

MEETING ABSTRACTS

***IN VITRO* ASSESSMENT OF POTENTIAL GENOTOXIC EFFECT OF THE ACETAMIPRID-BASED INSECTICIDE**

Martina Galdíková, Simona Koleníčová, Beáta Holečková, Jana Halušková, Viera Schwarzbacherová

Presenting author: Martina Galdíková (martina.galdikova@uvlf.sk)

University of Veterinary Medicine and Pharmacy, Komenského 73, 041 81, Košice, The Slovak Republic

Neonicotinoid insecticide acetamiprid is a part of relatively frequently used commercial formulations such as Mospilan 20SP or newly developed Carnadine, Kestrel and others. The popularity of these insecticides lies in their ease of handling and high efficacy in treating canola, corn, potatoes and apple trees. However, the possibility that pesticide products could also affect non-target organisms still needs to be taken into account. For this reason, the aim of our work was to assess the possible cytotoxic and genotoxic effects of acetamiprid-based insecticide Mospilan 20SP, which is one of the well-known commercially available formulations. Conventional tests such as chromosomal aberration assay and comet assays (alkaline and neutral) were employed under *in vitro* conditions using cultures of bovine whole blood cells and isolated bovine lymphocytes. The insecticide formulation was dissolved in pure water to prepare quantities of 5, 10, 25 and 50 $\mu\text{g.mL}^{-1}$ for analysis after 2 h, 24 h and 48 h of exposure, respectively. After 24 h of exposure, values of mitotic indices showed a decrease in mitotic activity of cells ($p<0,05$; $p<0,01$) depending on increasing concentrations. The 24 h exposure to pesticides also showed an increase in chromatide and chromosome breaks in a dose-dependent manner for the insecticide under study ($p<0,05$; $p<0,01$) compared to the negative control. Alkaline and neutral comet tests revealed the potential of acetamiprid-based formulation to induce DNA damage in bovine cells.

Acknowledgment

This study was supported by the Slovak Scientific Agency VEGA 1/0166/21

Keywords: *acetamiprid-based insecticide formulation; bovine cells; chromosome and DNA damage*