I. INTRODUCTION
INTRODUCTION

In the present day agriculture, use of different agrochemicals like fertilizers, pesticides, herbicides, hormones, antibiotics etc. have become an essential component of various inputs for increasing crop productivity. Many of these are directly introduced into agricultural land while others are administered as sprays or dusts on plants. Some part of the compounds sprayed on plants ultimately also reach into the soil as runoff or drift and influence the micro-organisms and plant growth in various ways (Subba Rao, 1977). Besides substantial quantities of subsidiary material like solvents, carriers, diluents, synergists and adjuvants also reach the soil and thus effect the microbial balance (Waiwright, 1977; Bollen, 1979; Singh and Agnihotri, 1980).

Study of the effect of these chemicals on beneficial organisms like nitrogen fixing blue-green algae has got practical importance as far as their survival in the soil is concerned. Some forms of blue-green algae are widely used as
biofertilizers to improve rice yields in our country (Singh, 1961; Venkataraman, 1980; Bharati, 1981). Very little information is available on this aspect and particularly from this region of Marathwada.

Effect of some fertilizers (Singh, 1975); fungicides (Gangawane, 1979, 1982); hormones (Ahmed and Winter, 1968; Adhikary and Pattanaik, 1978; Bongale, 1978); rodenticides (Tarar and Salpekar, 1979); insecticides (Singh, 1973; Ahmed and Venkataraman, 1973; Gangawane, 1979; Sardeshpande and Goyal, 1982); antibiotics (Reddy, 1977; Gangawane, 1978; Tarar and Kelkar, 1979); and herbicides (Hamdi et al., 1970; Inger, 1970; Singh, 1974; Tiwari, 1981) have been studied by few workers. As far as the pesticidal compounds are concerned, the necessity of such study is emphasized all over the world. The United States Environmental Protection Agency (EPA) in addition to conventional tests on pathogenic organisms now requires testing side effects of pesticides on beneficial micro-organisms i.e. nitrogen fixers (Code of Federal Register, 1975). These tests confirm whether
application of particular compounds have adverse effect on non-target microbial population and consequently on soil fertility. Such type of testings are also required in India as pesticides act (1968) has been amended in order to get the compound registered.

Quantitative and qualitative analysis of soil samples collected from the fields growing different crops all over the Marathwada for blue-green algae was done using nitrogen free Fogg's medium. Simultaneously, samples at random were analysed for physico-chemical properties. Taxonomic account and distribution of algal taxa is described.

*Nostoc hattai*, a frequently isolated alga was selected to study the effect of about 40 agrochemicals on growth and nitrogen fixation. Effect on the production of ascorbic acid have also been investigated. A technique of artificial rhizosphere was employed in order to study the influence of *N. hattai* on mycoflora and bacterioflora in pesticide treated soils. Influence of algalization on rhizosphere microflora of rice in pesticide treated soils was also observed at
different periods of growth. This revealed the interaction between alga, rice, pesticide and micro-flora in soil.

Blue-greens may have certain effect on metabolic activity of fungi in soil. Production of pectolytic (PG and PMG) and cellulolytic (CX) enzyme is one of the important characteristics of soil fungi for both the pathogenesis and saprophytic survival (Siu, 1951; Shujins, 1967; Gangawane and Deshpande, 1975; Tanaka et al., 1980).

Dominant fungi *Aspergillus flavus*, *A. niger*, *Helminthosporium tetramera*, *Trichoderma viride* and *Rhizopus stolonifer* were selected for studying the effect of *N. hazei* on production of above enzymes. Similarly linear growth of these organisms in the presence of algal culture fluid was studied.