

Antimicrobial resistance in marine mammals of the Uruguayan coast

Preliminary results

NATASHA ELIOPULOS¹, LAURA ALSINA GARINO², NADIA CROSIGNANI OUTEDA³ Y LETICIA DIANA⁴

¹ Unidad de Clínica y Cirugías de Pequeños Animales, Departamento de Clínicas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la Republica (UDELAR). Montevideo, Uruguay

² Unidad Anatomía, Departamento de Biociencias, Facultad de Veterinaria, Universidad de la Republica (UDELAR). Montevideo, Uruguay

³ Unidad de Farmacología, Departamento de Clínicas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la Republica (UDELAR). Montevideo, Uruguay

⁴ Unidad de Microbiología, Departamento de Patobiología, Facultad de Veterinaria, Universidad de la Republica (UDELAR). Montevideo, Uruguay

nathyeliopulos@gmail.com

In this work, isolations, identification and determination of antimicrobial resistance of strains of *Enterobacteriaceae* isolated from necropsy samples of a juvenile sea lion (*Otaria flavescens*) from the Isla de Lobos, Uruguay were carried out. The study samples were taken using swabs from the larynx, esophagus, trachea, duodenum and bladder, which were first seeded in Tryptic Soy Agar (TSA) and then in selective and differential culture media for *Enterobacteriaceae* (Xylose Lysine Deoxycholate and Mac Conkey). After the phenotypic identification of the isolates by biochemical tests, their identity was confirmed by amplifying and sequencing a fragment of the gene that codes for 16S rRNA. The online server www.ezbiocloud.net was used for identification. From a total of five gramnegative isolates, three bacterial species were identified, corresponding to *Escherichia coli*,

Escherichia ferrusoni and *Proteus mirabilis*. All the isolates expressed resistance phenotype to Amoxicillin/clavulamic, Sulfa-trimethoprim, Tetracycline, Doxycycline and Streptomycin, while three of the five isolates showed resistance to Ciprofloxacin and two to Enrofloxacin and Cefovecin. Susceptibility analyzes were performed by means of antibiograms following the Kirby-Bauer Disc diffusion method under the recommendations of the Clinical & Laboratory Standards Institute (CLSI). These results provide relevant information on the presence of antimicrobial resistant bacteria in wild marine mammals, demonstrating the need to deepen scientific knowledge on these issues. It is intended to warn about the risk of presence of antimicrobial resistance in marine ecosystems and the potential value of marine fauna as a bioindicator of environmental status, following the one health approach.

Keywords: sea mammals, antibiotics, One Health.