

Total, Free and Conjugated Sterolic Forms in Three Microalgae Used in Mariculture

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Total, free and conjugated forms (steryl esters, steryl glycosides and acyl steryl glycosides) of sterols from three microalgae that are extensively used in mariculture (*Tetraselmis chuii*, *Nannochloropsis salina* and *Skeletonema costatum*) were examined. The results revealed that cholesterol is the only common fraction detected in all investigated species and distributed in free and all conjugated forms. However, the total sterol content of *T. chuii* was about 325 $\mu\text{g/g}$ dry wt, most of it was concentrated amongst 24-methylcholesta-5,24-diene-3 β -ol and 24-methylcholest-5-en-3 β -ol. On the other hand, the majority of the fractions were distributed in the free form. The total sterol content of *N. salina* was about 180 $\mu\text{g/g}$ dry wt, cholesterol was the major fraction that was detected. Nevertheless, the dominant distribution forms were esterified. While in *S. costatum*, the total sterol content was 76 $\mu\text{g/g}$ dry wt, approximately most fractions are quantitatively alike and dominated in the free form. Furthermore, our study shows clearly that most sterols are not distributed regularly within each form, a result that encouraged us to suggest a distribution of specific sterol fraction as a free or conjugated can be used as a serving tool in chemotaxonomic studies.

Key words: Mariculture, Microalgae, Sterols