INHIBITION OF LIPID OXIDATION IN ANCHOVY OIL BY GRAPEFRUIT ALBEDO EXTRACT

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INHIBICIJA OKSIDACIJE LIPIDA U ULJU INĆUNA POMOĆU ALBEDO EKSTRAKTA IZ GREJPFRUTA

Apstrakt

Ispitan je efekat albedo ekstrakata iz kore grejpfruta na oksidaciju lipida ribe. Ekstrahovano ulje inćuna (*Engrailus engrasicolus*) i albedo ekstrakt iz grejpfruta(*Citrus paradisi*) korišćeni su kao materijal u toku istraživanja.Ekstrakt albedo fragmenata grejpfruta su dodati lipidima ribe u koncentracijama od 0,5, 1,0 i 2,0 mg/g. Lipidi ribe bez dodatog ekstrakta korišćeni su kao kontrolna grupa. Uzorci su čuvani na 25°C i analizirani su u nedeljnim intervalima. Vrednosti za sadržaj fenolna i antioksidativnu aktivnost koje su ustanovljene u albedo fragmentima grejpfruta iznosile su 6,61 ± 0.01g GAE / 100 g i 0.170 ± 0.014 µM troloksa, respektivno. Tretmani sa albedo ekstraktima iz kore grejpfruta dali su uspešne rezultate u suzbijanju oksidacije lipida ribe. Tokom skladištenja, TBA, para-anizidin i peroksidne vrednosti u uzorcima ekstrakta bile su niže od istih vrednosti u kontrolnim uzorcima. Najveće vrednosti UV spektara su uočene u kontrolnim uzorcima na kraju perioda skladištenja. U sprečavanju oksidacije lipida najveća koncentracija ekstrakta (2,0 mg/g) u tretmanu bilaje efikasnija od ostalih koncentracija.Kao zaključak, albedo ekstrakt iz grejpfruta može da se koristi kao prirodni antioksidans, a sporedni proizvodi koji se dobijaju iz kore mogu da imaju ekonomski značaj bez ugrožavanja životne sredine.

Ključne reči: oksidacija lipida, albedo grejpfrut, inćunovo ulje

Abstract

The effect of grapefruit peel albedo extracts on the oxidation of fish lipids was investigated. Extracted anchovy *(Engrailus engrasicolus)* oil and grapefruit *(Citrus paradisi)* albedo extract was used as research material.

The extract of albedo fragments of grapefruit were added into the fish lipid in the concentrations of 0.5, 1.0 and 2.0 mg/g. The fish lipid without extract was regarded as control group. The samples were stored at 25°C and analyses were performed on weekly intervals. The phenolic content and antioxidant activity determined in albedo fragments of grapefruit were 6.61±0.01g GAE/100 g and 0.170±0.014 µM trolox, respectively. Grapefruit peel albedo extract treatments has successful results in suppression of fish lipid oxidation. TBA, para-anisidine, and peroxide values of extract samples were lower than control samples during the storage. The highest UV spectrum values were observed in control samples at the end of the storage period. The highest extract concentration (2.0 mg/g) treatment was more effective than the other concentrations in hinderinglipid oxidation. In conclusion, the extract of grapefruit albedo extracts can be used as a natural antioxidant and the by-products of the peels can be evaluated economically without giving harm to the environment.

Keywords: lipid oxidation, grapefruit albedo, anchovy oil