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Evaluation of antioxidative properties of selected herbs – a preliminary study

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An experiment was carried out to evaluate the antioxidative properties of selected herbs. Fresh rhizomes of ginger (*Zingiber officinale*), and turmeric (*Curcuma longa*), fresh cloves flower buds (*Caryophyllus aromaticus*), fresh and dried rhizomes of cinnamon sedge (*Acorus calamus*), dried castor seeds (*Ricinus communis*), fresh cinnamon bark (*Cinnamomum zeylanicum*), dried pathpadagam whole plant (*Mollugo cerviana*), dried margosa seeds (*Azadirachta indica*), fresh nutmeg whole fruit (*Myristica fragrens*) and fresh and dried khus- khus grass roots (*Vetiveria zizaniodes*) were selected for the study. Cleaned and crushed raw materials as well as their ethanol and steam extracts were evaluated. Thiobarbeturic Acid (TBA) value was determined to quantify the extent of oxidation using lard as the substrate. Samples of lard were supplemented with herbal materials (1 g/10 ml) or their extracts (1 ml/10 ml) in triplicate and stored for 2 weeks at room temperature. Lard without supplements was kept as a control. TBA values of samples after 2 weeks were recorded to estimate the extent of oxidation during storage.

Table 1. Increases in TBA values of lard without (control) and with herbal additives (mean ± SD) after 2 weeks of storage

Treatment	Raw material	Steam extract	Alcohol extract
Lard alone (control)	----------	0.79 ± 0.194	----------
Turmeric	0.31 ± 0.061	0.11 ± 0.011	0.31 ± 0.011
Ginger	0.35 ± 0.035	0.22 ± 0.069	0.26 ± 0.034
Nutmeg	0.45 ± 0.075	0.11 ± 0.011	0.14 ± 0.02
Patpadagam	0.66 ± 0.02	0.33 ± 0.05	1.06 ± 0.117
Cinnamon	0.41 ± 0.064	2.02 ± 0.011	1.06 ± 0.121
Margosa	0.36 ± 0.034	0.21 ± 0.023	0.39 ± 0.023
Castor	0.19 ± 0.011	0.15 ± 0.011	0.16 ± 0.034
Cloves	0.34 ± 0.103	0.19 ± 0.011	0.47 ± 0.011
Khus-Khus Grass	0.71 ± 0.03	2.07 ± 0.011	0.87 ± 0.03
Cinnamon Sedge	0.28 ± 0.04	0.2 ± 0.02	0.33 ± 0.05

The initial TBA value of fresh and pure lard was 0.22. According to data presented in Table1, lard without additives has been oxidized during storage. Pathpadagam, cinnamon and khus khus grass have promoted oxidation while all the other herbs have reduced oxidation of lard at varying rates. Castor, turmeric, nutmeg, ginger and margosa found to contain good antioxidative properties. Steam and alcohol extracts of herbs seem to be more effective than their raw materials.

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