

The Seedlings Pea (*Pisum Sativum* L.) Have A High Potential To Be Used As A Promising Condidate For The Study Of Phytoremediation Mechanisms Following An Aromatic Polycyclic Hydrocarbon (Hap) Contamination Such As Naphtalene

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Abstract : The environmental variations to which plants are subjected require them to have a strong capacity for adaptation. Some plants are affected by pollutants and are used as pollution indicators; others have the capacity to block, extract, accumulate, transform or degrade the xenobiotic. The diversity of the legume family includes around 20 000 species and offers opportunities for exploitation through their agronomic, dietary and ecological interests. The lack of data on the bioavailability of the Aromatic Polycyclic Hydrocarbon (PAH) in polluted environments, as their passage in the food chains and on the effects of interaction with other pollutants, justifies priority research on this vast family of hydrocarbons. Naphthalene is a PAH formed from two aromatic rings, it is listed and classified as priority pollutant in the list of 16 PAH by the United States Environmental Protection Agency. The aim of this work was to determinate effect of naphthalene at different concentrations on morphological and physiological responses of pea seedlings. At the same time, the behavior of the pollutant in the soil and its fate at the different parts of plant (roots, stems, leaves and fruits) were also recorded by Gas Chromatography/ Mass Spectrometry (GC / MS). In it controlled laboratory studies, plants exposed to naphthalene were able to grow efficiently. From a quantitative analysis, 67% of the naphthalene was removed from the soil and then found on the leaves of the seedlings in just three weeks of cultivation. Interestingly, no trace of naphthalene or its derivatives were detected on the chromatograms corresponding to the dosage of the pollutant at the fruit level after ten weeks of cultivating the seedlings and this for all the pollutant concentrations used. The pea seedlings seem to tolerate the pollutant when it is applied to the soil. In conclusion, the pea represents an interesting biological model in the study of phytoremediation mechanisms.

Keywords : naphtalene, PAH, Pea, phytoremediation, pollution

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