



PRELIMINARY STUDIES REGARDING SARSCOV-2 EXPOSURE IN CATS FROM HOUSEHOLDS

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Abstract: Despite continuous reports of SARS-CoV-2 infections in pets worldwide, there are still scattered data from Romania regarding its occurrence. This study aimed to add data to the international research analyzing the occurrence of specific antibodies in cats from households in Romania during the COVID pandemic in humans.

The serological assessment of specific anti SARS-CoV-2 antibodies in cats from a district of Iasi city Romania was made with a commercial kit ID Screen® SARS-CoV-2 Double Antigen Multi- species. Results showed a 9.5% seroprevalence in cats (8/84).

The results are in concordance with previous serological reports confirming that cats are susceptible to be infected by SARSCOV 2 when cohabiting with infected owners. The seroprevalence study is preliminary and will be further confirmed by microseroneutralization.

Keywords: Key words: SARS-COV-2, reverse zoonosis, cats, infectious diseases.

• Introduction

After the COVID pandemics there have been reported cases of pets testing positive for SARS COV-2 virus after close contact with infected individuals. Most of the studies reported detection of specific antibodies in sera or SARS-CoV-2 RNA in fecal or respiratory swabs collected from pets from epidemic areas. The SARS-CoV-2 variants identified in cats and dogs are genetically similar to the ones that were circulating in humans at the same time, thus suggesting that zoonanthropotic transmission is a common and ongoing occurrence. By now, it is known that cats have showed a higher susceptibility to natural infection in comparison with dogs and it was demonstrated the possibility to transmit the virus to other cats both by direct and indirect contact in laboratory conditions. Despite continuous reports of SARS-CoV-2 infections in pets worldwide, there are still scattered data from Romania regarding its occurrence. The first pandemic wave started in Romania in March 2020, afterwards the waves succeeded until February 2022 with the most important waves in spring and autumns. This study aimed to add data to the international research analyzing the occurrence of specific antibodies in cats from households in Romania during the COVID pandemic in humans.

• Material and method

For the purpose of the study, blood samples were collected from March 2020 to December 2022 from cats in a small animal private practice in Iasi City (Fig. 1). Blood samples were collected via leg venipuncture. The plasma was extracted and stored at -20°C until further use after collection. The records didn't included the exact date of the owners infection with COVID 2 but only that they were affected in the last 6 months prior the consult of the animal. Informed consent was requested of every participating owner in accordance with the Romanian Animal Protection laws and International Guiding Principles for Biomedical Research Involving Animals issued by the Council for International Organizations of Medical Sciences.

Serological testing. All plasma samples were tested for the presence of anti-SARS-CoV-2 antibodies by ELISA (ID Screen® SARS-CoV-2 Double Antigen Multi- species) in the ROVETEMERG laboratory, Iasi. The ELISA tests were performed according to the manufacturer instructions. Cat positive samples were tested twice by ELISA to verify the accuracy of the results. In addition a cat was sampled and tested three time.

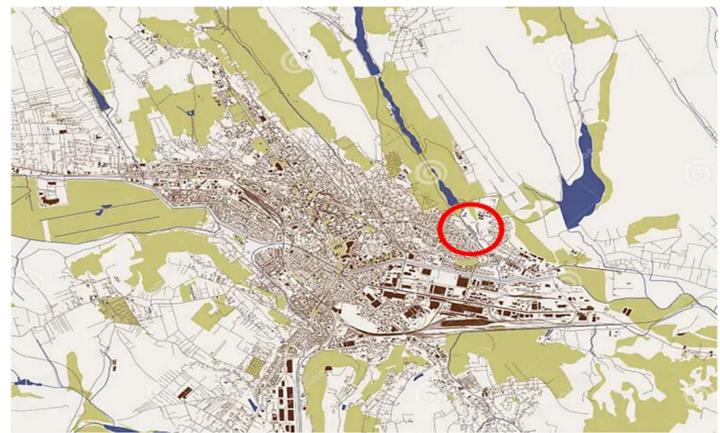


Fig. 1 –Area for sample collection

• Results and discussions

To investigate the prevalence of SARS-CoV-2 in domestic cats living in close contact with owners, plasma samples were collected from animals living in a district of Iasi city Romania. Out of plasma samples, the ELISA showed 9.5% seroprevalence in cats (8/84), [CI 95%: 3.25-15.8]. Retesting the samples gave us the same results.

Only one from the positive animals was presented to the veterinarian with acute gastroenteritis the other came for routine checks or surgical interventions.

Our survey showed a higher percentage of seroprevalence comparing with similar results with studies from other countries. This can be explained by the provenience of the cats that are living in close contact with owner being exclusive housed indoors.

Breed	No. of samples	Positive samples
Birman	2	1
Mixed breed	63	4
Siamese	11	1
Persian	6	2
Scottish	2	0
Totals	84	8

Table 1 – Number of cat positive samples

• Conclusions

The cats that were living in households in one area of the city were prone to be infected with SARS-COV-2 from their owners and high level of seroconversion were detected. The results are in concordance with previous serological reports confirming that pets might be accidental hosts of SARS-COV-2. The seroprevalence study is preliminary and will be further confirmed by microseroneutralization.