

ABSTRACT

Background

Antibiotic residues are drug substances found in food from plants or animals initially exposed to antibiotics. In animal husbandry antibiotics have widely been used for the treatment of animal diseases. These residues have the ability to expose the public to serious health hazards. In Kenya drug residues have not only been related to lack of withdrawal periods but also to intentional addition to extend milk's shelf life.

Results

The aim of this study was to investigate the occurrence of 13 veterinary drugs of tetracyclines and sulphonamides along the dairy sub value chain. The study was carried out in Nakuru County which is the leading milk producer in the country. A total of 229 samples were analysed from rural and 80 samples from peri-urban. These were collected from different nodes of the value chain; the farm, milk transporters and at the bulking centers between January 2014 and November 2015. Screening of samples was done by Charm II Blue -Yellow-test while confirmation was done by HPLC-UV for sulfachloropyradizine (SCL), sulfadiazine (SDZ), sulfadimidine (SMTZ), sulfaquinoxaline (SQ), sulfamerazine (SMR), sulfathiazole (STZ), sulfamethoxazole (SMX), sulfadoxin (SDOX), sulfadimethoxin (SDM), oxytetracycline (OTC), doxycycline hyclate (DC), chlortetracycline hydrochloride (CTC) and tetracycline hydrochloride (TC). In the rural 72 out of 229 (31.4%) samples were positive after screening while none of the samples confirmed the presence of tetracyclines after analysis with HPLC-UV. Sulphonamides confirmed after analysis with HPLC-UV were all above the EU MRL limits. In the peri urban 28.8% (23/80) of the samples were positive for antibiotic residues. Tetracyclines were not detected in confirmation while 60% of the positive samples were positive for sulphonamides out of which 71% were above the regulatory limits. Highest percentage of antibiotics was detected in rural farms (46.7%) and at peri urban bulking centers (50%).

Conclusion

The study concluded that antibiotic residues along the dairy value chain are majorly from the farm due to lack of withdrawal periods followed by intentional addition along the value chain.

Value chain actors should also be trained on ways of avoiding antibiotic residues from entering the dairy value chain to protect the public from health effects related to antibiotic residues.