

Physical properties of extruded aquafeed with a combination of sago and tapioca starches at different moisture contents

ABSTRACT

This study was conducted to determine the effects of sago and tapioca starch ratio and moisture level of feed mixture on the physical properties of a Malaysian mahseer (*Tor tambroides*) extruded diet. Fifteen iso-nitrogenous diets containing varying ratios of sago and tapioca starch (20:0, 15:5, 10:10, 5:15 and 0:20) and varying moisture contents (200, 300, and 400 g/kg) were formulated. The feed mixtures were extruded using a single-screw extruder. The barrel temperature profile was set at 80-100-120 °C while the die temperature was set at 160 °C. The physical properties of extruded diets (bulk density, expansion rate, floatability, water stability, pellet durability index, sinking velocity and scanning electron microscopy) were investigated. The results showed that increasing moisture level of diet from 200 g/kg to 400 g/kg increased ($P < 0.05$) the value of all physical properties examined. The best moisture level to produce best floating extrudates using sago or tapioca or their combination was 400 g/kg. Sago starch and combinations of the sago and tapioca starch performed as good as tapioca starch alone.

Keyword: Aquafeed; Extrusion; Sago; Starch; Tapioca