

## **Betaine is a feed enhancer for juvenile grouper (*Epinephelus fuscoguttatus*) as determined behaviourally**

### **Abstract**

The present study aimed to determine if betaine can function as a feeding stimulant or feed enhancer for the juvenile grouper, *Epinephelus fuscoguttatus* through a behavioural experiment with video recording. Agar gel pellet was used as the medium to deliver the chemical test substances – betaine (BET), amino acids mixture (AAM) and mixtures of 1:1, 1:2, 1:3, 1:4, 1:5 BET + AAM to the fish. The pure agar gel (PAG) and feed extract pellets were used as the negative and positive control, respectively. From the recorded videos, two parameters were observed: (I) the pellet was consumed or rejected [ $A$ ] – if consumed, recorded 1; if rejected, recorded 0, and (II) frequency of the pellet has been captured before it was consumed or rejected and ignored [ $B$ ], and the preference index was calculated through  $[A]/[B]$ . The PAG pellet was totally rejected by the fish (index's value = 0). The index's values of BET and AAM were  $0.17 \pm 0.39$  and  $0.19 \pm 0.31$  (mean  $\pm$  SD), respectively. No significant difference was found among the index's values of PAG, BET and AAM pellets. However, the index's values of all BET + AAM pellets (1:1–1:5) were very high (0.60–0.90), and were significantly higher than those of the PAG, BET and AAM pellets. No significant difference was found among the index's value of 1:1, 1:2, 1:3 and 1:4 BET + AAM treatments. These results concluded that betaine is a feed enhancer for the *E. fuscoguttatus* and little amount of betaine supplementation is sufficient to enhance the flavour of amino acids mixture.