The subject of environment pollution has attracted the common public and politicians as well. The third world countries including India, through much anxious to industrialize fast are, however, little aware of the environmental consequences with regard to the nature and geographical distribution of wastes or the impact of extreme climatic regimes. The technological warfare has also resulted in the increased output of pollutants and air, water and soil atmosphere, all have competence to retain such pollutants or circulate them amidst each other to ultimately thereafter the very survival of living organisms unless some alternative mechanisms are adopted by a living cell to overcome the pollution load.

Copper is a well-known plant micronutrient, an algacide as well as known fungicide, metal component of plastocyanin, and the enzyme superoxidase dimutase. Copper like other heavy metal, is also growth toxic to algae including cyanobacteria at fairly low levels in the range of micro-molars. The present Research work, therefore reflects the compilation of investigations on the physiological and biochemical and physiological aspects of cyanobacterial metabolism with emphasis on copper uptake, and phosphorus and nitrogen metabolism in response to intracellular Copper, 14C-incorporation, ATPase activity and isolation of Cu tolerant / resistant (Cu') strain
from the Cu sensitive (Cu) Nostoc calcicola. As mode of development of metal tolerance / resistance remains little explored in such prokaryotes compared to higher plants.

The resistant traits of Nostoc calcicola Breb were of (a) exclusion type, (b) extrusion type, (c) accommodation type. While stability was tested by successive transfers to Cu-less medium, metal extrusion studies were aimed at knowing the possible correlation between Cu efflux and influx in terms of minutes and hours i.e., short term experiments.

The optimal utilization of liquid scintillation counter, spectrophotometer and Gas chromatograph has enabled me to cover the vital aspects of metal analysis and 14C-incorporation, without which I could have been left with the only option to get satisfied with growth measurement or at the most, protein estimation to characterize Cu toxicity.

There may be to be short comings either in experimental aspects or in their interpretations of this research study. Suggestions for further improvement or otherwise also from those who will be going through this piece of work are welcome.