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THE NUTRITIONAL VALUE OF DIATOMS FROM GIAO THUY MANGROVE WATER OF THE RED RIVER DELTA BIOSPHERE RESERVE

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Abstract. Diatoms are predominant in marine water and considered to be the most important primary producers in sustaining marine food chains. Three diatom strains were successfully isolated from Giao Thuy mangrove water of the Red River Delta Biosphere Reserve. The morphology and the 18S rDNA sequence analysis revealed their identification as Navicula radiososa, Navicula tuscula and Melosira nummuloides. Among three media f/2, ASW and ESM, the best medium for the growth of N. radiososa and M. nummuloides is ASW whereas for N. tuscula is ESM. Fatty acid profiles indicated taxonomic similarity between three strains and other diatoms with high concentration of 16:0, 16:1n-7 and 14:0 (approximately 60 - 80% of total fatty acids). M. nummuloides contained higher content of unsaturated fatty acids (45.23%) than the other two diatoms. This strain also had remarkably high levels of polyunsaturated fatty acids, PUFAs (13.61%) and the highest proportion of eicosapentaenoic acid (EPA), 9.21%. These fatty acids play an essential role in cell membrane physiology and hormone metabolism. The result suggests that nutrition value as food of M. nummuloides is higher than that of the other Navicula strains.

Keywords: Diatom, mangrove microalgae, fatty acid

1. Introduction

Algae are important constituents of various ecosystems ranging from marine to freshwater environments, from hot water springs to snow and ice. They account for more than half the primary production at the base of the food chain [2]. In mariculture, microalgae have an important role as food for all stages of bivalves, for larval stages of crustaceans and fish, and as food for zooplankton which are fed to late larval and juvenile fish and crustaceans [2, 11, 12]. This is based on