

ABSTRACT

Tekgöl, Y. Investigating The Presence of Antibiotic Residues in Broiler Meat Sold in Retail Market in Aydın Province

The production and consumption of chicken meat has increased significantly throughout the world. The largest producers are the United States of America, China and Brazil. Poultry meat is a good source of high biological value protein (20-22 %). Poultry meat has significant content of vitamins from group B such as thiamin, riboflavin, niacin and vitamin B₆ and B₁₂. In poultry, antibiotic usage had facilitated their efficient production, and also enhanced the health and wellbeing of poultry by reducing the incidence of disease, but unfortunately, edible poultry tissues may be contaminated with harmful concentrations of drug residues. Antibiotic residues in foods of animal origin are one of the sources of concern among the public and medical health professionals.

Tetracyclines (TCs) are important group of antibiotics used in poultry production. TCs are given to animals for not only to prevent and treat certain diseases but also to fraudulently promote growth. However, the abundant and improper use of TCs may result in the presence of their residues in edible animal tissues, which can be toxic and dangerous for human health and potentially cause allergic reactions. Moreover, the long-term presence of TC residues may generate the evolution of microorganisms provoking resistance to antibiotics.

Florfenicol is a broad-spectrum bacteriostatic antibiotic with similar applications as chloramphenicol. However, this antibiotic does not carry the risk of inducing human aplastic anemia that is associated with chloramphenicol. Florfenicol can be used as a replacement veterinary antibiotic for chloramphenicol (CAP) in many countries. The use of this compound may result in antibiotic resistance in treated animals, which transfer these resistant organisms to humans via the food chain.

In order to protect human health, a maximum residue levels (MRLs) for the presence of TC and FF residues in poultry meat have been established by EU Commission to be 100 ng/g.

In this study, the presence of tetracycline and florfenicol antibiotic residues in randomly collected 80 broiler samples, to be consumed; from the retail markets located in Aydın Province were investigated. The presence of residues were determined by using ELISA and the quantitative analysis of the tetracycline and florfenicol antibiotic residues were carried

out by using LC-MS/MS. Based on the data gathered from ELISA, 24 of the samples were found to be positive for tetracycline but none of the samples had florfenicol positive result. MRL values of 24 samples were found to be as lower than 100 ng/g.

Keywords: Florfenicol, tetracycline, chicken meat, ELISA, LC-MS/MS