



Preliminary study on the presence of ARGs in *E. coli* strains isolated from stray cats



Valeria GARGANO ^{1,2}, Delia GAMBINO ¹, Sergio MIGLIORE ¹, Daniela PROVERBIO ³, Roberta PEREGO ³, Luciana BAGGIANI ³, Eva SPADA ³, Fabrizio VITALE ¹ and Domenico VICARI ¹

¹ Istituto Zooprofilattico Sperimentale della Sicilia, via G. Marinuzzi 3, 90129 Palermo, Italy

² e-mail address of presenting author valeria.gargano@izssicilia.it ; Istituto Zooprofilattico Sperimentale della Sicilia, via G. Marinuzzi 3, 90129 Palermo, Italy.

³ Dipartimento di Medicina Veterinaria (DIMEVET), Università degli Studi di Milano, via dell'Università 6, 26900 Lodi, Italy

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ABSTRACT

Antibiotic resistance (AR) is now considered a zoonosis that needs to be addressed by a **One Health**. *Escherichia coli* is one of the microorganisms that can acquire and transfer resistance genes and, as it is part of the intestinal microflora of animals and humans, is considered as an indicator of the evolution of antibiotic resistance. The study of the presence of bacterial strains harboring AR genes (ARGs) in stray cats would be interesting to investigate the role of these animals to disseminate AR in the territory.

Objectives

The aim of our works was to investigate the presence of ARGs in *E. coli* isolated from rectal swabs of stray cats

Material and Methods

For *E. coli* isolation, 48 rectal swabs collected in cats from one shelter and different colonies located in a province of northern Italy (Monza Brianza) were seeded on McConkey agar. Subsequently, the presence of ARGs was assessed by PCR, following previously published protocols.

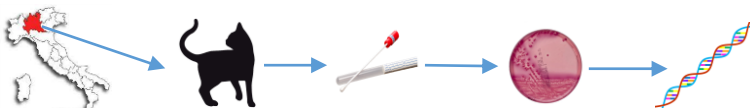


Figure 1. Study Workflow

Results

From 48 rectal swabs analyzed, *E. coli* were isolated in 19 (39.6%). **85% of these harbored one or more of the genes investigated**: 12/19 carried the *bla*TEM, 9/19 the *tet*(A) and 3/19 the *sul*III genes. No strains were found to harbor the *bla*CTXM and *qnr*S genes. Only one cat in which *E. coli* was isolated had an history reporting recent antibiotic treatment (doxycycline and amoxicillin plus clavulanic acid).

ID. 4 ID. 5 ID. 6 ID. 10 ID. 13 ID. 22 ID. 23 ID. 25 ID. 26
ID. 49 ID. 50 ID. 44 ID. 45 ID. 47 ID. 55 ID. 61 ID. 62

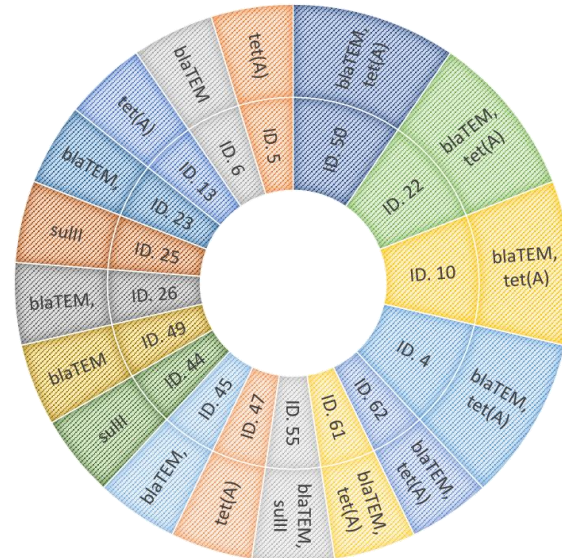


Figure 2. *E. coli* strains harboring at last one ARGs

Conclusions

These preliminary data show the presence of *E. coli* harboring ARGs in stray and shelter cats that rarely have received antibiotic treatment. Following a **One Health** approach, further studies will be conducted both to deepen the knowledge of antibiotic resistance in microorganisms from these animals and to study their resistance mechanisms.

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Valeria Gargano, valeria.gargano@izssicilia.it

