

## **Diet formulation for *Macrobrachium rosenbergii* (de Man) broodstock based on essential amino acid profile of its eggs**

### **ABSTRACT**

Twelve pelleted diets containing a range of protein and energy levels from 30% protein, 400 kcal gross energy per 100 g diet to 40% protein and 520 kcal gross energy per 100 g diet were formulated. A least-cost linear programming package was applied to determine the optimum inclusion levels of some locally available ingredients. The essential amino acid constraints applied to the diets were based on the essential amino acid content of the eggs of broodstock *Macrobrachium rosenbergii* (de Man). The study was undertaken using 13 one-tonne capacity fibreglass tanks, each with a water recycling system. Each tank was partitioned into three equal compartments by nylon netting; each compartment was stocked with six female and one male prawn which were fed with the various diets at 2% body weight daily split into three feedings at 0800, 1200 and 1800 h. The results indicated that prawn fed the 40% protein diet with an energy level of 400 kcal per 100 g diet attained the highest fecundity, producing 1355 eggs per gram body weight, followed by those fed P40 with a gross energy level of 440 kcal 100 g<sup>-1</sup> (1354 eggs per gram body weight), and prawns fed control diet (30% protein with an energy level of 442 kcal 100 g diet<sup>-1</sup>) attained the lowest fecundity (1080 eggs per gram body weight). However, statistically, no significant differences in fecundity were observed among prawn fed 35% protein diet with an energy level of 473 kcal 100 g<sup>-1</sup>, 40 with energy levels of 400 or 440 kcal 100 g diet<sup>-1</sup>. The essential amino acids index (EAAI) were calculated and were found to be a possible method of evaluating the broodstock diet of *M. rosenbergii* as a higher index indicates higher egg production. Therefore, a diet containing 40% protein, with an energy level of 400 kcal 100 g diet<sup>-1</sup> is recommended as a broodstock feed for *M. rosenbergii* in view of its superior performance and cost.

**Keyword:** *Macrobrachium rosenbergii*; Diet; Egg