

Applications of microalga *Chlorella vulgaris* in aquaculture

ABSTRACT

Microalgae biomass is used in aquaculture as feed, growth enhancers and immunostimulants. *Chlorella vulgaris* is an important species with a good biomolecular composition. Commercially, it is one of the most commonly used microalga in aquaculture. Several studies confirmed its ability to improve nutrition, immunity, aquatic bioremediation, amelioration of stress, disease resistance of fish and inhibits bacterial quorum sensing when used appropriately. Despite claims of its benefits, *C. vulgaris* is reported to have unfavourable effects when incorporated in diets at higher inclusion levels. In addition, its rigid cell wall might restrict the access of digestive enzymes to the intracellular components for proper digestion and assimilation. Thus, this review discusses the role of *C. vulgaris* and its importance in aquaculture with emphasis on its environmental requirements, morphology, pigments, digestibility, dynamics on growth performance, antibacterial activity, bacterial quorum sensing, immunomodulatory effect, anti-stress effect, gut microbiome, aquatic bioremediation and its safety as food or feed.

Keyword: Aquaculture; *Chlorella vulgaris*; Digestibility; Immunity; Nutrition