Lipid and Vitamin E Enrichment in Sand Worm (*Perinereis nuntia*, Savigny)

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Abstract

Lipid and Vitamin E enrichment in diets of sand worm (*Perinereis nuntia*, Savigny) was conducted by factorial designed experiment. Sand worm were fed with four isonitrogenous diets using fish oil as lipid source which were prepared by varying inclusion levels of dietary lipid: vitamin E as follow: diet 1, 9:0 %; diet 2, 0:0 %; diet 3, 9:0.1 %; and diet 4, 0:0.1 % with analysis value of dietary lipid and vitamin E were 16.92 %, 3.81 mg/kg; 6.39 %, 4.99 mg/kg; 16.70 %, 731.84 mg/kg and 6.90 %, 906.72 mg/kg, respectively. Each of formulated diet was fed to each of 3 tanks (0.64 m²) of sand worm (stocked at 50 worm/tank) twice a day for 3 months. The results showed that sand worm fed with diet 3 had better survival rate with significant difference from sand worm fed other 3 diets (P<0.05). Moreover, lipid and vitamin E enrichment in diets had no interaction effect on mean body weight and weight gain (P>0.05) However, lipid enrichment in diet had significant effect on lipid accumulation in sand worm (P<0.01) as well as both lipid and vitamin E enrichment had significant interaction effect on vitamin E accumulation in sand worm (P<0.01). The highest dietary lipid and vitamin E resulted in significant higher accumulation of lipid (13.13±0.76%) and vitamin E (55.44±1.72 ppm) in sand worm (P<0.05). Dietary Total n-3 had no relation to this fatty acids group in sand worm (r² = 0.0057) but dietary Total n-6 had relationship to total n-6 accumulation in sand worm (r² = 0.8533). The ratio of n-3/n-6 in sand worm among 4 diets were significant difference and these were in the range of 0.31-0.50. Sand worm fed with diet 1 had the highest n-3/n-6 ratio (0.50) whilst those of sand worm fed with diet 2 was the lowest (0.31).

**Key words:** Lipid, Vitamin E, Enrichment, Sand worm

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