Antioxidative Effect of Seaweed Extracts in Chilled Storage of Minced Atlantic Mackerel (Scomber scombrus): Effect on Lipid and Protein Oxidation - DTU Orbit (08/11/2017)

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In this study, antioxidant activity of absolute ethanol, 50 % ethanol and water extracts of two species of seaweeds namely, Fucus serratus and Polysiphonia fucoides were evaluated for their ability to retard lipid and protein oxidation in minced mackerel. Mackerel mince added with 0.5 g/kg of extracts was prepared. For comparison, BHT at 0.2 g/kg and a control with no added extracts were also prepared. The samples were stored at 5 °C for 8 days, and sampling was done at time 0, 1, 2, 4, 5 and 8 days. The 50 % ethanolic extracts of P. fucoides were found to be very effective in retarding lipid and protein oxidation, as it resulted in low levels of peroxide value, volatiles and carbonyl compounds and protected against the loss of α-tocopherol and tryptophan residues. In spite of the higher phenolic content, the absolute ethanol extracts of both species showed a pro-oxidative tendency in minced mackerel. Water extract with lowest phenolic content showed no antioxidant effect in minced mackerel. In conclusion, the 50 % ethanolic extracts of P. fucoides can be a potential source of natural antioxidants, as these extracts have antioxidant activities similar to synthetic antioxidants such as BHT. However, the extent of protection offered by these extracts against protein oxidation was not clear and further studies are needed to understand the nature of the interaction between proteins and these extracts.

General information

State: Published
Organisations: National Food Institute, Research Group for Bioactives – Analysis and Application, University of Guilan
Authors: Babakhani, A. (Ekstern), Farvin, K. H. S. (Ekstern), Jacobsen, C. (Intern)
Number of pages: 13
Pages: 352-364
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information

Journal: Food and Bioprocess Technology
Volume: 9
Issue number: 2
ISSN (Print): 1935-5130
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.387 SNIP 1.402 CiteScore 3.03
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.319 SNIP 1.356 CiteScore 2.74
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.43 SNIP 1.76 CiteScore 3.24
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.211 SNIP 1.673 CiteScore 2.97
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 1.372 SNIP 2.343 CiteScore 3.42
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 1.119 SNIP 2.006 CiteScore 2.87
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Scopus rating (2010): SJR 0.88 SNIP 1.291
Web of Science (2010): Indexed yes
Scopus rating (2009): SJR 0.656 SNIP 1.147
Original language: English
Food Science, Process Chemistry and Technology, Safety, Risk, Reliability and Quality, Industrial and Manufacturing Engineering, Antioxidant, Fucus serratus, Minced fish, Polysiphonia fucoides, Total phenolic content, Agents, Amino acids , Antioxidants, Carbonyl compounds, Ethanol, Food storage, Oxidation, Proteins, Seaweed, Anti-oxidant activities, Antioxidative effects, Minced fishes, Natural antioxidants, Synthetic antioxidants, Extraction

DOIs:
10.1007/s11947-015-1630-9
Source: FindIt
Source-ID: 2287630785
Publication: Research - peer-review › Journal article – Annual report year: 2015