

Investigation of Antibiotic Usage for Dairy Cattle and Antibiotic Residues in Milk in Coconut Triangle

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Abstract

Dairy cattle farming in coconut triangle play an important role in the dairy industry of Sri Lanka. Antibiotics are widely used for the health management of these lactating cows. However, the improper usage of antibiotics leads to antibiotic residues in milk which have several adverse effects on human health. Further, antibiotic residues may interfere with bacterial starter culture used for production of value added dairy products such as yoghurt, curd and cheese. Therefore, this study was carried out to identify the most commonly used antibiotics in dairy cattle, to screen milk for antibiotic residues and to study the factors affecting mastitis in dairy cattle of coconut triangle. Stratified random sample of 200 farmers, 20 veterinary offices and 20 pharmacies were selected from Kurunegala and Puttalam districts. Data on farmer information, management system, farmers' knowledge on antibiotic usage, use of antibiotics in feed and as treatments and hygienic practices in farm were collected using a pre-tested structured questionnaire. A total of 72 milk samples were collected from cows recently treated with antibiotics and antibiotic residues in milk samples were tested by Twinsensor® and Delvotest® commercial kits. According to the results antibiotic residues were found only in 15.9% milk samples whereas majority (84.1%) of tested milk samples were negative. Out of the reported diseases, mastitis is the predominant bacterial disease (87%) which antibiotics are mainly used. Information from farmers, Veterinary offices and pharmacies revealed tetracycline as the highest using antibiotic. Sulfa trimethoprim, cloxacillin, bacitracin and neomycin are antibiotics which are highly used for treatment in mastitis as combinations. According to binary logistic model, hygienic practices, routing testing for mastitis, average milk production, source of income, were significant factors for the occurrence of mastitis. Therefore, it can be concluded that there is a risk of contamination of milk in coconut triangle with antibiotic residues and further studies are needed for the quantification of antibiotic residues. Since antibiotics are heavily used in mastitis, milk contamination with antibiotics can be prevented by reducing the antibiotic usage for prevention and control of mastitis.

Keywords: Antibiotics, mastitis, dairy cattle, coconut triangle