Characterization of Flocculating Mutants of *Arthrospira platensis* by Random Mutagenesis

김영화, 이재화*
신라대학교
(jhalee@silla.ac.kr*)

Harvesting microalgae is a major concern for commercial large cell culture. Flocculation and subsequent sedimentation could be a cheap and effective way to harvest algae. Flocculation using chemical flocculants is not feasible due to their toxicity. As an alternative technique, mutation breeding for flocculating strain by mutagen was reported in this study. We characterized the *Arthrospira platensis* (*A. platensis)* mutants induced by ethyl methane sulfonate. The resulting mutants were screened, selected by flocculation efficiency, and designated mut3, mut33 and mut41. The three mutants formed cell aggregation during cultures and dry cell weight was increased 1.2- to 1.8-fold comparing to wild type. Flocculation was induced highly at optimal pH at 9 in three mutants. The effect of cations, such as ferric chloride, aluminum sulfate and zinc sulfate, on flocculation in A. platensis was analyzed and zinc sulfate was more effective. Therefore, it is suggested that flocculation by mutation is a cost-effective and straightforward method for harvesting *Arthrospira* without any deterioration of the harvested algal biomass.