

Evaluation of the genotoxic potential of silver nanoparticles in *Drosophila melanogaster*

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Drosophila has shown to be a suitable *in vivo* model to determine the toxic/genotoxic properties of nanomaterials. Among nanomaterials, silver nanoparticles are one of the most commercially available nanomaterials, mainly due to its strong antibacterial properties. These properties are being increasingly exploited in consumer products as deodorants, clothing materials, bandages and in cleaning solutions. This is the reason why silver-based nanoparticles are the most common material found among consumer nanotechnology-based products.

To increase our knowledge on the risk associated to silver nanoparticles exposure we planned to assess a wide range of biological endpoints using *Drosophila melanogaster* as a target organism. To determine if the observed effects were caused by the nanoparticulated nature or to the ions released in dissolution, all the experiments were carried out using both silver nanoparticles and silver nitrate.

Experiments to describe the main characteristics of silver nanoparticles were carried out using transmission electronic microscopy (TEM) (dry size), dynamic light scattering (DLS) (hydrodynamic size), and laser Doppler velocimetry (LDV) (zeta potential) methodologies. Viability egg-to-adult was determined to establish the range of concentrations to be used in genotoxicity experiments. Uptake of silver nanoparticles by intestinal cells was determined by TEM. Genotoxicity was assessed by means of the comet assay using hemocytes and midgut cells as potential targets to determine the level of DNA damage.

The results obtained with both silver nanoparticles and silver nitrate will be presented and discussed.