



# Incidence of world antibiotic residues in livestock meat products

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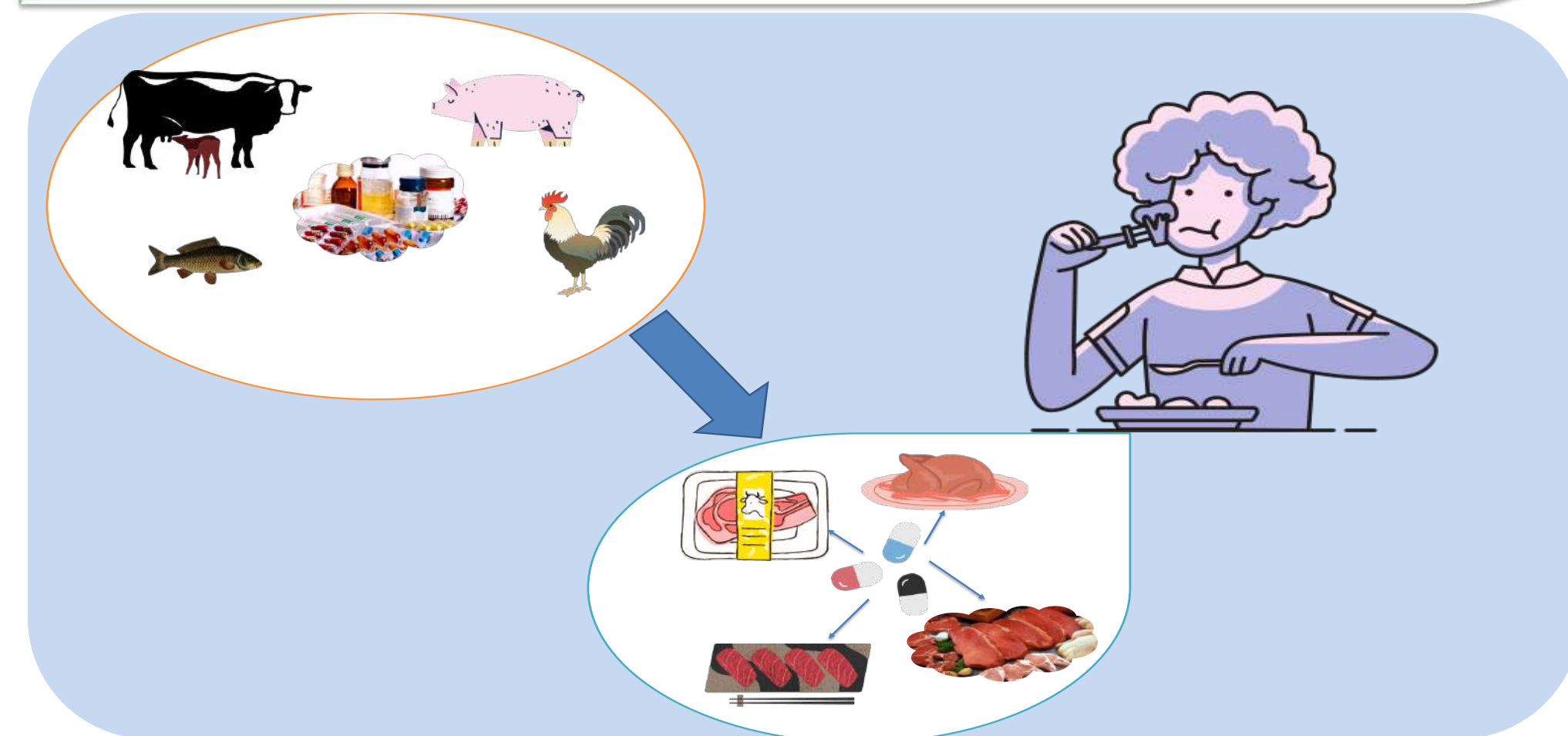
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## Introduction

Antibiotics have been used for three main purposes in animals: therapeutic use against infectious disease, prophylactic use for prevention of infectious animal diseases, and as a growth promoter to improve feed efficiency. However, the over-use or lack of control in administration of antibiotics has been derived in a high deposition of antibiotics in the animal products and their excretion to the environment. Therefore, the objective of this study was to evaluate which are the residues of veterinary antibiotics found in livestock meat in beef, pork, fish and chicken.



## Material and methods

The search for information focused on studies of veterinary antibiotic residues founded in animal products, and their bioaccumulation in tissues and animal products from around the world was performed. For which a database was created from the experimental studies published between 2000-2019.



Data from 140 studies were used (n=591), and it was analyzed according to the antibiotic family, percentage, place (animal species). Data analysis were performed as a percentage of incidence in each study.

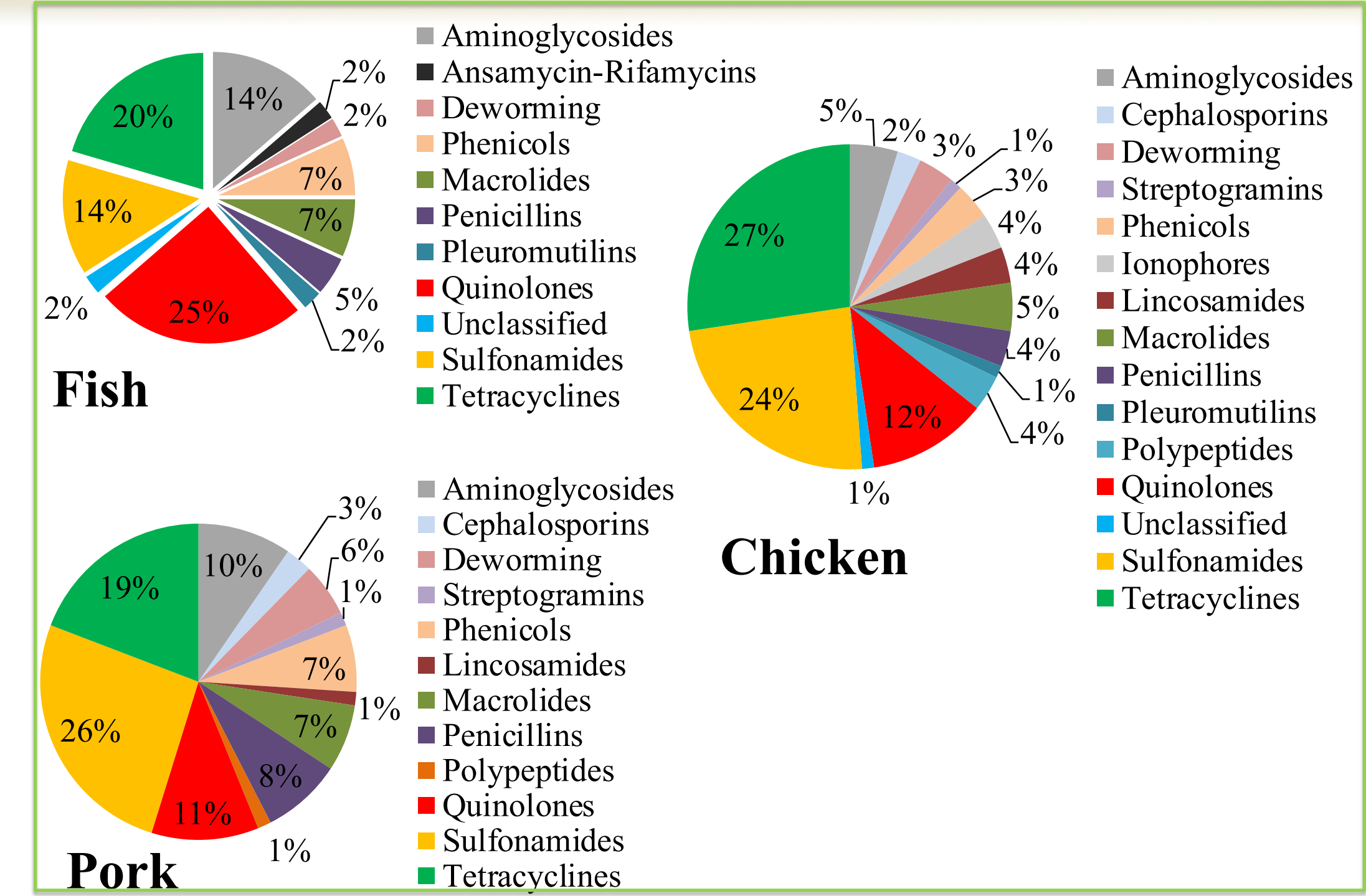
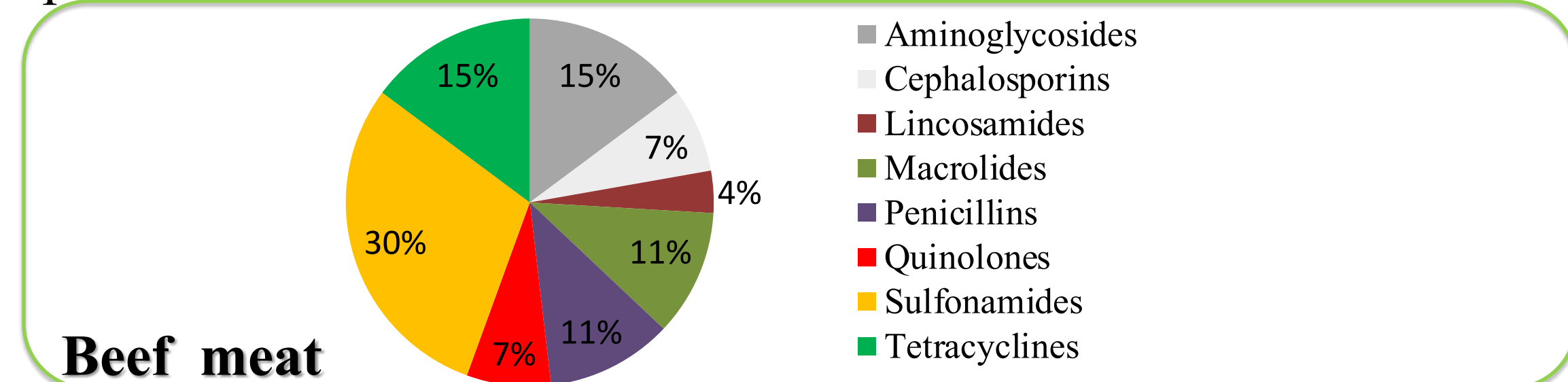
## Results

**Table 1.** Antibiotic residues founded in meat livestock as a percentage around the worldwide

Animal	% Residues of antibiotics					
	Sul <sup>1</sup>	Tetra <sup>2</sup>	Amino <sup>3</sup>	Quinolones	Penicillin	Others*
Beef	30	15	15	7	11	22
Pork	26	19	10	11	8	26
Chicken	24	27	5	12	4	28
Fish	14	20	14	25	5	22

Sulfonamides<sup>1</sup>, Tetracyclines<sup>2</sup>, Aminoglucoxydes<sup>3</sup>, \*Others: Cephalosporins, Lincosamides, Phenicol's, Streptomycin.

**Fig. 1.** Main Veterinary Antibiotics as pollutants in animal products.



## Discussion

The main antibiotics residues (>70 %) in our database found in animal products (meat, Pork, Chicken, Fish), were Sulfonamides (21-26%), Tetracyclines (19-29%), Penicillins (5-13%), Macrolides (5-11%) and Quinolones (14-21%). Antibiotic residues are still found in livestock products, waste water and soil, probably causing antibiotic resistance (FAO, 2014).

## Conclusion

The use of antibiotics is now a major problem of environmental pollution reflected in livestock, water and soil. Rational administration of antibiotics and the use of feed supplements (exogenous enzymes, probiotics, prebiotics, etc.) are alternative solutions to reduce the excretion of these biologics into the environment.

## References

• FAO (2014). Codex Alimentarius : Maximum residue limits (MRLs) and risk management recommendations (RMRs) for residues of veterinary drugs in foods.