

B404**Toxic Effects of Microcystins on the Green Algae**

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This study investigated the toxic effect of microcystin-RR and/or microcystin mixtures (-RR, -LR, -YR) on the growth and CO₂ assimilation rate of green algae, *Selenastrum capricornutum*, *Botryococcus braunii*, *Dunaliella tertiolecta*, etc. Microcystin mixtures were obtained from *Microcystis aeruginosa* UTEX 2388 by the purification of lyophilized algal cells using Sep-Pak C18 cartridge. *M. aeruginosa* contained approximately 966 µg/g-lyophilized algal cell of microcystin-RR, 405 of -LR, and 137 of -YR. Identification and quantification of each type of microcystins were carried out by high performance liquid chromatography (HPLC) and matrix associated laser desorption ionization (MALDI). Microcystins inhibited not only the growth of green algae but also CO₂ assimilation which seemed to be used as another parameter to evaluate the toxicity within several hours. However, the toxic effects of microcystins differed with a kind of algae. These difference may be due to the different permeability of microcystins into algal cells. When microcystin-RR was spiked into the culture solution of *S. capricornutum*, the EC₅₀ (24-48 h) value was calculated to be 10.73 mg/kg.

B405**Variation with N : P ratio of medium and growth stage of microcystin content in *Microcystis aeruginosa***

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The change of microcystin content in *Microcystis aeruginosa* UTEX 2388 was investigated at several N : P ratios of culture medium and along the growth stages. The medium N : P ratios were set to 1:1, 5:1, 16:1, 50:1 and 100:1 under both N-fixed (71.40 µM N) and P-fixed (6.50 µM P) condition. Microcystin content in the N-fixed was not changed much, whereas that in the P-fixed was the highest value of 2747.6 ± 180.3 µg /g-cell at a N : P ratio of 16:1 after 8 days incubation. Microcystin-RR (MC-RR) was more than the other microcystins (MC-LR and -RR) at all examined samples. When the N : P ratio of medium was fixed to 16:1, microcystin content which expressed per cell dry weight was highest at 2190.7 ± 115.3 µg/g-cell after 4 days incubation and then gradually decreased. Cellular carbon and chlorophyll-*a* contents of algal culture were also highest at day 4 and also showed a similar decline. From these results, it is believed that there is a clear relationship between microcystin content in *M. aeruginosa* UTEX 2388 and cellular carbon or chlorophyll-*a* content.