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4 **Ca²⁺ Affects Physicochemical and Conformational Changes of**
5 **Threadfin Bream Myosin and Actin in a Setting Model**

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10 **Running head: Effect of Ca²⁺ on conformation of myosin**

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Abstracts

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The effect of Ca^{2+} on physicochemical and conformational changes of threadfin bream (TB) myosin and actin during setting at 25 and 40 °C was investigated. Ca^{2+} ion at 10-100 mM induced the unfolding of myosin and actin as evident by an increase of surface hydrophobicity (S_0 , ANS) at 40 °C. Total SH groups also decreased with an increased Ca^{2+} concentration, suggesting that Ca^{2+} promoted the formation of disulfide bonds during setting at 40 °C. Both hydrophobic interactions and disulfide linkages were involved in formation of myosin aggregates at 40 °C, and were enhanced by addition of 10-100 mM Ca^{2+} . Myosin Ca-ATPase activity decreased at $\text{Ca}^{2+} > 50$ mM, indicating conformational changes of myosin head. Circular dichroism spectra demonstrated that Ca^{2+} reduced the α -helical content of myosin and actin incubated at either 25 or 40 °C. Ca^{2+} induced conformational changes of TB myosin and actin incubated at 40 °C to a greater extent than at 25 °C.

Key words: Threadfin bream, myosin, actin, calcium, setting