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Phytoremediation Technology and How to Increase Phytoremediation Capacity of Plants

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Abstract: ***Phytoremediation technology is the use of green plants for remediation of heavy metals and contaminants. Heavy metals like lead (Pb), cadmium (Cd), Chromium (Cr) affect the green plants. The use of EDTA (Ethylenediaaminetetra acetic acid) increases the Phytoremediation capacity of plants. Increases the metal uptake of plants. It also increases the Phytoextracting capacity of plants. EDTA increases the growth of plants and helpful in maintaining green vegetation. EDTA is a stong chelator, it remediate the heavy metal from polluted soil by making complex with metal.***
Keywords: Phytoremediation, EDTA, Phytoextraction, Plants, Chromium.

I. INTRODUCTION

Phytoremediation technology along with EDTA helpful in remediation of heavy metals. Helianthus annus is a Phytoremediator plant has a high capacity to remove contaminants and heavy metals. Sunflower grown at a large height, belongs to composite family has ray and disc florets. EDTA increases bioavailability, solubility and translocation capacity of plants for remediation of contaminants and heavy metals.(1-6).

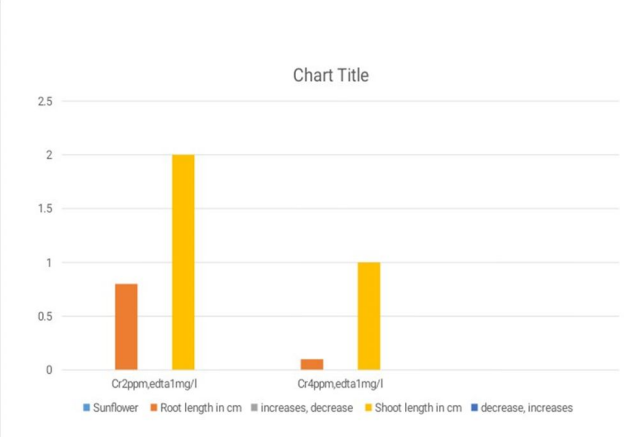
II. MATERIALS AND METHODS

Plant Helianthus annus (Sunflower) treated with Chromium and then EDTA ie Ethylenediaaminetetraacetic acid give good results. Keeping for several days and measured sunflower height, root length, shoot length, biomass, weight (fresh).

Table

Sunflower	Root length in cm	Shoot length in cm
Chromium 2ppm edta1mg/l	0.8increase	2cm decrease
Chromium 4ppm, edta1mg/l	0.1decrease	1cm increases

Effects of Chromium, EDTA on root, shoot length with remediation by EDTA and Phytoremediation technology. increase, decrease shows remediation and heavy metal uptake and growth of plants.



III. APPLICATIONS

1) EDTA a strong chelator form the metal complexes and remediation of heavy metal and other contaminants.
2) EDTA has strong Phyto extraction capacity.
3) EDTA used in hospitals, dental clinics, agriculture, cosmetics, chemical sprays soaps, shampoos.
4) Phytoremediation technology maintaining green vegetation by remediation of heavy metals.

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IV. RESULTS AND DISCUSSION

Increase in root, shoot length and then decrease suggest by adding EDTA to soil, heavy metal remediation and heavy metal uptake with growth of plants by Phytoremediation technology along with EDTA.

V. CONCLUSION

Phytoremediation technology and EDTA remediate heavy metals.

VI. ACKNOWLEDGEMENT

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REFERENCES

[1] Ashraf S et al E toxicol environ Saf 2019. Phytoremediation of environmental sustainable way for reclamation of heavy metal polluted soils 2019.
[2] Wanganekar Omkar and Thakre et al 2019.Study of Phytoremediation Techniques and it's applications IJSRR 8(2) April-June 2019.
[3] Rohman Razzaq R,2017.Phytoremediation: Env:friendly tech.
[4] Ahmed Ibrahim Galadima,Salaiman Mohammed :A Preeminent alternative method for Bioremoval of heavy metals from Environment 10 Issue 1 (2018) 59-71.
[5] Sotiris Vardoulakis,Evanthia Giagloglou et al 2020 . Indoor Exposure to selected Air Pollutants in the Home Environment.A systematic Review ,17,8972.
[6] M Shahid,AAustruy etal,ARev on EDTA enhanced Phytoremediation of heavy metals 2014,23 4 p 389-416.

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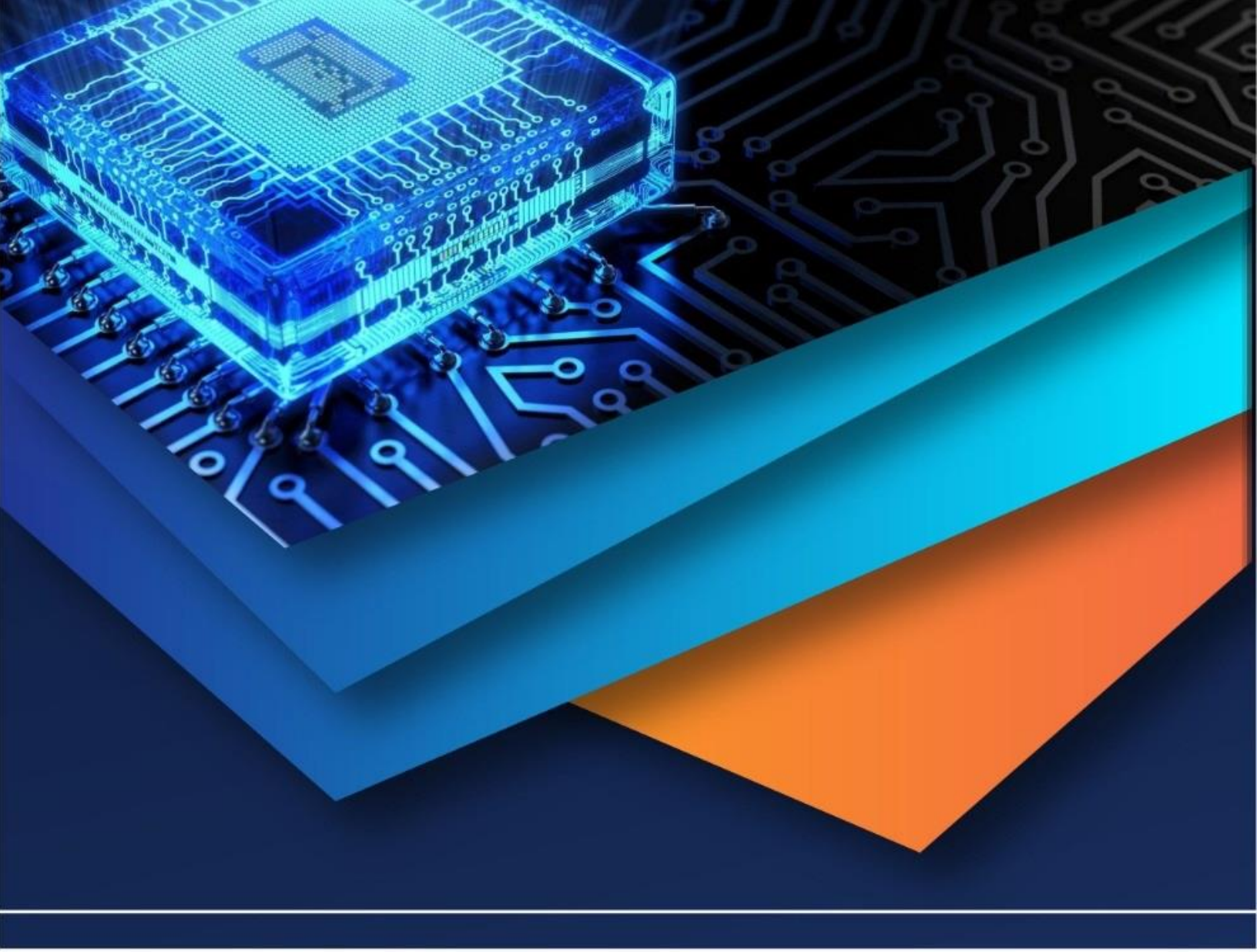

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