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PAGE

Avicennia

A. marina



Metal tolerant
Remediation

Anthropogenic

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/ :A *

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/ :B *

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(Pb)

(Hg)

(Dw)

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(Ni)

(Cd)

(M)

(O)

(PPM)

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PPM	μM	/ μM	/ μM	μM	

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NTSYS

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$$(\Delta A/T = (E *) / (EW^2 =))$$

:E420

:EW^2=

/

SPSS

(CRD3)

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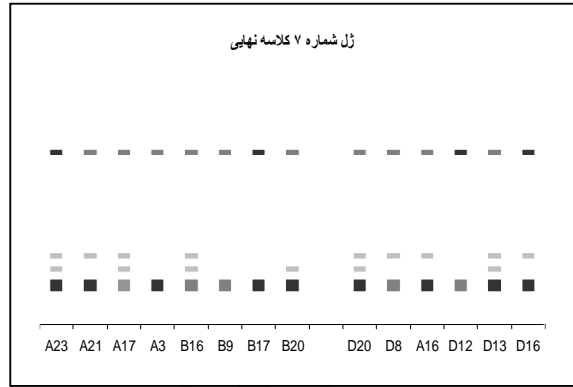
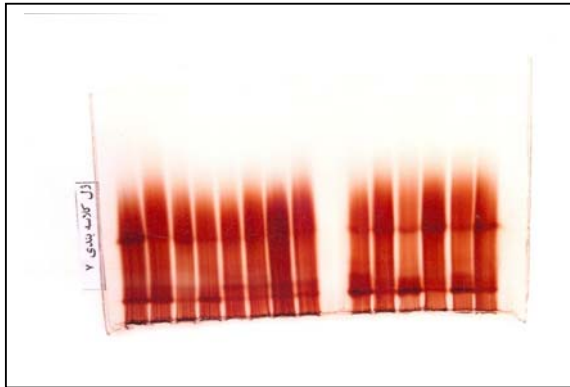
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C

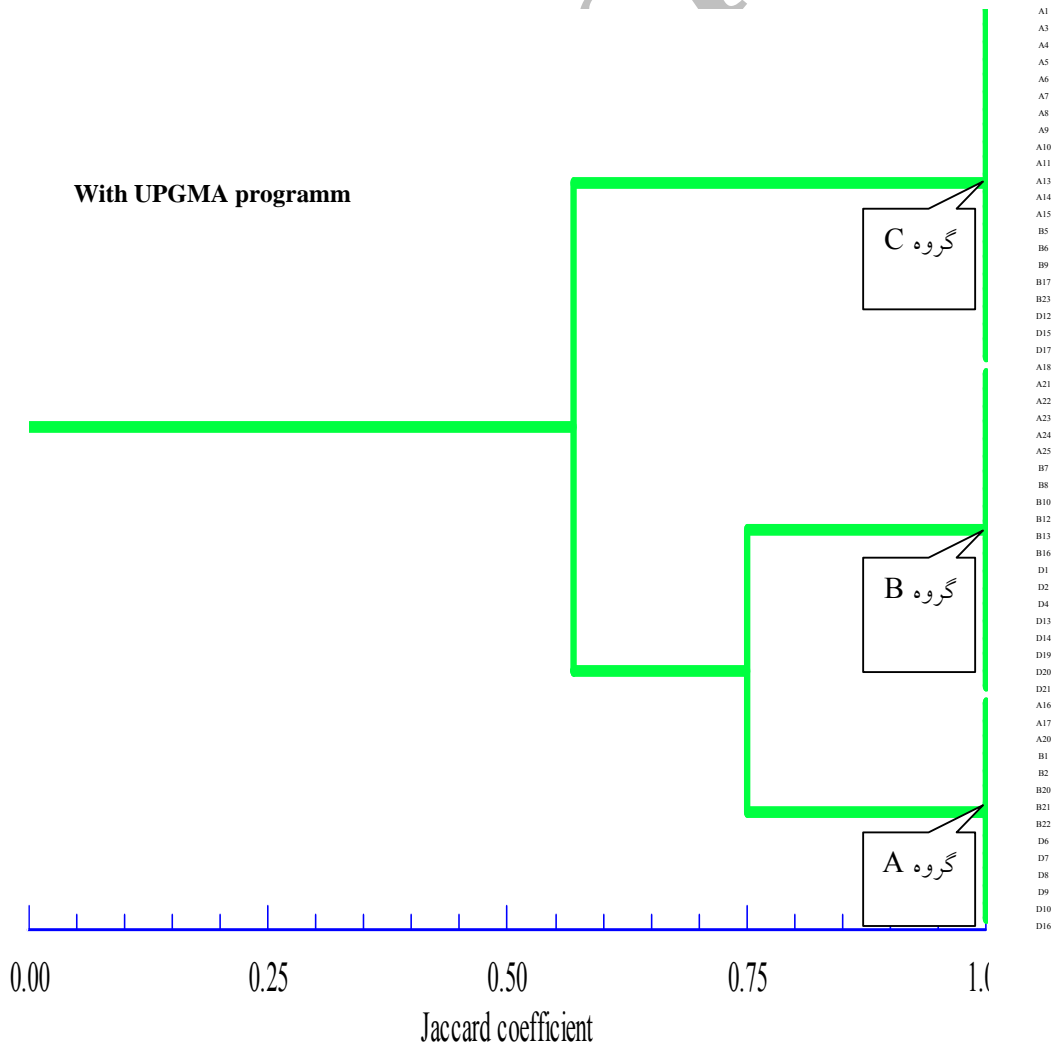
Interval

Extinction coefficient

Completely Random Design



With UPGMA programm



Source of Value	Type 3 Sum of Squares	df	MS	F	Sig.
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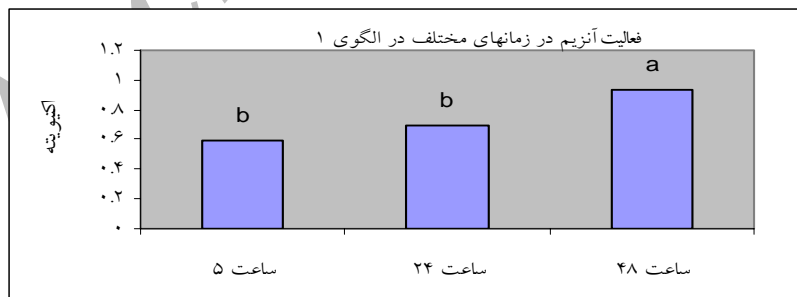
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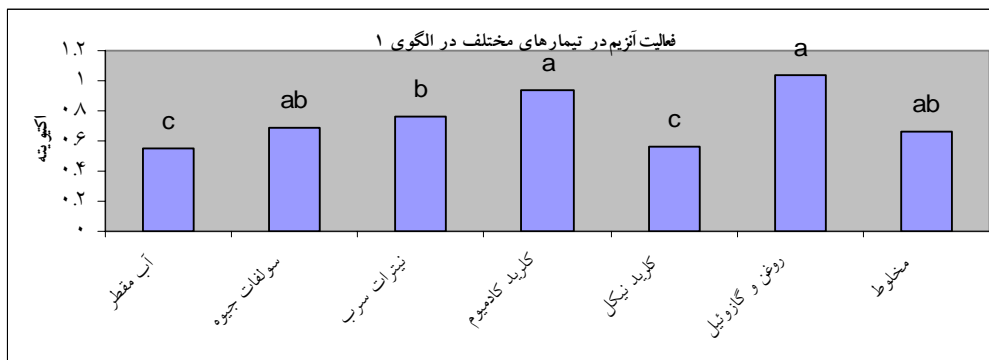
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A

Source of Square	Type 3 Sum of Squares	df	MS	F	Sig.
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b a A

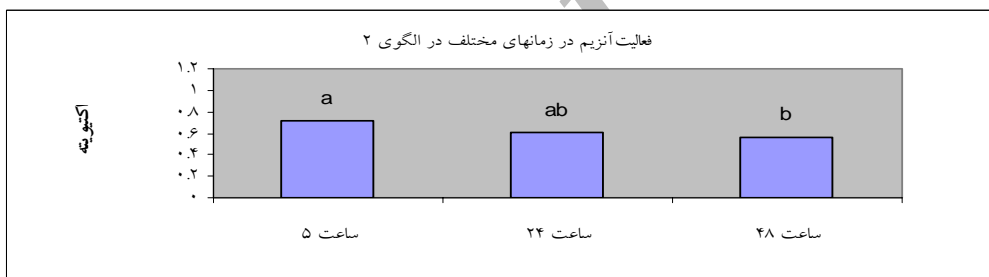


ab.A

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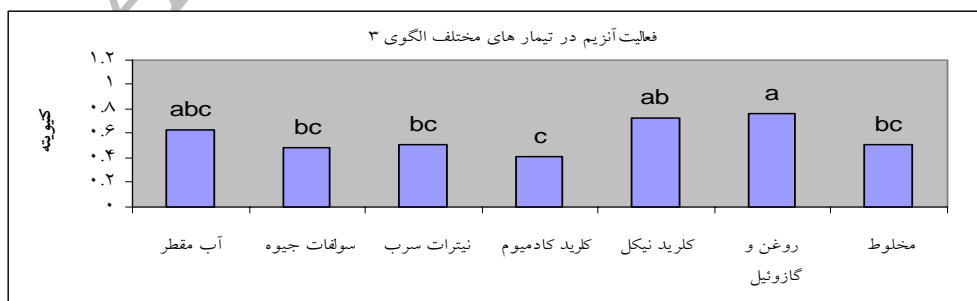
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Study on peroxidase activity in relation to heavy metals in mangrove species *Avicennia marina* (Frsk.) Vierh

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Abstract

Located in intertidal zone, mangrove forests tolerate rough environmental conditions, including floods, hurricanes and hypersalinity, owing to their special adaptations. Undesirable man-made conditions (like erecting huge oil installations, excessive utilization of the forests), will accelerate destroying rate of the forests. Present research is aimed at investigating peroxidase enzyme reaction to heavy metals. Mangrove have been observed to possess a tolerance to high levels of heavy metals, yet accumulated metals may induce intracellular biochemical changes that may affect the processes occurring on the surface of organs. In this study, 60 individuals of *Avicennia marina* in forests located in Bushehr Province were classified based on electrophoretic isoenzymatic variations. Few frequencies of the peroxidase isoenzymes accompanied by the same site conditions and suitable site distances facilitating gene exchange have caused the existence of different isoenzymatic patterns in all populations. From this standpoint, no enzyme difference is observed in various sites. Of each enzymatic group, 2-year old branches of *A. marina* treated with oil pollutants (Nickel Chloride, Cadmium Chloride, Lead Nitrate, Mercury Sulfate, oil and gas oil mixture and a mixture of all pollutants) with concentrations as existed actually for a period of 48 hours. Among all treatments, two of them (CdCl_2 and oil-gasoline mixture) had the most severe effect on the samples. Among three classes separated by PAGE⁵, some indicated increasing pattern and some decreasing. As the time of the treatments increase, peroxidase activity increases in some individuals and decreases in some others, indicating different reactions of trees to stresses.

Keywords: Peroxidase, Heavy Metals, pollution Stress and Mangrove

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5- Polyacrylamide Gel Electrophoresis