

Trajectory of microalgae in an open raceway pond for microalgae cultivation

_____, _____, _____
KAIST
(dohyun.kim@kaist.edu*)

Microalgae are promising source for biodiesel production, and microalgae cultivation systems are extensively studied to improve the microalgae production. Generally, microalgae cultivation for mass production is preferably done in an open raceway pond due to low capital and operation cost. Combining hydrodynamics with non-linear biological activity makes the optimization of microalgae production very challenging. The large amount of parameters should be considered for mathematical modeling. In an open raceway pond, mixing is critical because the sunlight can penetrate the water only about 25-30cm. In this study, we have investigated trajectory of microalgae to examine the performance of open raceway pond with respect to the mixing of microalgae. Numerical simulation of fluid flow in the open raceway pond was performed by using the turbulence model in the computational fluid dynamics (CFD) software.