

Microbiological Quality Assessment of Poultry Broiler Feed and Major Raw Materials Collected from Commercial Feed Distributors in Kurunegala District

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Quality of poultry feed is pivotal as it affects quality of fowls and resulting products. Microbiological quality of the feed is usually assessed by enumerating Enterobacteriaceae (ENT) and determining the presence of *Salmonella*. According to EU standards, products should have less than 300 cfu/g of ENT and should be free from *Salmonella*. The objectives of this study were to enumerate ENT and test the presence of *Salmonella* in broiler feed and raw materials and to understand the antimicrobial profile of isolated *Salmonella*. Commercially available starter (n=33) and finisher (n=33) broiler-feed and raw materials, such as fishmeal (n=126) and maize (n=69), were sampled from feed distributors in Kurunegala district. Each sample was tested for ENT and *Salmonella* using ISO 21528:2017 and ISO 6579:2000 standards, respectively. Accepted quality control bacterial strains were also used. All *Salmonella* isolates were subjected to antimicrobial susceptibility testing for ten antimicrobials. The commercial broiler feed samples were negative for *Salmonella*. However, 5.55% (7/126) of fishmeal, and 5.79% (4/69) of the maize samples were positive for *Salmonella*. Further, 3.03% (1/33) of the broiler starter, 3.17% (4/126) of the fishmeal, and 4.34% (3/69) of the maize samples had exceeded 300 cfu/g of ENT limit. All *Salmonella* isolates were susceptible for ceftazidime, imipenem, gentamicin, tetracycline, sulfamethoxazole/trimethoprim and chloramphenicol. *Salmonella* isolates showed 3.13%, 6.25% and 18.75% of intermediate susceptibility to ceftriaxone, ciprofloxacin and streptomycin, respectively. Around 6.25% of isolates were resistant to ampicillin. Majority of the commercial broiler feeds were at an acceptable microbial quality that could be due to high thermal treatments applied at processing. The study revealed information on the microbiological quality of locally available broiler feed and highlights the possible introduction of pathogenic and antibiotic resistant bacteria to the food chain through contaminated raw materials.

Keywords: Enterobacteriaceae, *Salmonella*, Commercial broiler feed, Fish meal, Maize