

Biofloc System: A Sustainable Solution for Feed Shortage

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The world is facing a food shortage crisis due to climate change, pollution, and growing population. We need to find efficient, sustainable, cost-effective solutions to feed animals and fish.

Aquacultures provide us with healthy animal protein of high quality. Likewise, creating employment and economic growth. Biofloc Technology (BFT) is a water treatment technology used in aquaculture. In this system nutrients are reused with the lowest water exchange.

BFT is an approach to solve the problems of water pollution by lowering the density of the toxic components. In addition, it avoids contamination as heterotrophic bacteria inhibit the growth of pathogenic bacteria. It can reduce or eliminate the need for water exchange in the ponds, maximizing the use of water resources. It allows the increase in the population of cultured species without increasing the space.

The biofloc bacteria optimally use nutrients in the pond, diminishing the cost of feed. Therefore, the biofloc system can work as food when feed prices are high and feed is scarce [1].

Higher productivity was reported with BFT when compared to conventional aquaculture techniques. BFT reduced mortality rates, improved performance, and feed efficiency in the cultured species [2].

Studies have shown that bottom-dwelling species such as shrimp and tilapia are suitable for biofloc production [2].

The technique is based on maintaining a higher C-N ratio by the addition of carbohydrates. The improvement of water quality is due to the production of good quality single-cell microbial protein [3].

Biofloc is composed of 60 to 70% organic matter such as fungus, algae, protozoa, and rotifers. In addition, 30 to 40% inorganic matter as colloids, organic polymers, and dead cells [4].

BFT has great potential. For example, it is an eco-friendly culture system that maximizes the use of land and water, diminishes the danger of introduction and spread of pathogens, reduces the use of protein supplement feed, and the cost of regular feed.

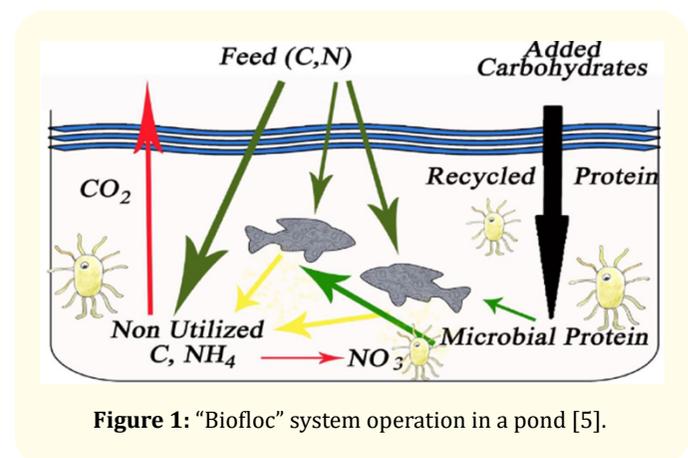


Figure 1: "Biofloc" system operation in a pond [5].

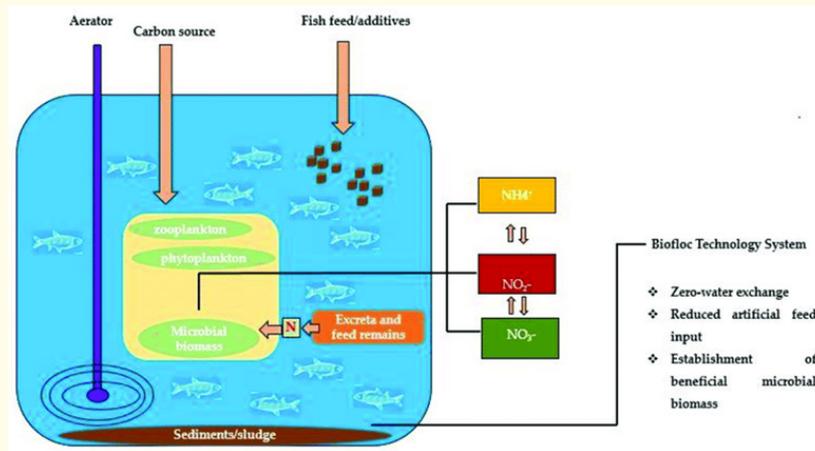


Figure 1: Schematic diagram of a biofloc technology system [6].

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