

A Preliminary Investigation on Methods of Reducing Antibiotic Resistant Bacteria in Broiler Litter in Selected Farms in Mid Country Sri Lanka

E.M. Herath, W.S. Dandeniya^{1*}, A.G.S.I. Samarasinghe², T.P.M.S.D. Bandara² and R.N. Jinadasa²

Postgraduate Institute of Agriculture
University of Peradeniya
Sri Lanka

ABSTRACT: Antibiotic residues and bacteria resistant to antimicrobial have been found in poultry litter, which is popular low cost manure in agriculture. A study was conducted to investigate a pretreatment method to reduce antibiotic resistant bacteria in poultry litter. Poultry litter was collected from eleven medium-scale broiler farms in Kandy. Total and antibiotic resistant (tetracycline and/or enrofloxacin) culturable bacteria were isolated using Tryptic Soy Agar supplemented with 0 or 100 ppm of each antibiotic. A fresh and a cured broiler litter sample were collected from one farms and treated with different temperatures (25 °C, 40 °C, 60 °C and 80 °C for 24 hours), neem seed extract (10 and 1000 ppm for 4 day) and neem dry leaves (10% w/w for 4 days) in triplicates. Total and antibiotic resistant bacteria in treated litter were assessed. Broiler litter from all farms contained tetracycline resistant bacteria. Heating at 80 °C reduced tetracycline resistant bacteria by 96-100% compared to 25 °C. Neem seed extract at 10 ppm reduced tetracycline resistant bacteria by 75-96%. Treating broiler litter with high temperature (>60 °C) and neem seed extract (10 ppm) could minimize spread of antibiotic resistant bacteria to the environment.

Keywords: Antibiotic resistant bacteria, broiler litter, Enrofloxacin, Tetracycline

¹ Department of Soil Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka

² Faculty of Veterinary Medicine & Animal Science, University of Peradeniya, Sri Lanka

* Corresponding Author: warshisd@pdn.ac.lk