

Nutritional evaluation of aquaculture mussels (*M. galloprovincialis*) from the Black Sea, Bulgaria

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Abstract. In recent years black mussels are one of the most commercially important species from the Bulgarian Black Sea. The marine mollusks are valuable healthy food, low in calories and fats and high in proteins. They are a major dietary source of fat soluble pigments - astaxanthin, carotenoids and polyunsaturated fatty acids (PUFA). To our knowledge the information about the nutritional quality of mussels from the Bulgarian Black Sea waters, based on chemical composition, fat soluble pigments, cholesterol and PUFA content is very limited. The aim of the present study is to determine and compare protein, lipid, carbohydrate and energy values, fat soluble pigments, cholesterol and fatty acid composition in farmed mussels (*Mytilus galloprovincialis*) from the Bulgarian northern and southern parts of the Black Sea coast. The mussel samples were analyzed for lipids (Bligh & Dyer method), crude proteins (Kjeldahl method), carbohydrates and moistures according to the AOAC (1990) methods. Fatty acids were analyzed by the GC-MS system. Fat soluble pigments and cholesterol were analyzed simultaneously by the RP-HPLC system. Lipid and protein content were found to be higher in mussels from the northern region. In accordance with the Commission Regulation (EC) No. 116/2010 all analyzed mussel samples can be classified as high in protein and low in fats and carbohydrates. The amount of cholesterol, contained in all mussel populations is significantly low, while the omega-3 (n-3) is significantly higher than the omega-6 PUFA. A portion of 100 g edible tissue provides 0.500 g more of the required amount of eicosapentaenoic acid (20:5) and docosahexaenoic acid (22:6) n-3 PUFA according to EFSA (2012). It can be concluded that the studied mussel aquaculture in the Black Sea is beneficial food for the human health and it is advisable to be part of a proper or a preventive diet of Bulgarian consumers.

Keywords: black mussels, astaxanthin, n-3 PUFA, energy value.

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