Incidence of Adulteration of Animal Proteins with Leather Meal

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Rec.Date: Mar 19, 2013 06:32; Accept Date: Mar 31, 2013 08:49

Abstract

Quality of poultry feeds influence the nutrient utilization and production performance of birds. Adulteration of animal proteins with leather industry wastes reduces the egg production in commercial layers and growth in broilers. A study conducted in Namakkal area of Tamil Nadu to assess the incidence of adulteration of animal proteins with leather meal revealed that 30.7 % of fish meal, 52.4 % of meat and bone meal and 56.3 % of meat meal samples were found to be adulterated with leather meal. Since the animal protein sources such as fish meal, meat meal and meat & bone meal sold in the market are mostly adulterated with leather meal, feed samples may be tested for adulteration with leather meal before using for feed manufacturing.

Key words: fish meal, meat and bone meal, adulteration, leather meal, poultry

Introduction

Fish meal and meat and bone meal are commonly used as animal protein supplements in the ration of monogastric animals. Most of the feed manufacturers prefer to procure and use dry fish for manufacturing poultry feed and disinclined to use commercially available ready to use fish meal / meat meal / meat and bone meals because of the problem of adulteration with leather meal to reduce the cost which results in poor performance of birds. Detection of adulteration and maintaining quality of fishmeal are important for enhancing productivity and protecting the health of livestock and poultry (Nagase et al., 2009). Adulteration of animal proteins with leather meal decreases the egg production between 2.0 and 3.0 % in commercial layers. Hence a study was carried out to assess the incidence of adulteration of animal proteins with leather meal in Namakkal area of Tamil Nadu.

Materials and Methods

Fish meal / meat meal / meat & bone meal samples collected from feed mills located in Namakkal area of Tamil Nadu from January, 2009 to July, 2012 were taken (20 g) in a silica crucible and the contents were ashed at 600 °C for three hours using bunsen burner. Since the hexavalent chromium formed during oxidation (ashing) of test sample is carcinogenic in nature, necessary care and precautions were taken to avoid inhalation. After cooling, the ash was placed on a white tile. Few drops of 1.0 % sulphuric acid solution were added to wet the ash. Then few drops of 2.0 % freshly prepared solution of 1,5 diphenyl carbazide solution (dissolved in acetone) was added. Appearance of red-violet color was indicative of
presence of leather meal in fish meal. However, appearance of very pale pink colour could be treated as negative sample (Vasanthakumar et al., 2010).

Results and Discussion

A total of 140 number of fish meal, 42 meat & bone meal and 16 meat meal samples collected from various feed mills in Namakkal area of Tamil Nadu, India were analyzed for adulteration with leather meal. The results revealed that 30.7 % of fish meal, 52.4 % of meat and bone meal and 56.3 % of meat meal samples were found to be adulterated with leather meal. Khatoon et al. (2006) in Pakistan assayed 184 samples of fishmeal for proximate composition, pepsin digestibility, salt, acid insoluble ash and chromium. The results of this study showed a variation in nutrient composition among samples. An inverse relationship was observed between fat, ash, pepsin digestibility, chromium and crude protein contents of fishmeal. All the samples were adulterated with slightly higher levels of sand and salt than recommended (Khatoon et al., 2006). However, Abbas et al. (2011) reported that out of 124 fishmeal products examined 9 (7.25%), 4 (3.22%) and 16 (12.9%) samples were contaminated with bovine, sheep and chicken, respectively. These findings showed few adulterations in fishmeal used in Iran.

Conclusion

Feed ingredients such as fish meal, meat meal and meat & bone meal sold in the open market are not only adulterated with urea, ammonium salts and hoof and horn meals but also with leather meal and hence animal protein samples may be tested for adulteration with leather meal before using for feed manufacturing.

Acknowledgement

The authors are grateful to the Tamil Nadu Veterinary and Animal Sciences University, Chennai, India for providing all facilities to carry out this research work.

References


