GROWTH OF SILVER PERCH *Bidyanus bidyanus* ON DIETS WITH DIFFERENT LEVELS AND SOURCES OF PROTEIN

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Silver Perch (*Bidyanus bidyanus*) is an omniverous, Australian native, freshwater fish which is easy to breed and has rapid growth rates in captivity (Rowland and Barlow 1991). Anderson and Arthington (in press) found *B. bidyanus* were capable of chain elongation and desaturation of linolenic acid indicating that this species may have a smaller requirement for the 20:5 (n-3) and 22:6 (n-3) long chain higher unsaturated fatty acids (such as are found in fish meal and oil) than are required by marine carnivorous species such as snapper *Pagrus auratus* (NRC 1983). There is no published information on protein requirements for *B. bidyanus*. During this preliminary study, four formulated diets were compared. Diets 1, 2 and 3 were based on equal portions of fish meal and soybean meal with protein (Nx6.25) levels of 20.7, 35.7 or 49.0% and Diet 4 was based on soybean and canola meal with 35.7% protein. Total lipid and digestible energy levels (based on values for catfish *Ictalurus punctatus* [NRC 1983]) were similar for all diets (5.4-6.5% and 11.6-12.3 MJ/kg respectively) while total fibre levels were similar for Diets 1-3 (2.7-3.0%) but higher for Diet 4 (6.8%). 100 juvenile fish (mean weight 1.3 g, range 0.5-2.2 g) were stocked into 16 tanks (1000 l each) and fed twice daily to satiation for 45 days. Temperatures were low (range 18.3-22.8°C) for this stage of the life cycle and may have depressed growth.

Average individual weight gains (mean±SE; n=4 replicate tanks) for Diets 1, 2, 3 and 4 were 1.4±0.1, 1.9±0.1, 1.5±0.1 and 1.0±0.1 g $fish^{-1}$ in that order. Weight gain on Diet 2 was significantly greater than on Diets 1 or 4 ($P<0.05$) but similar to Diet 3 ($P>0.05$). Weight gains on Diets 1 and 3 were similar ($P>0.05$). Food conversion ratio (FCR) for Diets 1, 2, 3 and 4 were 3.0±0.2, 1.7±0.1, 2.4±0.3 and 3.6±0.3 in that order. FCR for Diet 2 was lower than on Diet 4 ($P<0.05$) but FCR's for Diets 1, 2 and 3 were similar ($P>0.05$). Results indicate that optimum protein levels for juvenile *B. bidyanus* will exceed 20% and are likely to be closer to those required by omniverous species such as *I. punctatus* (32-36%) than carnivorous species such as *P. auratus* (55%) (NRC 1983). For *B. bidyanus* diets with the same protein levels, replacement of all the fish meal and oil resulted in slower growth and, possibly because of higher fibre levels, poorer FCRs.

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