

# *Chapter VIII*

*Summary*

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Heavy metals such as lead, nickel and phosphate anion had been identified as the species of interest in the current study, due to their common prevalence in discharges, as pollutants while exceeding their tolerance levels. Two litter materials, *Pistachio vera* shells / Bivalve shells had been chosen as bio sorbents to sequestrate the identified ions, after specific modifications to enhance their sorption efficacies. These modified and metal laden materials were characterized through different analyses viz., physico-chemical parameters, microscopic studies, BET/ BJH, SEM, EDAX and FT-IR. Batch equilibration studies were conducted to assess the sorption capacities followed by the applicability of isotherm models to study the sorption nature of the shells. Reproducibility of the exhausted materials was ensured through desorption/ regeneration experiments. The pilot results were extended to column schemes for aqueous/ effluent samples to verify the bulkiness of the selected materials. The incorporated results revealed that both the selected materials possess excellent ion chelating property, wherein, Bivalve shells was found to be prudent.