CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME I

Editors:

Suleyman Aremu Muyibi
Mohammed Saedi Jami
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Department of Biotechnology Engineering
Faculty of Engineering
International Islamic University Malaysia

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EVALUATION OF THE PERFORMANCE OF WATER TREATMENT SYSTEM FOR *KELAH* BREEDING IN FISH PONDS

Suleyman Aremu Muyibi, Siti Sara Binti Ghazali, Mohamed Ismail Abd Karim

Department of Biotechnology Engineering, Faculty of Engineering, International Islamic University Malaysia, Gombak, 50728 Kuala Lumpur, Malaysia

ABSTRACT

Kelah fish are facing extinction because of enhanced harvesting due to increasing demand and pollution by development activities. The breeding of these fish in pond is an effort to conserve the species. As they can only be found in clear, unpolluted water, water quality is the main constraint in breeding this fish. A study was conducted to observe the water quality of three fish ponds (green, yellow and red) in *Kelah* sanctuary, Hulu Langat, Selangor. Tests on alkalinity, hardness, Dissolved Oxygen, pH, ammonia, nitrate, nitrite, Carbon Dioxide, and turbidity of the fishpond water were conducted. Results of water quality obtained in the fish ponds do not meet the requirement for *Kelah* breeding. Pond management (oxygen management, water management and feeding management) and post treatment system (sedimentation and filtration) is proposed to improve the water quality.

Keywords: *kelah*, dissolved oxygen, turbidity, alkalinity, pond management

INTRODUCTION

Kelah or Malaysian Mahseer *Tor tambroides* is well renowned as a splendid tropical freshwater fish in Southeast Asian countries. The genus *Tor* belongs to the family *Cyprinidae* (subfamily *Cyprininae*) (www.mymalaysia.com, 2005). As an omnivore, they consume both animal and vegetable matter (www.mymalaysia.com, 2005). Their vegetable diet consists of fruits, such as "buah ara" that fall into the river. It can only be found in clear, unpolluted water. However, there distributions are now limited to the upper streams and protected areas of Peninsular Malaysia and Borneo. According to the data obtained from the KUSTEM (Azmi Ambak, 2006), water quality standards required for breeding of *Kelah* fish are parameters such as ammonia which should be less than 0.05 mg/L, dissolved oxygen level must be more than 5 mg/L, nitrate level should be less than 5 mg/L, pH of the water should range about 7-8, temperature about 25 ^{0}C, and turbidity less than 5 NTU. Fish perform all their bodily functions in water. Because fish are totally dependent upon water to breathe, feed and grow, excrete wastes, maintain a salt balance, and reproduce, understanding the physical and chemical qualities of water is critical to successful aquaculture. Water quality determines not only how well fish will grow in an aquaculture operation, but whether or not they survive