Immunity, feed, and husbandry in fish health management of cultured Epinephelus fuscoguttatus with reference to Epinephelus coioides

ABSTRACT

Groupers are dispersed worldwide in the tropical and subtropical waters. They are prized in the live reef fish trade, making them candidates with high market value and consumer demand. In the Asian-Pacific region, the brown-marbled grouper (Epinephelus fuscoguttatus) is widely adapted as an aquaculture species. However, health management remains a major concern in the stressful intensive culture process. The present review discusses techniques and current knowledge in the cultivation of E. fuscoguttatus towards healthy fish growth focusing on aspects of immunity, feed, and husbandry. Understanding how the fish immune system responds during infections provides insights into the intricate ways fish resist pathogens. This information is helpful when developing vaccination strategies or immunostimulant compounds to strengthen fish immunity. Feeds that are formulated according to the needs of the fish ensure optimal growth and using suitable alternative ingredients may lower production cost without compromising fish health. Good husbandry practices contribute to a favourable environment for the fish to grow, while interspecific hybridization may be a convenient approach to generate hardier species. Nevertheless, it has been noted that research in E. fuscoguttatus is relatively scarce in contrast to the closely-related orange-spotted grouper (E. coioides), which is used in the present article as a reference. Ultimately, the identified gaps in knowledge between the two species warrant species-specific research in E. fuscoguttatus to promote fish health and ensure continued success in aquaculture.

Keyword: Epinephelus fuscoguttatus; Epinephelus coioides; Health; Immunity; Feed; Husbandry