

**Exploring the potential of endophytic bacteria isolated from Sargassum sp.:
Enhancing growth and non-specific immune response of cobia *Rachycentron
canadum* (Linnaeus, 1766)**

ABSTRACT

This study aimed to investigate the effects of adding endophytic bacterial isolates and *Sargassum* sp. algae extract to enhance the growth performance and non-specific immune response of cobia (*Rachycentron canadum*) fry. The research employed a Completely Randomized Design (CRD) experimental method with three treatments and five replications. The treatments consisted of: (A) commercial feed without any additives, (B) commercial feed supplemented with 15 mL of *Sargassum* sp. extract, and (C) commercial feed supplemented with 15 mL of endophytic bacterial isolates from *Sargassum* sp. at a concentration of 10^8 CFU mL⁻¹. The fish fry were reared for 30 days, followed by a 14-day challenge test with *Vibrio alginolyticus* bacteria at a density of 10^7 CFU mL⁻¹, using the intraperitoneal (IP) injection method. Parameters observed included absolute weight gain, absolute length gain, specific growth rate (SGR), feed conversion ratio (FCR), feed efficiency (FE), total erythrocyte count, total leukocyte count, leukocyte differential, clinical symptoms, survival rate, and water quality. Data on absolute weight gain, absolute length gain, SGR, FCR, FE, total erythrocyte count, total leukocyte count, and survival rate were analyzed using ANOVA with a 95% confidence level, followed by Duncan's post hoc test for significant differences. Leukocyte differentials, clinical symptoms, and water quality data were analyzed descriptively. The main findings revealed that the addition of endophytic bacterial isolates and *Sargassum* sp. algae extract could enhance the growth and non-specific immune response of cobia fry. Treatment C proved to be the most effective, as evidenced by the increased values of absolute weight gain (35.72 g), absolute length gain (11 cm), SGR (3.17%), FCR (1.19%), FE (84.13%), total erythrocyte count (2.89×10^6 mm⁻³), total leukocyte count (38.56×10^3 mm³), and leukocyte differential percentages (lymphocytes 82.2%, monocytes 4.4%, neutrophils 8.8%), as well as the fastest recovery time (7 days) after the challenge test, with the highest survival rate of 90.7%.