

**DEVELOPMENT OF A LOW COST MASS  
CULTURE MEDIA FOR *Spirulina platensis***

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## ABSTRACT

*Spirulina* is considered as a food supplement which is having the highest protein content among the protein rich food sources. Present study was conducted to develop a low cost mass culture media for commercial scale spirulina culture in Sri Lanka. Three culture media were formulated as T1, T2 and T3 by incorporating selected fertilizers and other cost-effective alternative chemicals [T1- NaHCO<sub>3</sub> (73.68% w/w), NaCl (8.77% w/w), Urea (10.96% w/w), Albert solution (4.38% w/w)] [T2- NaHCO<sub>3</sub> (75.4% w/w), NaCl (7.18% w/w), MOP (4.39% w/w), TSP (1.79% w/w), Urea (11.22% w/w)] [T3 - TSP (0.95% w/w), sodium nitrate (7.18% w/w), muriate of potash (4.96% w/w), sodium chloride (47.91% w/w), magnesium sulphate (0.71% w/w), calcium chloride (0.19% w/w) and sodium bicarbonate (38.33% w/w)]. Isolated pure culture of spirulina was inoculated in to prepared three media in five concentration series and into a commercial media (control, Zarrouk) with three replicates. Cultures were initiated in an axenic batch culture method in the formulated media. The algae were grown under illumination (4000 lux CFL and tungsten filament bulb) and temperature inside the culture unit was maintained at 35 °C. The growth was measured by counting the number of cells under Euromax light microscope (× 4) and converted as a ratio (Ratio=initial count / present count of the day). Data were collected once in three days for 15 days and normally distributed growth data were analyzed by one way analysis of variance (ANOVA). According to the results (T1: 413.24±100.06, T2: 181.2±6.64, T3: 520.8.24±24.70 and Control: 287.16±7.19) T3 medium was identified as the most favorable media for the growth of *Spirulina platensis* followed by T1, T2 and Control. It was observed that both T3 medium had the highest growth rate and followed by standard medium during the 24 days culture period. In the present study formulated medium T3 was found to be highly economical, since it is three times cheaper than Zarrouk's medium.

*Keywords:* *Spirulina platensis*, Growth, Zarrouk medium T1, T2 and T3 medium.