

Assessment of traditional mayonnaise enriched with *Aurantiochytrium* sp. extract

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Mayonnaise, a food product widely consumed since the 1900s, traditionally prepared from a mixture of oil, egg yolk and vinegar, has a reduced shelf-life primarily due to lipid oxidation (Kwon et al., 2015). The addition of synthetic antioxidants like BHT (butylated hydroxytoluene), BHA (butylated hydroxyl anisole), and EDTA (ethylenediaminetetraacetic acid) has been used to control this problem (Gray, 1978). However, these synthetic antioxidants showed several disadvantages such as the easily decomposition at higher temperatures, and an increased health risk for chronic consumers (Martinez-Tome et al., 2001). Natural antioxidants, derived from marine algae, show great potential for improving oxidative stability, extending the shelf-life of stored food products with additional health-promoting benefits (Hermund et al., 2015). Since 2004, the DHA-rich oil derived from the microalgae *Aurantiochytrium* sp. has been recognized as safe, available for food use and for dietary supplements. In general, *Aurantiochytrium* sp. became a popular source of protein-rich biomass and of valuable compounds like pigments, antioxidants and essential fatty acids. The potential of heterotrophic microalgae *Aurantiochytrium* sp. as a source of functional ingredient applied in mayonnaise product has not been evaluated yet.

The aim of this study was to evaluate the quality of mayonnaise enriched with *Aurantiochytrium* extract by colour (L*, a*, b*, and °h), texture (hardness, adhesiveness, resilience, cohesion, springiness, gumminess, and chewiness) and antioxidant capacity (DPPH and total phenolics content). The mayonnaise without extract was used as control sample.

Colour results indicated that the luminosity of mayonnaise enriched with extract increased and the a* and b* colour parameters decreased, promoting a colour enhancement. Also, with the addition of *Aurantiochytrium* extract, a decrease in all texture attributes obtained by TPA profile test, with exception of cohesion and springiness, was observed. A correlation between antioxidant activity and total phenolics content was denoted, in all samples. The high antioxidant capacity can be related to high radical scavenging activity, high total phenolic content, and high carotenoid content of the extract.

This study demonstrates that *Aurantiochytrium* sp extracts have the potential to be used as a nutraceutical/functional ingredient in mayonnaise, a product widely consumed by different age groups.

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