

## ***Microbiological Quality Assessment of the Poultry Broiler Starter Feed***

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The poultry feed industry has grown as a large-scale industry in Sri Lanka. Amidst the growth in the industry, producing high quality and safety feed is important. Biological contaminants; bacteria and fungi are the key causes for feed deterioration, and diseases in poultry. Thus, this study aimed to investigate the microbiological quality of 32 broiler starter feed samples, considered to one feed brand, collected from eight feed distributors and their 24 feed-supplying farms in Kurunegala district. The samples were processed for detection of Enterobacteriaceae (ENT) count, aerobic plate count (APC), and *Salmonella spp* as per the ISO and SLS guidelines. Lacto Phenol Cotton Blue (LPCP) staining was performed to identify the fungi species. According to the EU safety levels, the ENT, APC, and moulds of poultry feed should be present below 300 cfu/g,  $1.0 \times 10^6$  cfu/g, and  $1.0 \times 10^6$  CFU/g respectively, and *Salmonella* should be absent as per both EU and ISO standards. The ENT of one sample at the distributor stage exceeded 300 CFU/g. None of the samples were positive for *Salmonella*. The APC varied between  $4.3 \times 10^3$  and  $1.9 \times 10^5$  CFU/g, giving the mean APC of  $6.4 \times 10^4$  CFU/g and  $1.3 \times 10^5$  CFU/g at distributor and farm levels. *Aspergillus spp*, *Penicillium spp*, and *Rhizopus spp* were identified from the cultured feed at the distributor stage and the count varied between  $1.0 \times 10^2$  and  $3.0 \times 10^2$  CFU/g whereas *Mucor*, *Cladosporium spp*, and *Scopulariopsis spp*, were additionally identified from farm level feed samples, and count varied between  $1.0 \times 10^2$  and  $2.1 \times 10^3$  CFU/g. The TBC and the fungi count were significantly different ( $P < 0.0001$  and  $P = 0.01$ ) at the farm stage. Although the TBC and the fungi count at the farm stage are within the safety levels, there is suggestive biological contamination. Further, the diversity of the moulds present in the feed samples indicates the environmental contamination of the processed feed.

**Keywords:** Poultry Broiler Starter Feed, *Salmonella*, Enterobacteriaceae, Aerobic Plate Count (APC), Moulds