Method: Diluted extracts of microcystis bloom (2.28 ug/L MYCI & 0.1 mug/L DCYN) Mixed bloom with predominant cylindrospermopsis (1.25ug/L DYCN & 0.03 ug/L CYN), and Lyngbia bloom (0.024 ug/L DCYN & 0.075 ug/L CYN) from Padaviya reservoir and canal was fed to a group of 5, 7 &10 mice respectively for a week.Another 5 mice fed with diluted extracts of microcystis bloom for one week of followed by 2 weeks of normal water. The control group of mice (10) were given normal water for a week. The diluted crude extracts were analyzed for cyanobacterial toxins.

Results: Table 1 shows the results of analysis of the diluted crude extracts for the cyanobacterial toxins.

Table 1:

Type of bloom	CYN Microg/l	Deoxy CYN Microg/l	Microcystin Microg/l
Microcystis bloom	Nil	2.5	65
Mixed bloom with predominantlyCylindrospermopsis	0.7	29.5	Nil
Lyngbia bloom	1.7	0.5	Nil

Table 2 shows the results of the short term toxicity study on mice

Experiment	Crude extract of	Kidney histology	Result
1a	Diluted toxin (microcystis bloom) fed for 1 week	Tubular necrosis	5/5
1b	Diluted toxin (microcystis bloom) fed for 1 week & water fed for 2 weeks	Tubular necrosis	2/5
2	Diluted toxin of mixed bloom with predominant Cylidrospermopsis fed for 1 week	Tubular necrosis	1/7
3	Diluted toxin of Lyngbia bloom fed for 1 week	Tubular necrosis	6/10

4 Control	Water from Kandy water supply scheme	Normal tubules	10/10

Conclusion:

The results show the ability of the cyanobacterial extracts to induce ATN in mice in the given concentrations. The ability of the normal water to reverse the activity to a certain extent was seen when fed with normal water for 2 weeks. As DCYN was available in all extracts the ability of DCYN to induce tubular necrosis even at low concentrations need to be investigated.

References: