# Contaminated agricultural soil: Trace-elements speciation, their phytoavailability and their uptake by flax plants.

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Flax seeds are used in animal food because of their high content in Omega 3 . A number of trace-elements (TEs) - essential as micronutrients, however toxic at supraoptimal concentrations - can accumulate in the plants at quantities incompatible with their introduction in food chain. In order to control this risk and evaluate the uptake of TEs, it is necessary to assess the contents of various species of TEs in the soil and in the plants (total content and contents of each organ).

We were mainly interested in evaluating the presence of Cd, Cu, Ni, Pb and Zn in soils on which flax plants were grown. Two situations have been compared: the first (Normandy) corresponds to fields into which some sludge of water-treatment were brought in agronomic doses and the second (Paris Region) corresponds to plots of land irrigated by waste water over a long period which led to an accumulation of TEs.

We are currently performing TEs extractions from soils and plants using different methods: the data of sequential and total extractions (assisted by microwaves) will be presented. We have studied two flax varieties (Astral and Oliver) in four stages of culture (sowing, stage 10cm, bloom, maturation). The content, localization of TEs in flax plants as well as their possible effects on the tissue organization will be presented.

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