Fatty acids composition of macroalgae from Bulgarian Black Sea coast

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Abstract Lipids and fatty acids (FA) composition of three Black Sea macroalgae Cladophora vagabunda, Ceramium rubrum and Cystoseira barbata were studied. Fatty acids composition was analyzed by GC/MS. Total lipids content varied widely among the species and ranged between 0.66 and 0.98 g per 100 g fresh weight. Generally, saturated fatty acids were major components (62–71%), with 16:0 as the most abundant saturate (41–57%). Total polyunsaturated FAs and monounsaturated FAs ranged from 28% to 38%. The green alga Cladophora vagabunda showed higher C18 PUFAs contents than did C20 PUFAs while for red alga Ceramium rubrum the trend was opposite. Cystoseira barbata belonging to the group of brown algae showed similar amounts of C18 and C20 PUFAs contents. Cladophora vagabunda was rich in linoleic acid and Ceramium rubrum in arachidonic acid (AA) while Cystoseira barbata was rich in both linoleic acid and eicosapentaenoic acid. All of the studied species had a nutritionally beneficial n6/n3 ratio (1.24–2.84:1).

Keywords: Black Sea algae, fatty acids, GC/MS