



ANTIMICROBIAL RESISTANCE IN SOME *E. COLI* STRAINS ISOLATED FROM DOGS WITH DIFFERENT CLINICAL SIGNS

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Abstract: Lately, the antimicrobial resistance in a large number of bacterial germs has become a global threat to public health. Among the bacteria that represent the greatest threat to human health, due to the increase of antimicrobial resistance, are also those included in *Enterobacteriaceae* family, especially *Escherichia coli*, *Salmonella* spp. and *Klebsiella* spp. The aim was to identify the *Escherichia coli* strains isolated from dogs, as well as to establish the frequency of resistance phenotypes of these strains. A total of 50 samples with pathological material were taken from dogs with different clinical signs and a number of 43 strains were isolated on Levine medium. With Vitek 2 Compact the isolated strains were included in the Gram-negative *Escherichia coli* species. The results of the disk-diffusimetric Kirby-Bauer method showed that the frequency of lincomycin resistance phenotypes was the highest (65.11%), followed by the one of ampicillin and clindamycin resistance phenotypes (62.79%). Also, *E. coli* strains, isolated from dogs, developed a resistance to enrofloxacin, regardless of the origin of the samples with pathological material. Thus, the results confirm an marked increase of resistant *E. coli* strains to a large variety of antibiotics, frequently used in the therapy of infectious diseases in dogs.

• Introduction

Among the antibiotic resistance mechanisms developed by most bacterial strains, the most common in species of the *Enterobacteriaceae* family are extremely diverse and complex, compared to those found in other families. They include resistance to a large number of antibiotics, which partly explains why these microorganisms are among the most common causes of infections caused by antibiotic-resistant bacteria in animals and humans. The purpose was both to identify the species of *E. coli* isolated from dogs, and to establish the frequency of resistance phenotypes of these strains.

• Material and method

The samples with pathological material (n=50) taken from dogs with different clinical signs were represented by pharyngeal exudate, feces, pus material, conjunctival secretion, milk secretion and perianal gland secretion, interdigital wound and skin pustules.

In order to isolate the *E. coli* strains, the samples with pathological material were inoculated in nutrient broth, and then inoculations were made on Levine medium. The final identification was made with the Vitek 2 Compact system and the *E. coli* strains were tested for antimicrobial resistance using 13 antibiotics from different classes.

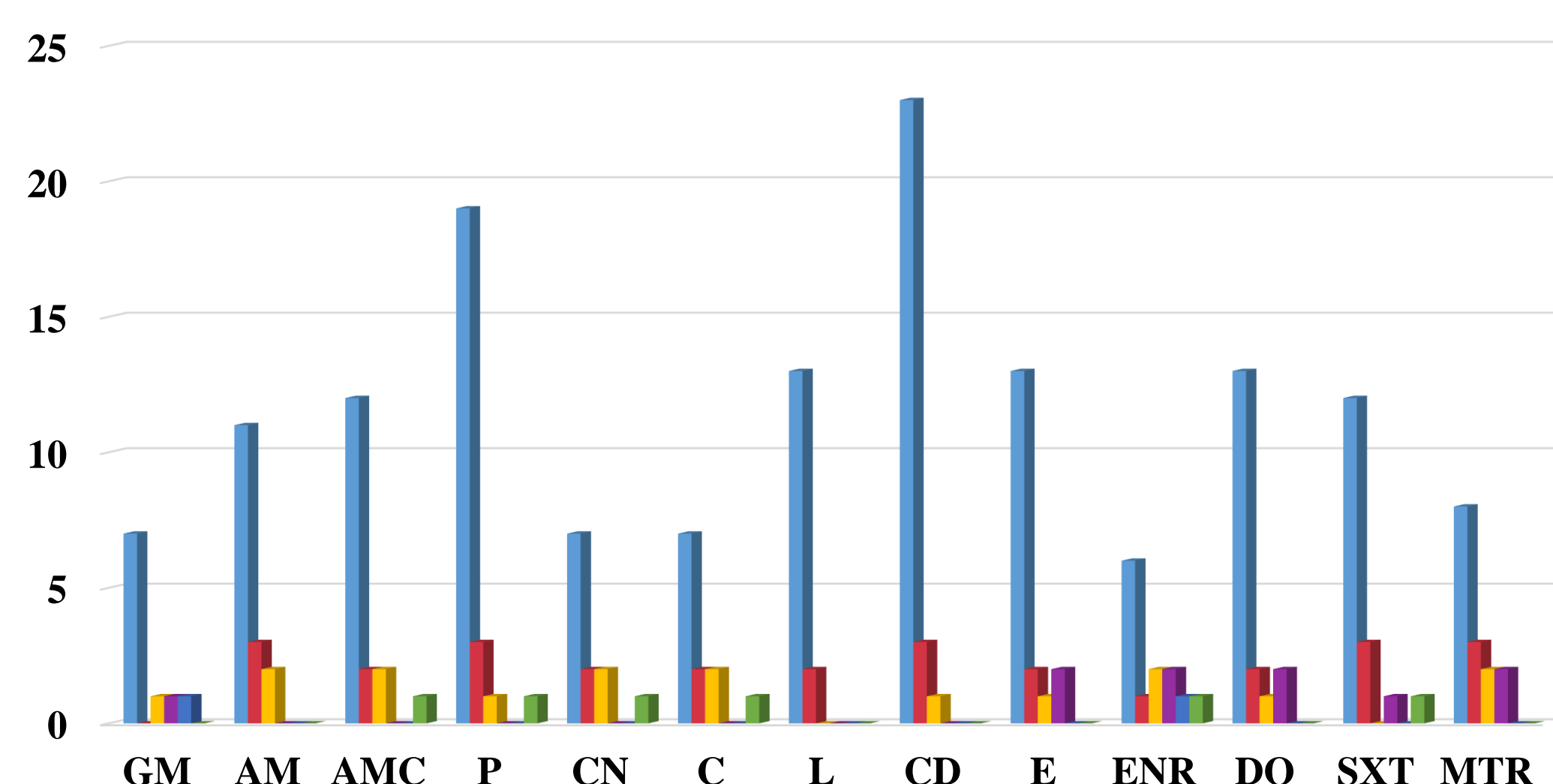
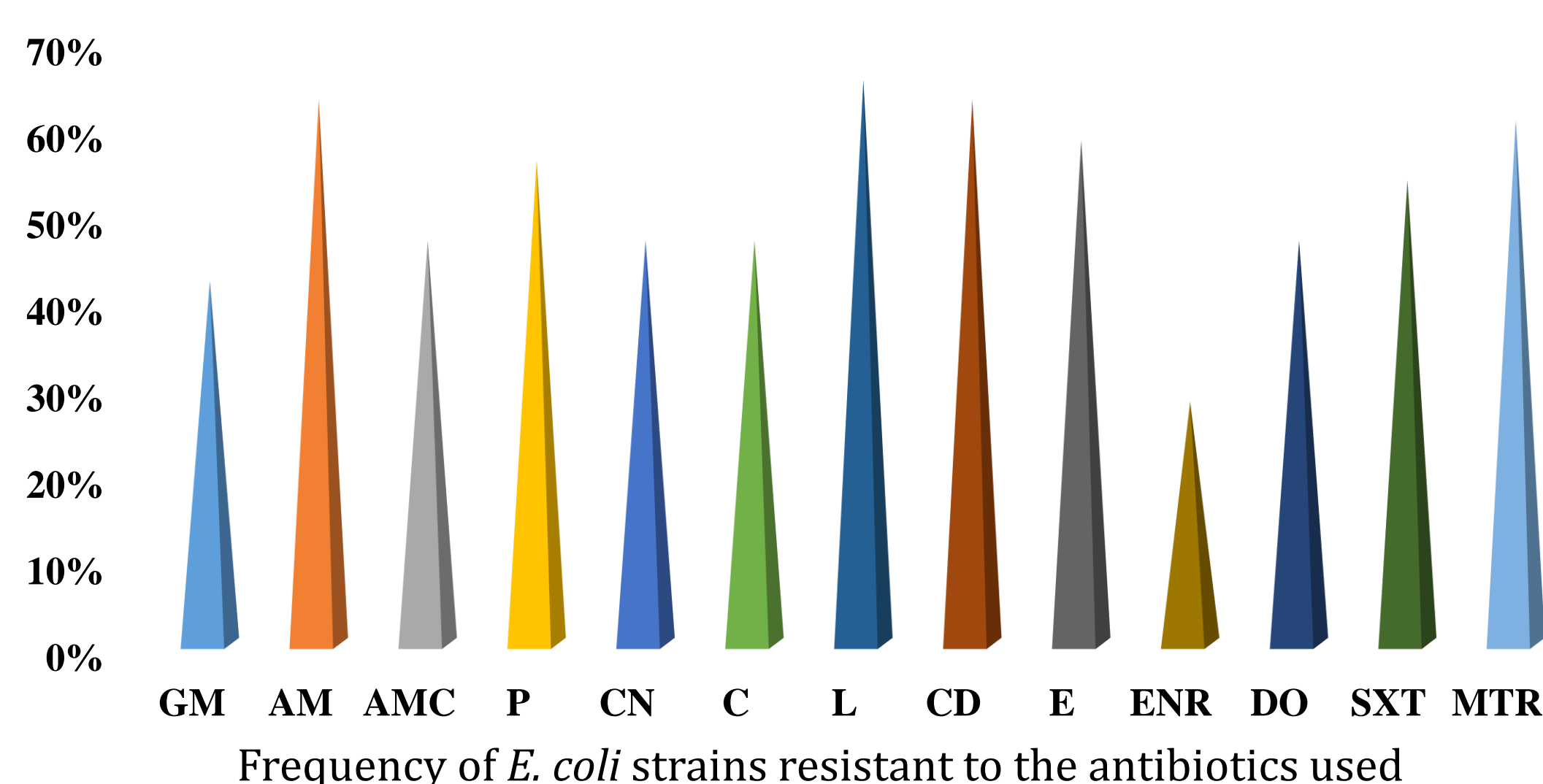
• Results and discussions

Following the results obtained on Levine medium, 43 strains characteristic to *E. coli* species were isolated, while 7 samples were sterile.

Based on the analyzes carried out with the Vitek® 2 Compact system, the *E. coli* species was identified in all 43 strains isolated from dogs, which, based on the morphological and cultural characters, were included in the genus *Escherichia*.

E. coli strains isolated from dogs and identified with the Vitek 2 Compact system

Crt. no.	Sample	Bacterial species	No. of positive samples	
			No.	%
1.	Pharyngeal exudate	<i>E. coli</i>	31	72.1
2.	Feces	<i>E. coli</i>	5	11.63
3.	Interdigital wound	<i>E. coli</i>	1	2.32
4.	Pus material	<i>E. coli</i>	1	2.32
5.	Skin pustules	<i>E. coli</i>	1	2.32
6.	Conjunctival secretion	<i>E. coli</i>	1	2.32
7.	Perianal gland secretion	<i>E. coli</i>	2	4.66
8.	Milk secretion	<i>E. coli</i>	1	2.32
TOTAL			43	100



Resistance phenotypes of *E. coli* strains isolated according to collected samples

Thus, pets can act as a true microbial reservoir for humans, especially for their owners, but also vice versa, from humans to pets, demonstrating the complex epidemiological circuit existing in Gram-negative bacteria.