NUMERICAL DATA

Phytoremediation: Halophytes as Promising Heavy Metal Hyperaccumulator (2018)

Examples of phytoremediation studies using species belong to Qatari flora and/or their relatives.

Sl. No.	Plant species	Metal (s)	Metal accumulation (mg/kg)
1	Atriplex halimus subsp. schweinfurthii	Cadmium	606.51
2	A. halimus L.	Cadmium	830
		Zinc	44
3	Arthrocnemum macrostachyum	Lead	620
4	Crucianella maritima	Zinc	390
5	Dittrichia viscosa	Lead	270
6	Tamarix smyrnensis Bunge	Lead	800
		Cadmium	800
7	Typha domingensis	Selenium	30
		Lead	59.13
8	T. lotifolia L	Cadmium	210
9	Paspalum conjugatum L. Prosopis laevigata	Lead	150

Source:https://www.researchgate.net/publication/326050399_Phytoremediation_Halophytes_as_Promising_Heavy_Metal_Hyperaccumulators

Sustainable remediation of heavy metal polluted soil: A biotechnical interaction with selected bacteria species (2017)

Table 1: Initial and residual mean concentrations of heavy metals from the bioremediation of leachate contaminated soil.

Heavy metals	Initial concentrations (mg/kg)	Mean residual concentrations (mg/kg) and level of reduction (%)			
		Treatment A		Treatment B	
Al	51,200	14,143	72%	20,967	59%
Cd	1.70	1.00	41%	1.00	41%
Cu	24.10	3.00	88%	11.00	54%
Mn	129	45.00	65%	98.00	24%
Pb	206.8	60	71%	121	41%

Source:https://www.researchgate.net/publication/308961124_Sustainable_remediation_of_heavy_metal_polluted_soil_A_biotechnical_interaction_with_selected_bacteria_species

Sustainable remediation of heavy metal polluted soil: A biotechnical interaction with selected bacteria species

Heavy metals removal rate constants and half-life.

Heavy metals	Treatment A (TA)			Treatment B (TB)		
	Removal rate constant (K) (day^{-1})	Half-life ($t_{1/2}$) (days)		Removal rate constant (K) (day^{-1})	Half-life ($t_{1/2}$) (days)	
Al	0.0127	54.59		0.0089	77.88	
Cd	0.0053	130.78		0.0053	130.78	
Cu	0.0212	32.7		0.0078	88.87	
Mn	0.0105	66.01		0.0027	256.72	
Pb	0.0124	58.9		0.0053	130.78	

Source:https://www.researchgate.net/publication/308961124_Sustainable_remediation_of_heavy_metal_polluted_soil_A_biotechnical_interaction_with_selected_bacteria_species

Bioremediation techniques–classification based on site of application: principles, advantages, limitations and prospects (2016)

Some plants with phytoremediation potentials

Plant	**Nature of pollutant**	**Initial concentration**	**Mechanism of removal**	**% Removal**	**Reference**
Ludwigia octovalvis	Gasoline	2,07,800 mg/kg TPH	Biosurfactant enhanced	93.5	Almansoory et al.
			rhizodegradation		(2015)
Aegiceras corniculatum	Brominated diphenyl	5 lg/gdw	Biostimulated	58.2	Chen et al. (2015)
	ethers (BDE-47)		degradation		
Spartina maritima	As, Cu, Pb, Zn	5–2153 mg/kg	Bioaugmented	19–65	Mesa et al. (2015)
			rhizoaccumulation		
Arundo donax	Cd and Zn	78.9 and 66.6 kBq/	Rhizofiltration	100	Du¨resˇova´ et al.
		dm^3 respectively			(2014)
Eichhorina crassipes (water	Heavy metals (Fe, Zn,	0.02–20 mg/L	Rhizofiltration	99.3	Elias et al. (2014)
hyacinth)	Cd, Cu, B, and Cr)				
Phragmites australis	PAHs	229.67 ± 15.56 lg/g	Rhizodegradation	58.47	Gregorio et al.
					(2014)
Plectranthus amboinicus	Pb	5–200 mg/kg	Rhizofiltration	50–100	Ignatius et al.
					(2014)
Luffa acutangula	Anthracene and	50 mg/kg	Phytostimulation[a]	85.9–99.5	Somtrakoon et al.
	fluoranthene				(2014)
Dracaena reflexa	Diesel	1–5 wt%	Rhizodegradation	90–98	Dadrasnia and
					Agamuthu (2013)
Sparganium sp.	Polychlorinated	6.260 ± 9.3	Biostimulated	91.5	Gregorio et al.
	biphenyls	10^{-3} lg/g	rhizodegradation		(2013)
Amaranthus paniculatus	Ni	25–150 lM	Phytoaccumulation	25–60	Iori et al. (2013)
Rizophora mangle	TPH	33,215.16 mg/kg	Phytoextraction and	87	Moreira et al.
			phytostimulation		(2013)
Populusdeltoides x nigra and	Silver nanoparticles and	0.01–100 mg/L	Phytoaccumulation	20–70	Wang et al. (2013)
Arabidopsis thaliana	Ag				
Carex pendula	Pb	1.0–10 mg/L	Rhizofiltration		Yadav et al. (2011)

PAHs polyaromatic hydrocarbons, TPH total petroleum hydrocarbon

[a] Hypothetical, needs further investigation

Source: https://link.springer.com/article/10.1007/s11274-016-2137-x