VETERINARY DRUG RESIDUES IN FOOD OF ANIMAL ORIGIN IN MALAYSIA FROM 2010 TO 2012

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Introduction

Analyses of veterinary drugs monitored in foods of animal origin are an important responsibility of the Veterinary Public Health Laboratory (VPHL), for the National Food Safety and Hygienic Monitoring Program led by Department of Veterinary Services (DVS). The program was aim to ensure foods of animal origin are safe and healthy for human consumption, to investigate the usage of the drugs in the farm and also to monitor the residue occurrence in the food itself. In this monitoring program, veterinary drugs that have maximum residue limits (MRLs) in Malaysia were selected for testing namely sulphonamides, tetracyclines, quinolones, macrolides, β-lactam and aminoglycoside. Besides, nitrofuran and chloramphenicol also being monitored although this drug was not permitted to be use in Malaysia since 1998 (Food Act 1983).

Thus, the aim of this paper is to present the incidence of veterinary drug residues in foods of animal origin from 2010 to 2012 based on National Food Safety and Hygienic Monitoring Program.

Materials and Methods

Samples (muscle, kidney and liver) were randomly collected from abattoirs and poultry processing plants by Meat Inspectors from DVS based on National Food Safety and Hygienic Program. Determinations of residues were first analysed using a microbiological screening method, Six Plate Test (Myllyniemi et al., 2001). In the case of a positive screening test result for tetracyclines, sulfonamides and quinolones, further confirmatory and quantification test was then conducted using liquid chromatography-mass spectrometry (LC-MS/MS). The determination of the banned drugs, nitrofuran and chloramphenicol were carried out using LC-MS/MS.

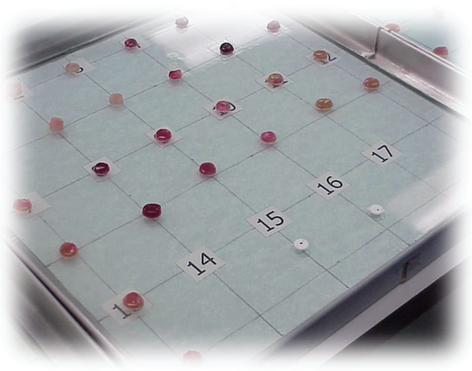

Fig. 1. Six Plate Test

Fig. 2. LC-MS/MS

Results

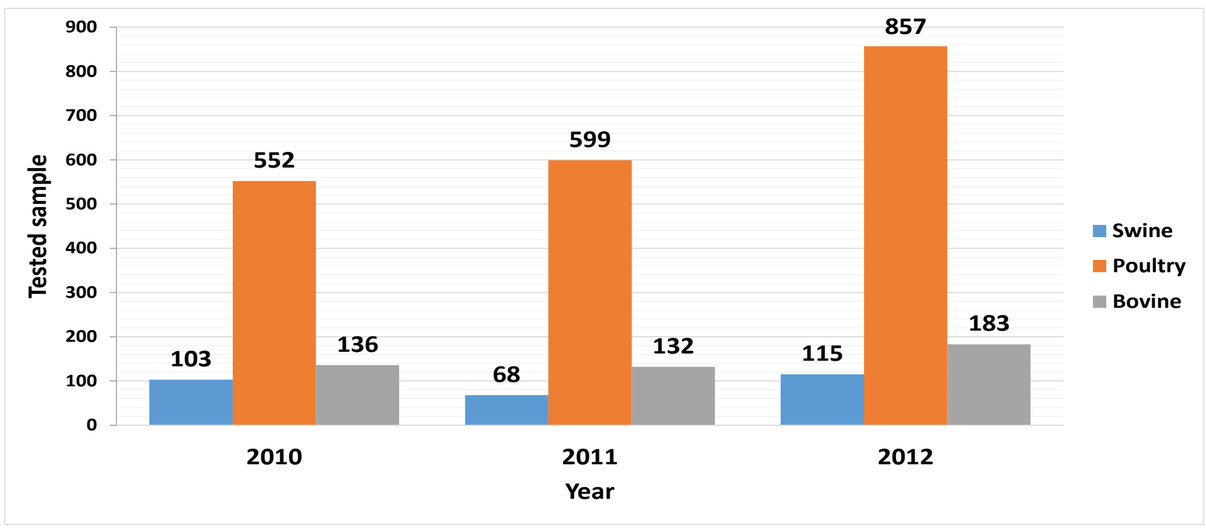

Fig. 3. Total number of sample tested yearly

Results

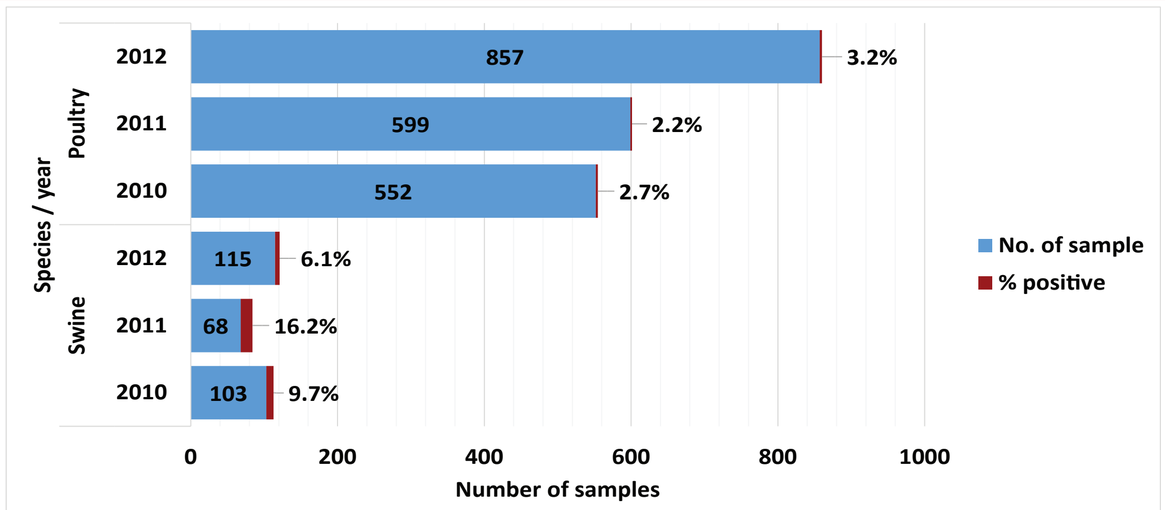

Fig. 4. Percentage of positive sample in swine and poultry from 2010 to 2012

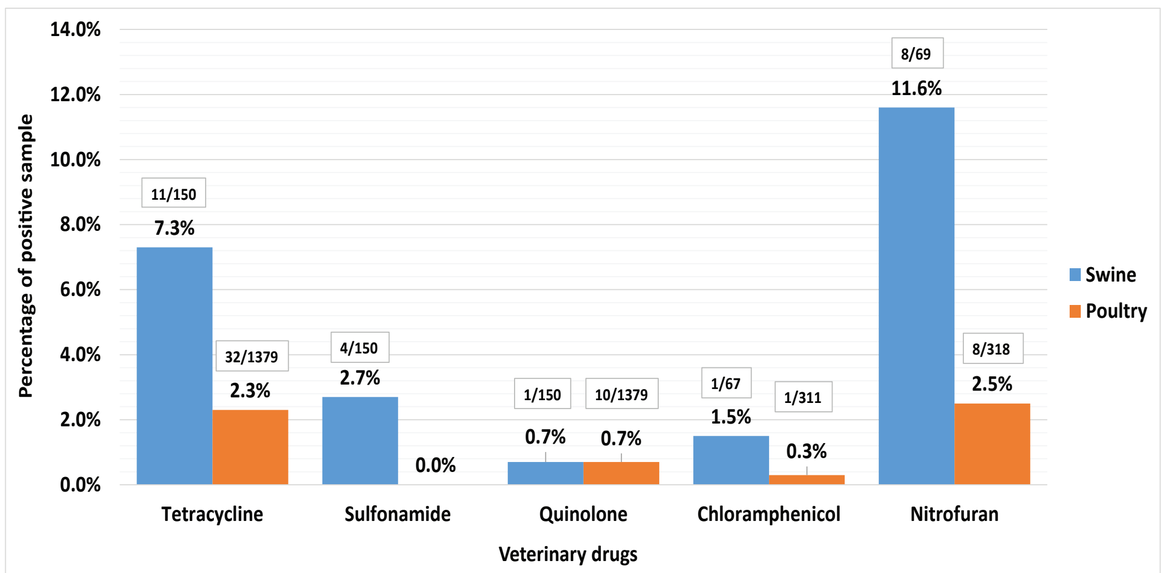

Fig. 5. Percentage of veterinary drugs detected in swine and poultry from 2010 to 2012

Conclusion

Results from the monitoring of veterinary drug residues in food of animal origin in Malaysia from 2010 to 2012 showed that 68 %, 91.9 % and 100 % samples of swine, poultry and bovine respectively were in compliance with Malaysian Food Regulation 1985. The highest violation was in 2011 with 16.2% of the samples confirmed positive (Fig. 4). Mostly, nitrofuran and tetracycline groups were detected within the years of testing (Fig. 5).

Future Work

In future studies, more groups of veterinary drugs of interest will be included to strenghten the National Food Safety and Hygienic Program.

References

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KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

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