Selecting Essential Parameter of Microalgae for Lipid Induction

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To increase lipid contents in microalgae, lipid induction stage is readily applicable to microalgae cultivation process. In the lipid induction stage, the microalgae grown in the biomass production stage is transferred into a stressed condition to induce lipid accumulation within microalgae. Optimization of the induction process was mainly focusing on optimizing operating condition on the induction stage such as induction time, salt concentration, and so forth. On the other hand, harvest timing on the biomass production stage which has numerous impact on microalgal internal states was not considered to be an essential parameter. However, recent research shows that the uncertainties in microalgal internal states originated from the variation in the biomass cultivation condition gives variation in the lipid induction results. In this research, multiple linear regression with stepwise selection method was employed to select essential internal states of microalgae on biomass production stage in consideration of lipid induction result. The main contribution of this research is in selecting critical internal states to be measured for control of lipid quality variations.