introduction

- The indoor environment is an important source of contaminants not only for humans but also for their pets [1].
- However, animals, due to their shorter lifespan, develop, more rapidly, pathological conditions caused by environmental stressors. Consequently, household cats and dogs are good sentinels to assess adverse human health outcomes related to low levels of many indoor contaminants, some of which are known genotoxic agents [1, 2].

objectives

- Evaluate the DNA damage in leukocytes of pet cats and dogs through the comet assay technique;
- Compare the DNA damage in both species;
- Understand the importance of specific life traits in pets’ DNA damage.

results and discussion (cont.)

- The limited number of samples with highly variable results renders the identification of factors that affect DNA damage very difficult.
- No determinant factors for DNA damage could be established, without any significant differences detected for both cats and dogs and the following factors: health status, diet, residence, gender and age (P>0.05).

animal’s selection

- sixteen cats and twenty five dogs followed at a Veterinary Hospital (HVVB, Portugal).
- Owner’s signed an informed consent and answered a questionnaire.
- This study was approved by the Animal Welfare Commission from Aveiro University (CREBEA).

sample’s collection

- 2 mL of blood collected from the jugular or cephalic veins into EDTA tubes.

comet assay

- Leukocytes were isolated over Histopaque 1083 gradients (Sigma®) and frozen at -80°C.
- Comet assay was performed according to protocol described by Costa et al. [2].
- The cells were visualized in a fluorescence microscope and analyzed with Comet IV software.

results and discussion

- The levels of DNA damage (evaluated trough the % DNA in the tail) in pets cats and dogs are relatively low: between 5 and 19% in cats and between 7 and 30% in dogs.
- No significant differences (p>0.05) between species could be established.

references


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