



**Faculty of Science  
Microbiology Department**

**Microbial Removal of some Heavy Metals from  
Industrial Waste Water**

**A Thesis**

**Submitted in Partial Fulfilment of the requirement  
for M.Sc. Degree in Microbiology**

**By**

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**Microbiology Department  
Faculty of Science  
Ain Shams University  
(2013)**



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### List of Abbreviation

<b>ASTM</b>	American Society of Testing and Materials
<b>AAS</b>	Atomic Absorption Spectrometer
<b>BLAST</b>	Basic Local Alignment Search Tool
<b>BOD</b>	Biological oxygen demand
<b>COD</b>	Chemical Oxygen Demand
<b>cfu</b>	Colony forming unit
<b>°C</b>	Degree centigrade
<b>DNA</b>	<u>D</u> eoxy <u>n</u> ucleic <u>a</u> cid
<b>DDW</b>	Distill Deionized Water
<b>EPA</b>	Environmental Protection Agency
<b>EDTA</b>	<u>E</u> thylene <u>d</u> iamine <u>t</u> etra <u>a</u> ceticAcid
<b>g</b>	Gram
<b>G/C</b>	Guanine/Cytosine
<b>g/l</b>	Gram/Liter
<b>h</b>	Hour
<b>IARC</b>	International Agency for Research on Cancer
<b>pH</b>	Hydrogen ion concentration
<b>nm</b>	nanometer
<b>PBS</b>	Phosphate Buffer Solution
<b>PCR</b>	Poly Chain Reaction
<b>ppm</b>	Part Per Million= mg L <sup>-1</sup>
<b>rpm</b>	Revolution per minute
<b>rRNA</b>	Ribosomal Ribonucleic acid
<b>TSS</b>	Total Suspended Solids
<b>TEM</b>	Transmission Electron Microscope.
<b>V/V</b>	Volume/Volume
<b>W/V</b>	Weight/Volume