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# Culture and growth performance of *Spirulina paltensis* grown in supernatant of digested poultry waste

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## Abstract

An experiment was conducted to evaluate culture and growth performance of *Spirulina platensis* (Gomont) (= Arthrospira fusiformis) (Voronichin) Komarek & Lund (1999) in supernatant of three different amount of digested poultry waste (DPW), and Kosaric medium (KM) as control. Three different amounts (Treatments) such as 2.0, 4.0 and 6.0 g/L poultry waste were allowed to digest with aeration for 17 days. Then, *Spirulina platensis* was inoculated to grow in the supernatant of three treatments with the addition of 9.0 g/L $NaHCO_3$, and KM for a period of 14 days. The cell weight, chlorophyll a, specific growth rates of *Spirulina* (*S. platensis*) was attained a maximum when grown in KM followed by supernatant of 4.0, 2.0 and 6.0 g/L DPW, respectively on the 10th day of culture. Cell weight of *Spirulina* grown in these media had highly significant ($P < 0.01$) correlation with the chlorophyll a content ($r = 0.993$) and total biomass ($r = 0.925$) of *Spirulina*. The results on the growth performance showed that the growth performance of *S. platensis* grown in supernatant of 4.0 g/L DPW was significantly ($P < 0.01$) higher than that of *Spirulina* grown in supernatant of 2.0 and 6.0 g/L DPW. The percentage of crude protein of *Spirulina* grown in supernatant of DPW was lower than that of *Spirulina* cultured in KM. But crude lipid of *Spirulina* cultured in supernatant of 4.0 g/L DPW was almost three times higher than that of *Spirulina* grown in KM.

To get higher amount of good quality lipids, *Spirulina* may be cultured in supernatant of digested poultry waste. It will give both protein and lipids to prepare feed or to use as health food, and aquatic environment will be partially free from pollution.

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