

ABSTRACT

This study aimed to analyze the effect of adding *Dunaliella* sp. powder to feed on color brightness, growth, and survival of comet goldfish (*Carassius auratus*), as well as to determine the optimal dose for improving color brightness in comet goldfish. The research was conducted from November to December 2025 at the Hatchery and Aquaculture Technology Laboratory, Aquaculture Study Program, Faculty of Agriculture, Universitas Malikussaleh. The study employed an experimental method using a Completely Randomized Design (CRD) consisting of four treatments and three replications. The treatments consisted of treatment A as the control, without *Dunaliella* sp. powder; treatment B with 1%; treatment C with 2%; and treatment D with 3% *Dunaliella* sp. powder added to the feed. The fish were reared for 30 days and fed at a rate of 5% of their body weight. The observed parameters included color brightness assessed using M-TCF color cards and Adobe Photoshop; weight gain and absolute length gain; survival rate; β -carotene content of the feed; and water quality. The data were analyzed using analysis of variance (ANOVA), followed by Tukey's test. The results showed that the addition of *Dunaliella* sp. powder significantly affected color brightness, absolute weight gain, and absolute length gain, but did not significantly affect the survival rate of comet fish. The highest color brightness was obtained in treatment B, with scores of 24,5 based on M-TCF color card and 183,96 based on Adobe Photoshop. The highest absolute weight and length gain were also obtained in treatment B, with values of 0,46 g and 0,57 cm, respectively. The highest survival rate of 76,67% and β -carotene content of 287,74 mg/kg were also found in treatment B. Water quality during the research ranged from 24,1–26,9°C for Hatchery temperature, 7,9–8,40 for pH, and 5–6,3 ppm for dissolved oxygen (DO). Based on the results, the addition of 1% *Dunaliella* sp. powder was the best treatment.

Keywords: comet goldfish, *Dunaliella* sp., β -carotene, color brightness.