

## ***Pontoscolex corethrurus* (Müller, 1857) and *Eisenia andrei*, Bouché, 1972 as bioindicators of soil contaminated by pesticides**

Cristhy Buch Andressa<sup>1</sup>, Brown George<sup>2</sup>

<sup>1</sup>Universidade Federal do Paraná

<sup>2</sup>Embrapa - Florestas

The indiscriminate and excessive use of pesticides has been constantly increasing due to the demand for greater agricultural production. This intense use of soil impacts the environment and soil biota. To indicate the extent to which these chemicals are harmful and how and where their effects occur, you can make use of ecotoxicological tests with earthworms. These animals are essential for the maintenance of chemical and biological processes in the soil and are useful to evaluate impacts of pesticides through behavioural, acute and chronic tests. Some of these tests were standardized by ISO (International standardization organization) using the earthworms *Eisenia fetida* and *Eisenia andrei*, both native to temperate climate. However, these species may be of little relevance for ecotoxicological seraphic studies, because they live in the soil litter (epigamic), and consume mainly fresh organic matter. The species *Pontoscolex corethrurus*, native to tropical regions, can be an alternative to an ecotoxicological most ecologically important species, because it is a true soil living organism and consume soil organic matter (endogeic). Little is known about their sensitivity to pesticides though. Therefore, in the present study, the sensitivity of *E. andrei* and *P. corethrurus* when exposed to three pesticides often used in fruit and grain in Brazil - carbendazim, carbofuran and glyphosate – were tested in a behavioural test ISO 17512-1, 2007 and an acute mortality test, ISO 11268-1, 1993. The results showed that carbendazim and carbofuran were toxic to both species. For carbendazin, *E. andrei* showed EC<sub>50</sub> of 76.12 mg i.a. kg<sup>-1</sup> and LC<sub>50</sub> of 19.74 mg i.a. kg<sup>-1</sup>, while for *P. corethrurus*, EC<sub>50</sub> of 65.81 and LC<sub>50</sub> of 15.32 mg i.a. kg<sup>-1</sup>. For carbofuran, *E. andrei* showed EC<sub>50</sub> of 9.74 and LC<sub>50</sub> of 13.50 mg i.a. kg<sup>-1</sup> while for *P. corethrurus* EC<sub>50</sub> of 7.26 and LC<sub>50</sub> of 9.28 mg i.a. kg<sup>-1</sup>. Glyphosate, on the other hand, showed no toxic effects at the tested concentrations for both species. The EC<sub>50</sub> obtained for both species were very similar, 44.52 mg i.a. kg<sup>-1</sup> for *P. corethrurus*, and 45.52 mg i.a. kg<sup>-1</sup> for *E. andrei*. The sensitivity of *P. corethrurus* seems to be statistically similar when compared with the standard species *E. andrei* for the pesticides evaluated.