

Metabolism and Nutrition: Enzymes I

39 Chemical composition and nutritive value of *Brassica juncea* canola for poultry and the effect of enzyme supplementation.

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Canola breeding program undertaken to improve meal quality has led to the development of canola quality (i.e., low glucosinolate, low erucic acid) form of *B. juncea*, a mustard species known for its pure yellow seed coat. Under Western Canadian conditions, *B. juncea* suffers less from heat and drought stress and matures earlier than *B. napus*. Such characteristics are the basis for high yields of oil and low chlorophyll content in the seed. The objective of the current study was to evaluate the chemical and nutritive composition of meals derived from pre-press solvent extracted seeds of the conventional black-seeded *B. napus* canola and the canola-quality yellow-seeded *B. juncea*. In comparison with *B. napus* canola, meal derived from yellow-seeded *B. juncea* contained (DM basis) similar amount of protein (41.7 vs. 41.5%) and fat (2.8 vs. 2.9%), more sucrose (6.9 vs. 5.6%), more starch (3.4 vs. 0.1%) and less dietary fiber (27.7 vs. 33.8%). Lower fiber content of *B. juncea* canola was reflected in lower content of lignin with associated polyphenols (4.0 vs. 10.4%). The nutritive value of canola meals was investigated with broiler chickens fed corn/soybean meal-based diets containing 30% of meals from 4 to 18 d of age. A significantly lower ($P < 0.05$) BWG was observed in birds fed the *B. juncea* diet when compared with those fed the conventional black-seeded *B. napus* canola (479 vs. 515 g/bird). No difference in FCR was observed (1.44 vs. 1.42). In a second study, meal AMEn values for *B. juncea* and *B. napus* were determined with broiler chickens (from 14 to 19 d of age) and were 1881 and 1852 kcal/kg DM, respectively. Enzyme (multicarbohydase) addition resulted in the AMEn value of 1993 kcal/kg DM for *B. napus* meal, with a more pronounced effect ($P < 0.05$) observed for *B. juncea* canola (from 1881 to 2222 kcal/kg DM).

Key Words: *B. juncea* canola, nutritive value, AMEn, broiler chicken, enzyme supplementation

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