

Growth performance and colour enhancement of guppy, *Poecilia reticulata* when fed with locally formulated pigment included diets

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Abstract

The nutritional balance and the colour enhancing quality should be taken into consideration when a diet is formulated for aquarium fish. Two diets prepared for guppy fry using fish meal and Soya bean meal as the major sources of protein were evaluated on the basis of cost of production, percentage survival, growth performance and the feed conversion ratio (FCR). Soymeal diet which had a low cost of production resulted in a significantly higher survival rate ($p < 0.05$) in guppy fry than when fed with fish meal diet. There were no significant differences in the increase in body weight and FCR between two groups of fry fed with two diets ($p > 0.05$). Therefore, soymeal diet was selected for the colour enhancing experiment. Dried, powdered carrot tubers and petals of *Cassia* sp. inflorescence were incorporated separately to the soymeal diet as the pigment sources and male guppies were fed with these two feeds separately for a period of six weeks. The colour intensity of guppies fed with the diet containing dried carrot powder was significantly higher ($p < 0.01$) than that of guppies fed with the diet formulated with *Cassia* petals and the control fish which were fed with soymeal diet without any pigment source.

Introduction

Nutrition plays an important role in aquaculture especially in artificial environments where natural food supply is limited (Shim 1989). However, continuous supply of natural food under culture conditions is difficult, as the mass culture of live food organisms requires considerable amount of manpower, costly equipment and also the maintenance of optimum environmental conditions. Therefore, there had been much interest in producing formulated feed for cultured fish. Satisfactory dietary requirements for aquarium fish are different and more demanding than those for food fish (Boonyaratpalin & Lovell 1977). Satisfactory diet for aquarium fish should not only fulfill the nutritional requirements but also should enhance the colour on which the commercial value of the ornamental fish mostly depends on (Lovell 1992). Even though the colour patterns are genetically controlled, it can be enhanced by inclusion of pigments in the diet (Lovell 1992). Carotinoids are the primary source of pigmentation