

# EFFECT OF ANTIBIOTICAL TREATMENTS IN SELECTION OF MULTIRESISTANT BACTERIA IN WILD FAUNA

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## INTRODUCTION

The **selective pressure** exerted by the **indiscriminate use of antibiotics** in human and veterinary medicine, animal production, agriculture and food technology, has resulted in the **emergence of antibiotic resistant bacteria**.

This has become a **widespread concern**, giving prominence to **reports from health agencies**, that claim the **urgent need for new therapies, control and prevention measures** in their administration.

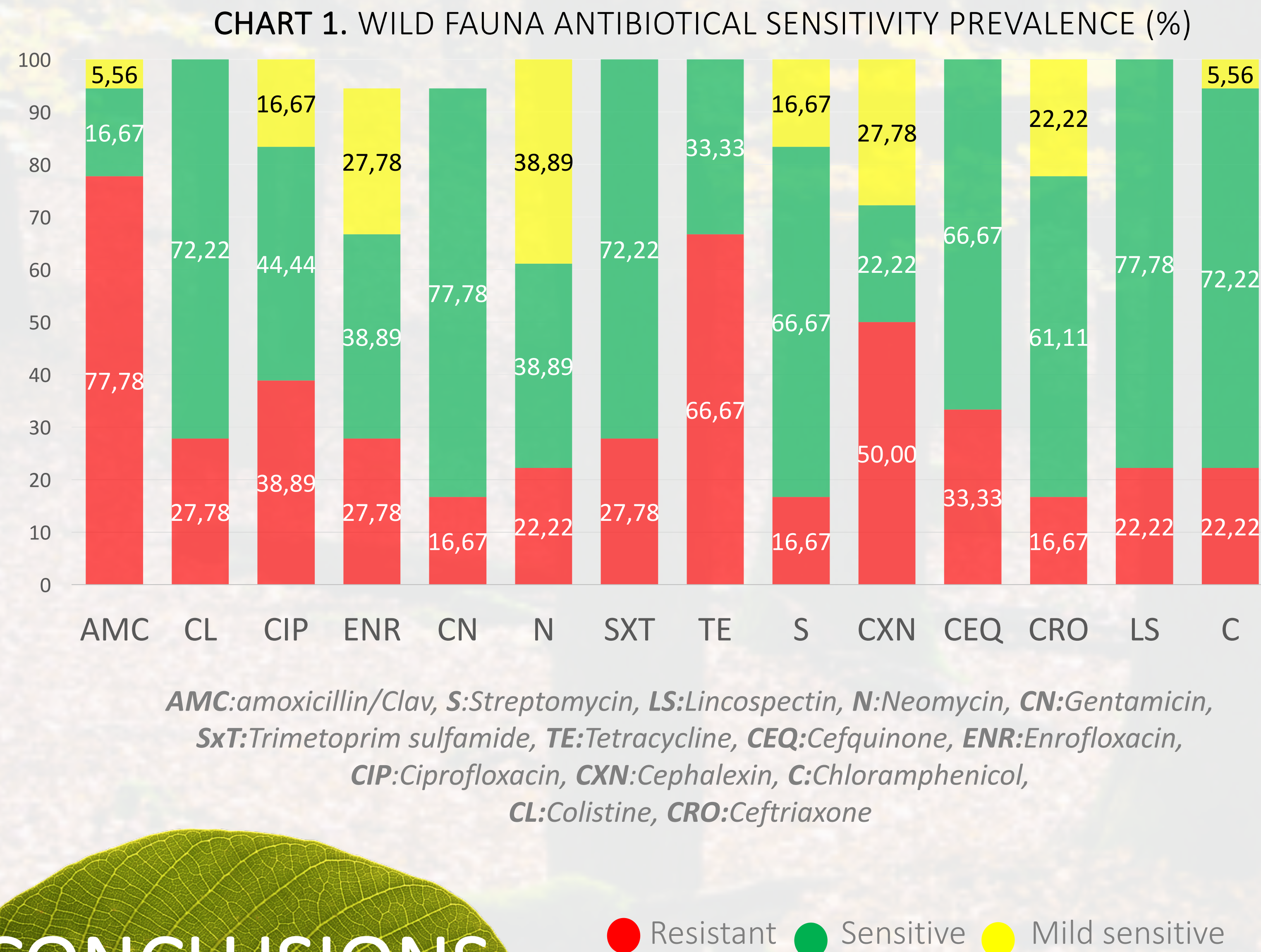
## OBJECTIVES

The studied population in this work is **Catalan wild fauna\*** that have **never received an antibiotic treatment** so the **prevalence of AMR bacteria** is **expected to be very low or invalid**. To confirm or reject initial hypotheses, the following objectives are considered:

- 1) To determine the prevalence of AMR bacteria in wild animals.
- 2) To identify AMR bacterial species and their zoonotic potential.
- 3) To define the patterns of antimicrobial sensitivity.
- 4) To determine if antibiotics applied in WLC select AMR bacteria.

## RESULTS

Resistant bacteria (n=50) isolated from WF (wild fauna) (were tested with 14 antibiotics. Those with **lower activity** were **penicillin** (69.39% AMC), **tetracycline** (51.02%, TE) and **cephalosporin** (26.53% CXN) as it is shown in **chart 1**.



12.25% are **sensitive to all antibiotics**.  
36.73% are **resistant to only one**.  
44.90% are **resistant to 3 or more antibiotics**.

The **identification of resistant strains** resulted in:

*Escherichia coli* (75%), *Klebisella pneumoniae* (12.5%), *Proteus vulgaris* (3.6%), *Morganella morganii* (3.6%), *Serratia marcescens* (1.8%), *Citrobacter freundii* (1.8%), *Providencia alcalifaciens* (1.8%), *Shigella spp.* (1.8%) and *Pseudomonas putida* (1.8%).

(\*)



n=8



n=32



n=32

## CONCLUSIONS

**Antibiotics** are **essential** as a **therapy** against bacterial infections. However, its **misuse** has led to the emergence of MDR bacteria in **environment where they should not be present**.

It is **necessary** to **consider other holistic strategies** to **prevent** the emergence and spread of AMR bacteria, taking into account the **complex ecological interconnections**.

These **efforts** should be directed **beyond minimizing** their use: **preventing** such MDR bacteria or the same antibiotics, to **contaminate** the environment.



54.5% of raptors **presented** AMR bacteria at  $T_0$   
100% were **carriers** of MDR bacteria at  $T_F$

The **increase in the number of resistances** during stay is **independent of whether they have received antibiotics** or not. This indicates that it is due to **nosocomial infections**.

Resistant bacteria (n=5) **were found** in the rapacious **raw food** (n=11).