Tomato pomace in broiler diets

Tomatoes are cultivated on large scale in most part of the world for various culinary products like ketchups, soups, sauces, puree and juice. About 10-30 % of the raw tomato waste including cuttings, peels, seeds and pomace is generated by these industries. Tomato pomace contains up to 25% high-lysine protein and 242 parts per million (ppm) of α-tocopherol (vitamin E). This waste is generally dumped here and there or used in dairies as cattle feed because these animals can digest it. Broilers can digest only 5% pomace in the diets and chickens are able to digest it as high as 15%.

Researchers at UC Davis Laboratory, California studied the potential use of tomato pomace in feed for broiler chickens. The results revealed that there were no significant differences in body weight and feed per gain in chicks given diets with or without tomato pomace. Tomato pomace could be used as a source of α-tocopherol in broiler diets to decrease lipid oxidation (fat deterioration) during heating and long-term frozen storage of dark meat, and to prolong shelf life. Because tomato by-products contain high levels of unsaturated fatty acids, the pomace must be defatted without losing vitamin E to minimize its oxidation potential. However, more research is needed to enhance its practical applications [King & Zeidler, Calif Agric, 2004, 58(1), 59-62].

Effect of Spirulina and natural carotenoids supplementation in broiler chicken diet

In poultry, supplementation of Spirulina platensis (Nordst.) Geitl., a blue green algae has been reported to be beneficial. Scientists at Department of Physiology, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala evaluated the antioxidant and hypolipidemic effects of Spirulina and carotenoids obtained from red, yellow and orange fruits and vegetables in broiler chicken.

During experiment broiler chicks were divided into four groups. Group I was kept on normal diet; group II on normal diet + 1% dried spirulina powder; group III was given normal diet +1% dried spirulina powder + natural carotenoids – soft gel@ 10 mg/kg feed and group IV was kept on normal diet +10% coconut oil. Blood was collected on 56ª day before they were sacrificed.

Results revealed that broiler diet supplemented with 1% dried spirulina with and without natural carotenoids could elicit an increased activity of erythrocyte antioxidant enzymes i.e. superoxide dismutase and catalase, increased level of reduced glutathione and decreased level of serum lipid peroxidation. There were significant changes in the serum for certain lipid parameters and total bilirubin content. A marked hypolipidemic effect was observed with the supplementation of Spirulina alone and when combined with natural carotenoids. High fat supplementation in the broiler ration with coconut oil resulted in reverse effect on the biochemical parameters [Reddy et al, Indian Vet J, 2004, 81(4), 383-386].