Review

Structural basis for expanding the application of bioligand in metal bioremediation: A review

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Structural basis for expanding the application of bioligand in metal bioremediation: A review

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Bioligands (BL) present in plant and microbes are primarily responsible for their use in metal decontamination. Both primary (proteins and amino acid) and secondary (proliferated) response in the form of BL is possible in plants and microbes toward metal bioremediation. Structure of these BL have specific requirement for preferential binding towards a particular metal in biomass. The aim of this review is to explore various templates from BL (as metal host) for the metal detoxification/ decontamination and associated bioremediation. Mechanistic explanation for bioremediation may involve the various processes like: (*i*) electron transfer; (*ii*) translocation; and (*iii*) coordination number variation. HSAB (hard and soft acid and base) concept can act as guiding principle for many such processes. It is possible to investigate various structural homolog of BL (similar to secondary response in living stage) for the possible improvement in bioremediation process.

Keywords: Bioligand; Bioremediation; Homologous; Mechanism; π- cloud