

CHAPTER 17

ENVIRONMENTAL STUDIES

Doctoral Theses

207. PRADHANANG (Sadhana)
Industrial Effluents From the Hetauda Industrial District and the Impaired Water Quality of Karra River, Nepal.
Supervisors : Prof. Mihir Deb and Dr. Chirashree Ghosh
Th 16600

Abstract

Assesses the water chemistry and heavy metal contamination in the Karra River flowing past HID and in the effluent of WWTP of HID. The study also included the water of upstream and downstream of Karra River and the adjoining Rapti River. Reveals that the combined downstream section of the two rivers is dominated by the water chemistry of the Karra River. These findings are important, not only for clarifying the present heavy metal pollution levels of the river but also for the development of national river management plans. Further, WWTP of HID needs further expansion and upgrading to improve its treatment performance so that sustainable use of the water from the whole industrial belt and is ensured for the downstream users.

Contents

1. Introduction. 2. Literature review. 3. The study area. 4. Materials and methods. 5. Results (Water analysis). 6. Results (Sediment/Sludge/Soil). 7. Discussion. 8. Conclusion. Bibliography and Appendix.
208. SHARMA (Meenakshi)
Functional and Taxonomic Diversity Among the Rhizobacteria of Wild Grasses of a Mined Out Area and Their Potential to Promote the Growth of Crop Plant Under Phosphate and Iron Stress.
Supervisor : Dr. Radhey Shyam Sharma
Th 16656

Abstract

Evaluates the functional and taxonomic diversity among rhizobacteria of ecologically successful wild grasses (*Saccharum munja*, *Dichanthium annulatum*, *Cenchrus setigerus*, *C. ciliaris*) colonizing an abandoned mine and their ecological significance. Identifies the most efficient plant growth promoting rhizobacteria belonging to different functional groups (antagonism, IAA production, phosphate solubilization, polyphosphate accumulation, siderophore production) using chemical and biological siderophore producing rhizobacteria to enhance the growth of *Zea mays* under phosphate and iron stress, respectively.

Contents

1. Functional and taxonomic diversity among rhizobacteria of *saccharum munja*, *dichanthium annulatum*, *cenchrus setigerus* and *C. ciliaris* colonizing a mined out site and their ecological significance. 2. Variations in phosphate solubilization ability of the grass rhizobacteria and their ecological significance. 3. In vivo ability of selected rhizobacteria to promote growth of *zea mays* under phosphate and iron stress. 4. Summary and conclusions. Bibliography and Appendix.

209. SHARMA (Shiva Kumar)
Conservation Biology of *Panax L.* (Araliaceae) From Sikkim Himalaya.
 Supervisor : Prof. Maharaj K. Pandit
Th 16708

Abstract

Describes phenetic analysis to resolve the anomaly in *panax* species complex from Sikkim Himalaya by analysing both quantitative and qualitative morphological characters. Evaluates the taxonomic relationships among *panax* species complex naturally occurring in Sikkim Himalaya and provides key for the correct identification of each taxon.

Contents

1. Introduction. 2. Materials and methods. 3. Results. 4. Discussion. 5. Summary. Bibliography.