

Diversity of nitrogen-fixing cyanobacteria under various ecosystems of Thailand: population dynamics as affected by environmental factors

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Summary

Investigation of N₂-fixing cyanobacteria from Thai soil was carried out at 2-month intervals between July 1997 and November 1999 to determine the population number, population dynamics and favourable habitats. Sites were selected in three parts of Thailand; North, Central and Northeast. In each part, various soil ecosystems were used as sampling sites; at highest elevation as on the top of the mountain, in the middle and at the foot of the mountain, as well as in flat areas of agricultural practice and uncultivated areas. Generally, a high population of N₂-fixing cyanobacteria was found in agricultural areas where rice cultivation was practised, rather than in other sites. The population dynamics in the mountain and uncultivated areas were less fluctuating than in agricultural areas. The population densities in agricultural areas increased in the rainy season and decreased during the dry season. Other environmental factors such as temperature, moisture and pH also affected the population densities in different habitats. Cyanobacterial diversity was notably influenced by the type of ecosystem in both dry and rainy seasons. The cultivation area containing rice in rotation with other crops contained the most genetically diverse range of species.