

**“PHYTOREMEDIATION OF HEAVY METALS USING  
*Brassica juncea* AND *Nephrolepis* sps.”**

An Executive Summary of the final report of work done on the Minor Research Project of Dr. Smitha Hegde entitled Sanction UGC, vide sanction letter no:MRP(S)-776/10-11/KAMA002/UGC-SWRO, dated 22.12.2010.

**An Executive Summary**

The process of leaching out or removing the heavy metals from a contaminated place using plants is called as phytoremediation. Plants do this by either absorbing heavy metals or by converting them to compounds which render them harmless. The use of plants or plant products to restore or stabilize contaminated sites, takes advantage of the natural abilities of plants to take up, accumulate, store, or degrade the pollutants. The proposed study screened two plant species *Brassica juncea* and *Nephrolepis sps* for remediation of lead and cadmium from soil samples.

*Brassica juncea* was taken as a positive control as it is well known for its abilities of hyperaccumulation of heavy metals. *Nephrolepis* was the test species, selected for its fast growing, weedy nature. From the study, the effect of Lead accumulation on proteins, chlorophyll and growth of *Brassica juncea* grown *in vitro* shows that it takes 20 days or more to acclimatize to Lead concentration of the range 400ppm to 2000ppm, with and without EDTA. *Brassica juncea* grown in soil showed better tolerance to lead accumulation compared to *in vitro* grown plants. From the results it is inferred that *Brassica juncea* is a preferred hyper accumulator of Lead as compared to *Nephrolepis sps*. It did not show significant Lead accumulation during the treatment period. A prolonged study is needed to further confirm the use of *Nephrolepis sps* in phytoremediation of heavy metals from contaminated soil.