

Proximate and fatty acid composition of the gonads of wild versus hatchery-conditioned *Pinctada margaritifera* broodstock

ABSTRACT

The composition of protein, carbohydrate, lipid and fatty acids of the gonad of wild female broodstock of black-lip pearl oyster, *Pinctada margaritifera*, was compared with oysters fed on a ternary combination of microalgae in hatchery. Artificial feeding was found to be as good as natural feeding in terms of number and size of released eggs. Lipid, protein and carbohydrate reserves of unfed oysters were found to be insufficient to complete oogenesis. The proportions of saturated fatty acids (SFA), monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) of the neutral and polar lipids extracted from female gonads were not influenced by variations in the fatty acid composition of the natural food and ternary combination of microalgae in hatchery. T-Iso, *Chaetoceros calcitrans* and *Chaetoceros muelleri* were able to provide sufficient 22:6n-3 (DHA) and 20:5n-3 (EPA), two of the most important essential fatty acids required for gametogenesis. The n-3/n-6 and 22:5n-3/20:4n-3 ratios were consistently higher in the neutral lipids than in the polar lipids. Conversely, the ratio of 20:4n-3/20:5n-3, 22:6n-3/20:5n-3 and PUFA/SFA was higher in the polar lipids.

Keyword: biochemical composition, egg, fatty acid, lipid, microalgae, *Pinctada margaritifera*