Aluminium (Al) is one of the most abundant heavy metals on Earth. The exposure to it occurs primarily through contaminated food and water and through antiperspirants, immunizations, allergy injections and antacids. The rate of absorption is around 0.2% in the intestine, but it is known that some Al compounds such as ascorbate or citrate are more easily absorbed. It is also known that excess of aluminium in the organism may lead to neurodegeneration and oxidative stress. Syringic acid (SA) is a phenol derived from benzoic acid, present in some alcoholic beverages such as wine, and it’s known to have strong antioxidant activity. Of particular importance, D. melanogaster is an alternative organism model that’s been largely used in neurodegeneration studies because of its genetic similarity to humans and because of its simple nervous system.

In this study we intent to test the hypothesis that SA could be used to protect against Al-induced oxidative changes in Drosophila melanogaster.

We used 2 day old wild-type flies, divided in 4 groups: control (10 days); exposed to Al (5mM) for five days (no exposure on first 5 days); exposed to SA (25µM) for the first five days (no exposure on the last 5 days); and pre-exposed to SA for (five days) + Al for (five days). The exposure was through the diet. On day 10, we evaluated their locomotor activity through the geotaxy assay, the activity of SOD and we measured non-protein GSH and TBARS levels, in body and head tissues.

We found that Al decreased flies' locomotors activity, SOD activity, non-protein GSH levels and increased TBARS levels in both body and head tissues, however the pre-treatment with SA couldn't protect from those damages.

These results show that SA, at studied concentration, has no ability to protect flies against Al-induced locomotor and oxidative damages.