

**P14: Ecotoxicological evaluation of Pentachlorophenol in *Avena sativa L.* e *Glycine max L.***

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**Introduction:** Pentachlorophenol (PCP) is the largest chlorinated compound from chlorophenols family and it is included in the list of priority pollutants from the US Environmental Protection Agency (EPA) and the European Union, due to its persistence and high toxicity. It was used mainly as a wood preservative; in fungicidal and insecticidal solutions and for incorporation into other pesticide products.

**Objectives:** In this work we evaluated the effects of PCP, in seed germination, root length, apex length and biomass increment in *Avena sativa L.* (oat) and *Glycine max L.* (soybean).

**Materials and Methods:** Pentachlorophenol solutions were prepared with five concentrations between 0.001 and 10 mg/L and five replicates per concentration. After a previous hydration, seed germination was quantified at 48h for soybean and 120h for oat, in Petri dishes, kept in the dark at 25°C. Germinated seeds were then transferred to hydroponic culture with PCP solutions, in the same concentrations, to study their growth until day 12 for soybean and day 9 for oat. Growth inhibition was assessed with root and apex length and biomass increment.

**Results and Discussion:** Seed germination, of both species, was not inhibited. Root growth inhibition occurred at 1 mg/l and more sharply at 10mg/L. Apex height was lower than the control only at 10 mg/L. Biomass increment was lower for oat than for soybean. At lower concentrations root growth, biomass and apex height were stimulated.

**Conclusion:** Root growth was the most sensitive parameter. The two species do not respond similarly to PCP. The response is both concentration and species dependent. The differences of sensitivity to PCP, between plant species, should be considered in ecotoxicity studies regarding environmental extrapolations.

## References

1. Martí, E., Sierra, J., Sánchez, M., Cruañas, R., & Garau, M. A. (2007). Ecotoxicological tests assessment of soils polluted by chromium (VI) or pentachlorophenol. *Science of the Total Environment*, 378(1), 53-57.