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European trends and outlook for the phytoremediation of soils contaminated with xenobiotic compounds

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Phytoremediation is an emerging technology and there is still a significant need to pursue both fundamental and applied research to fully exploit the metabolic and growth habits of green plants to treat soils contaminated with xenobiotic compounds. The unique metabolic potential of higher plants to accumulate and transform many recalcitrant organic pollutants will be shown, in the perspective of present and future applications. However, since plants grow under non-sterile conditions, they also interact with many rhizospheric microorganisms, which often play a significant role in the removal of organic pollutants.

Recent developments in Europe will be presented, based on the outcomes of the previous COST Action 837, which aimed to develop and evaluate the potential of plant biotechnology for the removal of organic pollutants and toxic metals from wastewater and contaminated sites. The outlook of the recently established COST Action 859 (Phytotechnologies to promote sustainable land use and improve food safety) will be summarized as well.