

FINAL REPORT OF RESEARCH PROJECT B-0103-12 ER/U019

**QUALITATIVE AND QUANTITATIVE ANALYSIS OF RED TILAPIA YIELD
UNDER A VARIETY OF CONTROLLED CONDITIONS AND
EXPERIMENTAL VERIFICATIONS OF COST EFFECTIVE CULTURE
STRATEGIES**

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KOTA KINABALU, SABAH, MALAYSIA

2004



UMS
UNIVERSITI MALAYSIA SABAH

SENSORY ANALYSIS OF FILLETS OF BRACKISH- AND FRESHWATER-CULTURED RED TILAPIA (*Oreochromis* sp.)

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Abstract

An assessment of the acceptability of brackish- and freshwater-cultured red tilapia (*Oreochromis* sp.) by a consumer panel consisting of 50 people was conducted at the Borneo Marine Research Institute, Universiti Malaysia Sabah. Red tilapia fries were raised in 1000 L fiberglass tanks, one batch in a salinity of 20 ppt and the other in 0 ppt (freshwater) for a period of 4 months. The fillets from the two batches of tilapia were analyzed for 5 attributes (appearance, aroma, texture, flavor, and aftertaste) by sensory evaluation test using a hedonic scale of 10. All attributes were not significantly different ($P>0.05$) among the tested samples. However, the freshwater red tilapia fillets obtained higher acceptance scores for three attributes; aroma, flavor, and aftertaste. Appearance, aroma, texture, flavor, aftertaste and overall acceptance scores were 4.86 ± 2.66 , 3.65 ± 2.75 , 5.30 ± 2.15 , 5.22 ± 2.65 , 5.03 ± 2.67 and 5.46 ± 2.45 respectively, for brackish tilapia fillets and 4.75 ± 2.43 , 4.31 ± 2.39 , 5.27 ± 2.22 , 5.73 ± 2.64 , 5.47 ± 2.75 and 5.80 ± 2.61 respectively, for freshwater tilapia fillets.

Keywords: Sensory analysis; Red Tilapia; Salinity

1. Introduction

Tilapia is a choice of species for aquaculture because of its remarkable adaptability to culture conditions, acceptance for a wide variety of food items and market demand. This fish can tolerate wide variations in environmental conditions and can withstand the temperature, salinity, dissolved oxygen deficiency, and ammonia accumulation in the ranges that are beyond the threshold of many commonly cultured fish species.

Different types of culture systems have been practiced in many parts of the world. Due to its salinity tolerance, red tilapia has been successfully cultured in saline water with good growth performance and high marketability (Head *et al.* 1994; Ernst *et al.* 1991). In Malaysia, the culture of tilapia is normally conducted using the freshwater culture system. In general, market demand for red tilapia in Malaysia is considerably high. However, a great number of fish consumers complain of the strong 'fishy smell' and muddy flavor for earthen pond cultured tilapia. This raises the speculation that fish grown

