

## EFFECTS OF EXPOSURE TO X-RAY AT AIRPORT SECURITY CHECKPOINTS ON MEMBRANE INTEGRITY OF CHILLED CANINE SEMEN

*Simona Sakalauskaitė<sup>1</sup>, Jakov Šengaut<sup>3</sup>, Neringa Sutkevičienė<sup>2</sup>, Henrikas Žilinskas<sup>2</sup>, Arūnas Rutkauskas<sup>2</sup>, Vita Riškevičienė<sup>1</sup>*

<sup>1</sup>*Department of Veterinary Pathobiology*

<sup>2</sup>*Large Animal Clinic, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės 18, LT-47181, Kaunas, Lithuania; e-mail: simona.sakalauskaite@ismuni.lt*

<sup>3</sup>*Private Small Animal Clinic 'Jakovo veterinarijos centras', Gerosios Vilties 1, LT-03147, Vilnius, Lithuania*

**Abstract.** This study was conducted to investigate effects of X-irradiation on motility and viability of canine spermatozooids in chilled semen samples over the storage period of 5 days. Diluted semen samples from 10 different dogs were divided into 2 aliquots, and 1 group of aliquots was exposed to X-irradiation by transporting it through airport security X-ray machine (HI-SCAN 100100 T). Evaluation of total and progressive spermatozooids motility was done by Sperm Class Analyzer (SCA) (Spain, 2011). To detect spermatozoa with a biochemically active plasma membrane, a hypo-osmotic swelling test was used. Assessment of spermatozoa with a structurally intact plasma membrane was done using SYBR-14/PI (Molecular Probes) fluorescent staining. Our study showed that the total and progressive motility ( $P > 0.05$ ) and the percentage of canine spermatozoa with a functional ( $P \leq 0.05$ ,  $P \leq 0.01$ ) and intact ( $P > 0.05$ ) membrane over the storage period of 5 days were lower in the samples exposed to X-irradiation compared with the control group.

**Keywords:** canine semen, X-ray, plasma membrane integrity