

(Phytoremediation)

Stachys inflata () *Scariola orientalis* () *Noea mucronata* () *Acantholimon sp.*
 () *Stipa barbata* ()

(**r= / ****)

/
 (**r= / ****)

pH

Stachys inflata

(**r= / ***)

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Thlaspi caerulescens ()

Alyssum murale ()

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Becium

homblei

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(Itai - Itai)

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۲- Hyperaccumulator
۳- Phytoremediation

۱- Bioavailability

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Alyssum wulfenianum

Thlaspi rotundifolium ssp. cepaeifolium

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()

()

pH

pH

(ECe)

(CEC)

()

DTPA - TEA

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SAS

)- diethylene triamine pentaacetic acid – triethanol amine

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() (GLM) ()
 () (LSD)

Noea mucronata
Stipa () *Scariola orientalis* ()
 () *barbata*
 () ()
 () *Acantholimon sp.* / pH ()
 () *Stachys inflata* / (ECe)
 () /
 () ()
 / *Stachys inflata*
 / *Stipa barbata*
 () ()

۲- Accumulators
 ۳- Excluders

۱-General Linear Model

Stipa barbata *Stachys inflata*

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	%	%	%	CEC meq /100g	EC _e (dS/m)	pH		
	/	/	/	/	/	/		
	/	/	/	/	/	/		
	/	/	/	/	/	/		
	/	/	/	/	/	/		
	/	/	/	/	/	/		
	/	/	/	/	/	/		

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		/		/
	/	/		/

<i>Acantholimon sp.</i>	Plumbaginaceae		
<i>Noea mucronata</i>	Chenopodiaceae		
<i>Scariola orientalis</i>	Astraceae		
<i>Stachys inflata</i>	Lamiaceae		
<i>Stipa barbata</i>	Poaceae		

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pH

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				/
<i>Acantholimon sp.</i>		/	/	/
<i>Noea mucronata</i>		/	/	/
<i>Scariola orientalis</i>		/	/	/
<i>Stachys inflata</i>		/	/	/
<i>Stipa barbata</i>		/	/	/

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<i>Acantholimon sp.</i>	/ ^a	/ ^a
<i>Noea mucronata</i>	/ ^a	/ ^a
<i>Scariola orientalis</i>	/ ^a	/ ^a
<i>Stachys inflata</i>	/ ^b	/ ^a
<i>Stipa barbata</i>	/ ^a	/ ^a

LSD

()			()
		pH	
			(r= /)
	pH		(r= /)
			(r= /)
(r= /)			
			()
		<i>S. pratensis</i>	<i>P. vulgaris</i>
			<i>T. scorodonia</i>
()			
			<i>P. vulgaris</i>
()			pH
		(r= /)	
	()		
/	<i>Stachys inflata</i>	()	pH
		pH	pH
			()
		pH	
()			
			()
			pH

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/ a	/ a	
/ a	/ a	
/ a	/ b	
/ a	/ b	
/ a	/ a	

LSD

pH	EC	CEC					
	/ **	/ **	/	/ **	/ *	/	pH
		/ **	/ **	/ **	/	/	EC
			/	/ **	/	/	CEC
			/	/	/ **	/	
				/ *	/ **		
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SAS

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pH

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Lead Concentration in Some Natural Plant Species Around Irankouh Lead and Zinc Mine in Isfahan

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Abstract

Heavy metals are considered as dangerous environmental pollutants that by entering the food chain, pose serious health threats to humans, plants, as well as other animals. Especial plant species can grow on heavy metals contaminated soils and uptake a large amount of these metals. Use of these plants as a method of remediation of polluted soils, known as phytoremediation, has attracted a great deal of attention. In this research work concentration of lead in the soil, as well as in five plant species, namely *Acantholimon sp.*, *Noea mucronata*, *Scariola orientalis*, *Stachys inflata* and *Stipa barbata*, around Irankouh lead and zinc mine in southwest of Isfahan, was analyzed. The statistical analysis of data was done in a randomized incomplete block design. The results indicated that the difference between the concentration of lead in the shoots of plant species was significantly different ($p < 0.05$) while in the roots it was not significantly different ($p > 0.05$). Among the studied plant species, *Stachys inflata* exhibited a maximum accumulation of lead (mean concentration of 311.8 mg/kg) in its shoots. The concentration of lead in the shoots of plants was shown to negatively correlated with soil pH ($r = -0.488^{**}$) while being in positive correlation with total ($r = 0.726^{**}$) available lead concentration ($r = 0.412^{*}$) in soil.

Key words: Soil pollution, Heavy metals, Lead, Mine, Plant species.

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