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[home](#) [page](#) [about us](#) [contact](#)



[us](#)

Table of
Contents

IN PRESS

CJAS 2015

CJAS 2014

CJAS 2013

CJAS 2012

CJAS 2011

CJAS 2010

CJAS 2009

CJAS 2008

CJAS 2007

CJAS 2006

CJAS 2005

- **Authors Declaration**
 - **Instruction to Authors**
 - **Guide for Authors**
 - **Fees**
 - **Submission**
-

Czech Journal of Animal Science

The use of amaranth grain in diets for broiler chickens and its effect on performance and selected biochemical indicators

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[[fulltext](#)]

The objective of our experiment was to test the possibility of using amaranth grain, either heat-treated (AO) or without treatment (AN), in vegetable diets for broilers as a substitution for meat-and-bone meals. The effect of amaranth on performance and selected biochemical parameters was investigated. The groups of chickens fed with amaranth obtained comparable results in all characteristics with the control group whose diet included a component of animal origin. We did not observe any statistical differences in live weights of monitored groups of chickens on day 41 (Kab 2 149.9 ± 274.3; ANab 2 192.2 ± 255.2; AOab 2 186.2 ± 260.8 g).

Feed conversion ranged from 1.9 kg in the control group of hens to 2.2 kg in the experimental group of cocks AOa. Carcass yield was significantly higher ($P < 0.05$) in the control group compared to the group AN. Biochemical characteristics, i.e. the concentrations of proteins, total lipids, cholesterol and glucose in blood sera of broiler chickens were monitored. The inclusion of amaranth in the rations of experimental groups had no effect on protein concentrations compared to the control group. The hypocholesteraemic and hypolipidaemic effects of amaranth grain, as mentioned in the literature, were not confirmed in our experiment. Glucose levels were significantly lower in the experimental groups of chickens ($P < 0.05$; $P < 0.01$). We can conclude that amaranth can be successfully used as a substitution for meat-and-bone meals in diets of broiler chickens, and that the tested amount of 7% in a ration had a positive effect on performance.

Keywords:

plant protein; weight; feed conversion;
carcass yield; blood biochemistry

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