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Canola meal for poultry - Recent studies and perspectives

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Canola is an important oilseed crop with 21 million tonnes of seed being produced annually in Canada. Dietary inclusion levels of pre-press solvent extracted canola meal (CM) in poultry diets has historically been limited to 5-10% due to concerns related to high fiber content and the presence of glucosinolates. Over the years, the content of glucosinolates has been declining steadily, and is now around 4.0 µmol/g. This value is similar to the levels of glucosinolates in low-glucosinolate rapeseed meal (RSM) currently produced in Australia, however, it is lower than that in many European countries. The chemical composition of CM and RSM is similar with crude protein, available sugars, and total dietary fibre accounting for 36-37, 7-9, and 34-38%, respectively. Both CM and RSM contain 3-4% of fat (ether extract) as during processing gums and soapstocks from oil refining are added back to the meal. Several studies on the effects of high dietary levels of CM on growth performance and nutrient utilization in broilers, turkeys, and laying hens have been conducted. In one broiler study, the effect of graded levels of CM from 0 to 30% was investigated. The result showed that although fibre content of diets differed substantially with increased levels of CM, bird performance was not significantly affected. Irrespective of the phase and CM inclusion levels, BW gain and FCR averaged 1.39 kg/bird/28d, and 1.46 and were similar to 1.33 kg/bird/28d, and 1.45 for the SBM Control, respectively. In the turkey study (1-56d of age), dietary inclusion of 20% of RSM resulted in similar growth performance as that for the SBM Control diet. In studies with broilers and turkeys, it was documented that AMEn of CM and RSM could increase by 200 kcal/kg following multi-carbohydrase supplementation. Diets containing graded levels of CM from 0 to 20% were also fed to laying hens throughout the 24-week trial. There were no significant differences in hen-day production, feed efficiency, mortality, and egg quality between dietary treatments. It has also been documented that a "fishy" flavor of eggs produced by brown-shell laying hens is no longer a problem due to breeding chickens free of the defective gene involved in the conversion of sinapine to odorous trimethylamine. Selection for low-fibre, yellow-seeded B. napus canola has been among approaches undertaken to improve the nutritional value of CM. Based on several studies, it appeared evident that breeding for low-fibre canola resulted in quantitative rather than qualitative changes as evidenced by increased oil, protein, and sucrose contents and decreased fibre content. It could be concluded that CM and RSM could be used effectively at 15-20% in poultry diets, providing the diets are formulated based on digestible amino acids and available energy contents.