

INFLUENCE OF ALGAE GROWTH PHASE ON THE FORMATION OF DISINFECTION BY PRODUCTS FROM CHLORINATION OF MICROCYSTIS AERUGINOSA: IMPACT AND MECHANISM

Rui Huang, Zhiquan Liu, Boyin Yan, Peng Wang and Fuyi Cui

Harbin Institute of Technology, China

It is well known that algae and their metabolites may form disinfection by-product during chlorine disinfection process, but the quantitative relationship between algae and disinfection by-products formation potential (DBPFP) is rarely reported. In the present study, the intracellular and the extracellular metabolites from *Microcystis aeruginosa* in different growth phases were harvested and separated into hydrophilic and hydrophobic groups, and the variations of DBPFP in different groups were investigated. The results show that although the cell density of *M. aeruginosa* in decline phase was only one sixth of that in stable phase, the total DBPFP in the two growth phases were comparable. This implied that the average DBPFP in specific cell of decline phase is much higher than that of stable phase. The increased DBPFP in intracellular organic matter (IOM) of decline phase could be attributed to the increase of hydrophilic organic in IOM while the increased DBPFP in extracellular organic matter (EOM) is

mainly caused by the increase of hydrophobic organic in EOM. The obtained results indicated that DBPFP could change with the algal growth phases and the actual disinfection risk cannot be simply evaluated by cell density in water, and the algal laden water in autumn, the end of algal bloom season may even danger to be disinfected than that in summer.

Biography

Rui Huang has completed his Master's degree from Harbin Institute of Technology (HIT). Currently, he is a Doctoral student in HIT, majoring in Environmental Science and Engineering. His research interest is microalgae in aquatic environment and the disinfection by-products caused by microalgae. In his three years of academic career, he has published three papers in reputed journals.

huangrui_hit@126.com