

# Salmonella spp. serovars isolated from healthy Leopard geckos (*Eublepharis macularius*) in Lisbon, Portugal

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**Introduction:** The leopard geckos (*Eublepharis macularius*) are among the most common reptiles kept in captivity as pets. Reptiles are mostly asymptomatic carriers and natural reservoirs of *Salmonella*. This bacteria is widely considered one of the most important zoonotic pathogens worldwide. The close contact between leopard geckos and their owners provides favorable conditions for the transmission of zoonotic pathogen infections.

**Objectives:** This study aims to evaluate the frequency of *Salmonella* spp. in cloacal and oral cavity samples from healthy Leopard geckos, serovars identification, and phenotypic characterization.

## Material and Methods:

For 3 months cloacal and oral cavity swab samples were collected from healthy Leopard geckos (n=33).



Presumptive *Salmonella* spp. colonies on IRIS Salmonella® agar were isolated and confirmed by PCR amplification of the *invA* gene (1).



Target	Primer	Sequence	Size of PCR product (bp)
invA	139	GTGAATATTATGCCACGCTTCGGGGCA	204
	141	TCAATGCCACCGCTCAAGGAGACC	

Serotyping was performed according to White-Kauffmann-Le Minor scheme.

In all *Salmonella* spp. isolates susceptibility to 16 antimicrobials was studied by the disk diffusion method and interpreted according to the EUCAST and CLSI criteria.

Extended-spectrum beta-lactamase (ESBL) producing *Salmonella* spp. screening was performed in all isolates by the double-disk synergy test and the results were interpreted according to the EUCAST guidelines.

**Conclusions:** In this study serovars with high zoonotic potential were identified, such *Tennessee* and *Typhimurium*. More research on the role of these exotic pets in the spread of this pathogens is needed, for a One Health approach to fight the dissemination of zoonotic *Salmonella*.

## Results:

Twenty of the 33 (60.6%) animals sampled tested were positive for *Salmonella* spp. (Figure 1).

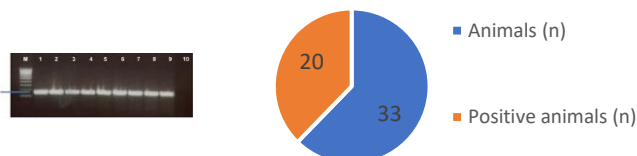


Figure 1: Number of animals positive for *Salmonella* spp.

Regarding the cloacal and the oral cavity samples studied 85.0% (17/20) and 30% (6/20), respectively, were positive for *Salmonella* spp. In cloacal samples seven serovars were recovered: *Salmonella enterica salamae* ser. 16:m,t:- (n=6), *Salmonella enterica enterica* ser. Fluntern (n=5), *Salmonella enterica enterica* ser. Typhimurium (n=2), *Salmonella enterica enterica* ser. Senftenberg/Dessau (n=1), *Salmonella enterica salamae* ser. 30:l,z28:z6 (n=2), *Salmonella enterica enterica* ser. Tennessee (n=1).

Regarding oral cavity the most frequent were *Salmonella enterica salamae* ser. 16:m,t:- (n=3), followed by *Salmonella enterica enterica* ser. Fluntern (n=1), *Salmonella enterica enterica* ser. Adelaide (n=1) *Salmonella enterica enterica* ser. Tennessee (n=1).

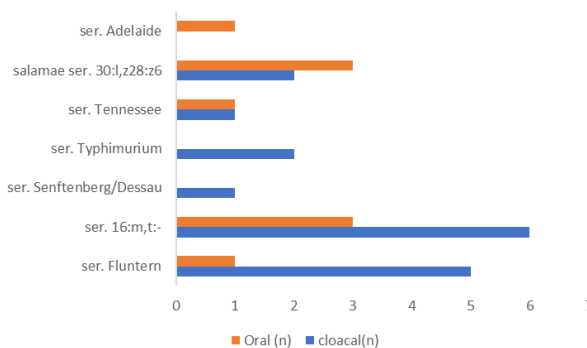


Figure 2: *Salmonella* spp. identification in cloacal and oral samples.

In this study MDR bacteria, such as ESBL/AmpC, and carbapenemase-producing *Salmonella* spp. were not detected. Most of the isolates were susceptible to all the antimicrobials studied.