

Effect of crude extract of toxic and non-toxin *Microcystis aeruginosa* on the yield of *Oryza sativa*, cultivated under flood irrigation

Beneficial effects of algalization on the yield of rice have been well documented. But the recent findings on the toxic effects of microcystins, the most common cyanobacterial toxins on plants have given a second thought on plants have given a second thought on algalization. However a few studies have been done on the subject and even those were with purified toxins, under spray irrigation. This paper focuses on effects of degraded toxic and non-toxic *Microcystis aeruginosa* blooms on *Oryza sativa*, cultivated under flood irrigation.

Plastic pots were filled with 0.0033 m³ of muddy soil and two weeks old *Oryza sativa* seedling were planted at the rate of six seedling per pot. Surface of each pot was covered with black polythene, to prevent the growth of cyanobacteria on the soil. After establishment of plants, 4 pots per each treatment were randomly assigned to seven treatments (a control and three concentrations from crude extraction of each of toxic and non-toxic *M. aeruginosa*). Each pot was fed every other day with 25 mL of the relevant extract. Each single dose of high, medium and low toxic *M. aeruginosa* extracts contained 9.4, 4.7 and 1.35 mg of microcystin mL⁻¹ respectively. Treatments were continued until one week before harvesting.

Dry weight of roots, straw yield and grain yield of *Oryza sativa* irrigated with extracts of toxic *M. aeruginosa* showed significantly lowest values. Roots were the most affected. Dry weights of roots and straw yield of the plants irrigated with extractions of non-toxic *M. aeruginosa* were also low compared to those of the control, but its grain yield was not affected, indicating non-toxic *M. aeruginosa* may affect the partitioning to grain in rice by altering coefficient.