



Development of seafood ready meals enriched with omega-3 fatty acids and seaweed extract



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Background & methods

- The overall aim of the study was to increase the nutritional value of convenience ready meals with omega-3 oil
- Long chain PUFAs found in omega-3 oil are highly susceptible to lipid oxidation and even more so under conditions of high heat
- Previous studies have shown that brown seaweed (*Fucus vesiculosus*) extracts were effective antioxidants in food models
- *F. vesiculosus* extract (5 g per kg fish stew) was added to omega-3 enriched ready-to-eat fish stew (25 g omega-3 oil per kg fish stew) and subjected to mild or extreme heat treatment during processing
- Samples were measured before and after oven heating
- Fatty acid stability determined by chemical (peroxide value and TBARS) measurements and sensory evaluation
- Samples measured after 4, 10, 17 and 23 days of storage at 0-4° C





Results & conclusion

- Highest oxidation levels in groups that went through severe heat treatment
- Rancidity of all groups under sensory threshold for the duration of the trial
- Groups containing seaweed extract had significantly lower rises in TBA value than those without extract
- The results of this study indicate that *F. vesiculosus* extract is effective in constraining lipid oxidation during high heat treatment of ready meals

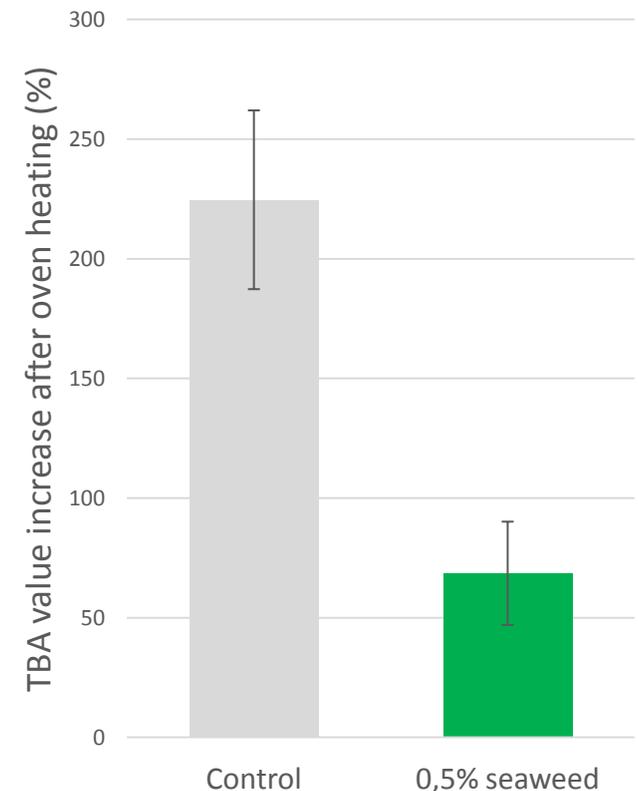


Figure 1: Significant ($p < 0,05$) percentage differences in TBA value between cold and oven heated groups. Error bars illustrate standard error of mean ($n=8$).





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