

## **Thermal and physicochemical properties of red tilapia (*Oreochromis niloticus*) surimi gel as affected by microbial transglutaminase**

### **ABSTRACT**

Thermal and physicochemical properties of red tilapia (*Oreochromis niloticus*) surimi gel incorporated with different levels of microbial transglutaminase (MTGase) were investigated. Surimi samples mixed with various concentrations of MTGase were subjected to two-stages heating (at 45 C followed by 90 C) to prepare surimi gel. Samples formulated with 0.30 MTGase (units/g surimi) showed the highest breaking force and deformation, and lowest expressible water content among treatments. Highest storage modulus was found in the gels mixed with 0.30 MTGase (units/g surimi). Compared with control surimi gel, addition of microbial transglutaminase to levels 0.10, 0.20 and 0.30 (units/g surimi) increased the enthalpy and maximum transition temperature of myosin. Results suggest that up to 0.30 MTGase (units/g surimi) could improve texture, colour, water-holding capacity, elasticity and thermal stability of red tilapia surimi gel.

**Keyword:** Differential scanning calorimetry; Expressible water; Storage modulus; Textural properties, Whiteness