

**Determination of Valine requirements by using plasma free amino acid concentrations in rainbow trout( *Oncorhynchus mykiss* ) with dorsal aorta cannulation**

Sungchul C. Bai, Gunjun Park, Im ho Ok and Youngchul Kim

Department of Aquaculture Pukyong National University  
Busan 608-737, Rep. of Korea

Dorsal aorta cannulated rainbow trout averaging  $505 \pm 6.5$ g (Mean  $\pm$  SD) were divided into 7 groups (5 fish per group). Twenty four hour post feeding, cannulated fish were intubated with one of seven L-amino acid diets containing graded levels of Valine (Val. : 0.45, 0.95, 1.20, 1.45, 1.70, 1.95 or 2.45%) at 1% of body weight. Blood samples were taken at 0, 5 and 24hr after feeding the experimental diets. Post-prandial (5h after feeding) plasma-free Valine concentrations (PPval.) increased linearly from fish fed diets containing Valine between 0.45 and 1.45%, but the concentration remained constant from fish fed diets containing valine between 1.45 and 2.45%. Post-absorptive (24h after feeding) plasma free valine concentrations (PAval) increased linearly from fish fed diets containing valine between 0.45 and 1.45%, but the concentration remained constant from fish fed diets containing valine between 1.45 and 1.95%. Using the broken-line model analysis, the dietary valine requirement by PPval and PAval could be 1.44 and 1.50% in rainbow trout, respectively.

These results supported that the estimated dietary valine requirement by PP(val.) and PA(val.) could be in close agreement with the values obtained from the previous conventional feeding method. Thus, the use of PFAA concentrations for determining essential amino acid requirements could be possible in rainbow trout with dorsal aorta cannulation.

\*Corresponding author : scbai@pknu.ac.kr