Development of a Simple Inclined Algal Culture System for Outdoor Cultivation / Supenya Chittapun, Theppanya Charoenrat, Ingkamonphat Maijui, Sompot Antimanon

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Abstrak

ABSTRACT
To overcome the disadvantages of open pond and cement tube as an outdoor algal cultured system, a simple inclined algal culture system was developed. the system composed of an 18.9 L polyethylene terephthalate (PET)bottle placed on a degree adjustable stand using an air pump to generate water mixing and circulation. The system was tested by culturing 45 mL Oscillatoria sp. in 13 L Blue-Green-11 (BG-11)medium supplemented with 3 g L-1 NaNO3 in plastic bottle, which was placed on different angles of inclination, viz. 45°, 60° and 90°. The system was operated outdoor under natural daylight and temperature. After 11 days, 11.5 L culture medium was poured out and 11.5 L fresh medium was refilled. Algal cell was precipitated to measure algal yield. Then, cell harvesting was done every 7 days for 6 batches. This system could culture algae continuously for 5 batches. The highest productivity was 32.23 gram wet (gw) ×m-2×d-1, which was recorded from a second and fifth round of 45° angular system and also from third round of 60° angular system. The result showed that this simple inclined algal culture system can be done continuously for one and a half month with high productivity by 45° inclination, which was proved as a good mixing and circulation. Showing advantages over open-pond, this system was moveable and could reduce possibility of contamination.