



## **Distribution of aged atrazine related $^{14}\text{C}$ -residues in natural soil following incubation with the earthworm *Apporectodea caliginosa*.**

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The distribution and localisation of atrazine related  $^{14}\text{C}$ -residues into the different physical fractions of soil may reveal information on processes taking place in soil. Soils amended with  $^{14}\text{C}$ -atrazine, were aged for 22 years under environmental conditions in a lysimeter in Germany. The soil was sampled and subjected to physical and chemical fractionation before and after incubation for 7 days with the earthworm *Apporectodea caliginosa*. No significant change in the soil physical and chemical fractionation of the atrazine related  $^{14}\text{C}$ -residues and organic carbon was observed in this study due to the activity of the *A. caliginosa*. The smaller size soil fractions (Microaggregates and Colloids) were highly enriched with aged atrazine  $^{14}\text{C}$ -residues equivalents and organic carbon. Also the humic acid extracted using a simple alkaline extraction have were also enriched with aged atrazine  $^{14}\text{C}$ -residues equivalents. The low organic carbon content of the soil, the absence of relatively fresh organic matter and the long ageing time might explain the limited bioavailability of the atrazine related  $^{14}\text{C}$ -residues to the earthworm. This finding is of particular importance given that the soil used here was aged under natural environmental conditions compared to laboratory studies. Earthworms are important species in soil ecology and thus, the question of the bioavailability of aged pesticide residues to such organism is critical. The bioavailability of the atrazine  $^{14}\text{C}$ -residues equivalent was absent in the current study illustrating that those aged residues posed minimal risk to earthworms.