
ABSTRACT

In the developing countries about 60% population obtains their 30% of protein from fish. As fish is important source of good quality protein for everyone, so it is providing 16% of the animal protein for the world's population consumption. In many developing countries aquaculture and fisheries play central role for earning and providing food. Aquaculture continues to be the fastest-growing field of animal-food production and in order to overcome population growth, the per capita supply of aquaculture rose from 0.7 kg in 1970 to 7.8 kg in 2008, with an annual average growth rate of 6.6%. In intensive culture as the production of fish is increasing, many adverse effect on the fish health also occurring due to overcrowding. Immunostimulants are substances that will improve the immune system and prevent organisms from infectious diseases. Immunostimulants activate the immune system and increase the level of immunity to fight off invading microorganisms. *Spirulina platensis*, a photosynthetic microalgae, belongs to genus cyanobacteria is one of the plant based immunostimulant that is added in fish diet in order to enhance immune system and growth performance. To evaluate the effect of *Spirulina platensis* on Grass carp (*Ctenopharyngodon idella*) 12 fish were distributed in fiber glass tanks of 400 L capacity for three months. Four diets were prepared using different concentrations of spirulina (0% control, 1%, 5% and 10%) and were fed to fish at the rate of 3% body weight to check its effect on immune response and growth. At the end of feeding trial kidney samples of fish was collected after dissection. Highest growth performance was seen in the group fed with 1% and 5% Spirulina diets. TNF- α was significantly higher in treatment 2 in which 1% spirulina was given, IL-8 was elevated in treatment 4 in which 10% spirulina was fed to fish. IFN- γ level was higher in treatment 2 in which 1% spirulina was given to fish. Keap was significantly higher in treatment 4 in which 10% spirulina given. These findings suggests that Spirulina has immunostimulatory effect on grass carp and could be used to improve the overall health status of grass carp (*Ctenopharyngodon Idella*).
