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Nigella sativa oil: A promising prospective antifungal agent in the manufacture of low-salt cheese.

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Abstract: The current work studied the in-vivo antifungal activity of Nigella sativa oil (NSO) in ultrafiltered low salt soft cheese as a proposed replacement for the synthetic preservatives which become unacceptable by consumers. Four different concentrations of NSO were examined during the manufacture of the cheese (0.3, 0.5, 1, and 3 % w/w). The effect of NSO supplementation was examined in 3 parallel lines; a ninepoint hedonic scale was used in the sensorial evaluation of soft cheese free of the fungal inoculum, the physicochemical properties of soft cheese were determined during storage as well as anti-fungal effects of different concentrations of NSO on inoculated cheese with different species of fungi: Candida albicans (104 cfu/ml) and Aspergillus parasiticus (102 cfu/ml) before coagulation. The Nigella sativa oil expressed an antifungal activity by using different levels of NSO which significantly reduced and inhibited the growth of the fungal counts (1.4 log cfu/g for Candida albicans and 2.30 log cfu/g for Aspergillus parasiticus) started from 0.5% concentration of NSO on the 14th day of the storage. In addition, it exhibited different physicochemical properties of soft cheese depending on the level of used NSO. However, the Sensory evaluation of cheese samples revealed the acceptance of soft cheese samples with 0.3% and 0.5% of NSO.

Keywords: *Nigella sativa* oil, low salt soft cheese, *Aspergillus parasiticus, Candida albicans*