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## **SOURCES OF MICROBIOLOGICAL HAZARDS IN FRESH WATER AQUACULTURE FISH SYSTEM IN MALAYSIA**

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### **Abstract**

The objectives of this study were to verify quantitatively the existing of microbiological hazards in fresh water aquaculture fish and compared qualitatively the level of risk at three different aquaculture system. About 240 fresh water aquaculture fish (90 red *tilapia*, 60 *keli* and 90 *patin*) were stratified randomly collected from their farms (earth ponds, floating net cages and ex mining pools). Another 240 fresh water aquaculture fish with same proportion were collected stratified randomly from the fish markets (wet markets, local morning markets called 'pasar tani' and night markets). The same number of samples with same proportion of ready-to-eat fresh water aquaculture fish from food premises (restaurants, food stalls and night market food stalls) were also collected. Three parameters of indicator microorganisms were analysed as well as seven pathogenic organisms. The results showed that there are intermediate microbiological risk in farms and markets fish samples and low microbiological risk in ready to eat fish samples. The mean value of TPC and Coliform in ready to eat fish samples are lowest and significantly different ( $P < 0.05$ ) compared in market fish and farm fish samples. Pathogenic organisms were not detected at all stages of the assessment.

**Key words:** Fresh Water Aquaculture Fish, Microbiological Risk Assessment, Fish Farm and Food Premises

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