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Heavy Metal Accumulation and Detoxification Mechanisms in Plants

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Abstract: Toxic metal contamination of soil, aqueous waste streams and groundwater causes major environmental and human health problems. The most commonly used methods for dealing with heavy metal pollution are still extremely costly. Phytoremediation is the use of plants to extract, sequester and/or detoxify pollutants and is a new and powerful technique for environmental clean-up. Plants are ideal agents for soil and water remediation because of their unique genetic, biochemical and physiological properties. Considerable advances have been made in recent decades in developing endemic or genetically engineered plants for the remediation of environmental clean-up. In the present review, current knowledge about metal accumulation and detoxification mechanism in plants is discussed. The importance and potential commercial applications of the phytoremediation are described.

Key Words: Plants, heavy metals, metallothionein, phytochelatins, phytoremediation

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