

Abstract

Nutritional Composition of Solid-State Fermented Camelina Meal (An Enriched Protein Source for Broiler Chickens) [†]

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Abstract: Camelina (*Camelina sativa*) also known as false flax or gold of pleasure is an oilseed crop of the Brassica (*Cruciferae*) family. Camelina is not a food crop, however, the by-product (meal or cake) obtained from the oil extraction of camelina seeds is useful as animal feed because of its moderate crude protein content. The dietary use of camelina meal in broiler diets is limited to low inclusion due to the presence of anti-nutritional factors such as fibre, phytic acid, glucosinolates and tannins which have negative effects on broiler performance. Solid-state fermentation (SSF) is a suitable processing method for enriching agroindustrial by-products since it offers several cost-effective and practical advantages. In the present study, the effect of SSF on the nutrient composition, phytic acid and total phenolic contents of expeller-extracted camelina meal was evaluated. *Aspergillus ficuum* (ATCC 66876) was used for SSF under aerobic conditions at 30°C for 7 days. Unfermented and fermented camelina meals were analyzed for dry matter, crude protein, crude fat, crude fibre, total sugar (sucrose) and starch as well as for pH, phytic acid and total phenolic contents. Crude protein was improved by 6.79% while total sugar and starch were reduced by 90.99% and 75.78%, respectively in the solid-state fermented camelina meal. Phytic acid and total phenolic contents were also decreased by 39.17% and 56.11%, respectively. This study revealed that SSF could be used to improve the nutritional quality of camelina meal for improved use in poultry feed formulation.

Keywords: nutrient composition; phytic acid; total phenolic contents; solid-state fermentation; camelina meal; broiler chickens

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