

Technology No. 22

CIFE Gro: A HERBAL CONGLOMERATE TO PROMOTE GROWTH, MITIGATE STRESS AND ENHANCE IMMUNITY IN FISH

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Technical details

1. Problem Description

Intensive aquaculture is always associated with stress of fish followed by decreased immunity and outbreak of diseases leading to reduced production. Feed is the most critical factor, which needs to be considered for sustainable intensive aquaculture. Increased use of plant-based feed with unconventional feed ingredients aggravates the situation due to imbalance of essential amino acids along with presence of anti-nutritional factors. Use of antibiotics and other chemicals as a growth promoter, antioxidant, immunostimulant and antimicrobial agents in intensified aquaculture system is discouraged due to the development of drug-resistant pathogenic bacteria and residual effect of chemicals that lead to human health hazards. Therefore, use of eco-friendly and quality feed with supplementation of feed additives like growth promoters, antioxidants, immuno-stimulants can only sustain the intensified aquaculture

2. Solution Description: Please explain (in simple terms) how this innovation addresses or solves the problem

A comparative study using ten herbal meal was conducted and turmeric, ginger and garlic meals were found to have better effect on digestive, metabolic, antioxidant enzymes activities and innate immunity in *Labeo rohita*. Turmeric, ginger and garlic meal in different combination were evaluated for their synergistic effect and found that 1% inclusion of turmeric, garlic and garlic mixture at specific ratio was found to be effective in enhancing growth (15-20%), gene expression, nutrient digestibility, digestive, metabolic & antioxidant enzymes activities, immunity and disease resistance against *Aeromonas hydrophila*. Similar trend was also found for farmed tilapia (*Oreochromis nilotica*).

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