reduced content of certain anti-nutritional substances. Variety Lana was developed by *Srebrić and Perić (2008)* as a result of domestic soybean breeding program aimed at reducing the activity of TI. Variety Lana has a lower TI level by 50% compared to conventional soybean varieties. The use of raw soybeans (especially varieties with reduced TI content) influences primarily the reduction of feeding costs and improves the economy of broiler production.

