Prevention of quality deterioration of Gingelly rolls

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Major problems associated with gingelly roll industry are development of off smell, offensive flavor and mould growth upon keeping. A study was carried out in a factorial combination, using 3 variables; incorporation of mould inhibitor and an antioxidant and heat treatment of seeds, at two levels. Two levels of each treatments were; with (b_0) and without (b_1) mould inhibitor, with (c_0) and without (c_1) antioxidant and with (a_0) and without (a_1) heat treatment. Eight samples with 3 replicates were arranged and the samples were drawn at every 3 weeks up to 3 months, determining the acid value and mould growth of sesame seeds in gingelly rolls as quality parameters. The following results were obtained after 15 weeks.

Table: Development of acid value in gingelly rolls

Treatment	Acid Value		Mould Growth	
	Initial	After 12 weeks	Initial	After 12 weeks
$a_0b_0c_0$	1.66	18.7	No	Heavy
$a_1b_0c_0$	1.66	3.4	No	Heavy
$a_0b_1c_0$	1.70	16.4	No	No
$a_1b_1c_0$	1.70	2.7	No	No
$a_0b_0c_1$	1.66	8.2	No	Heavy
$a_1b_0c_1$	1.66	2.5	No	Heavy
$a_0b_1c_1$	1.65	7.6	No	No
$a_1b_1c_1$	1.65	1.8	No	No

Acid values indicate the degree of quality deterioration and unpleasant taste of sesame seeds in gingelly rolls. The lowest acid value was observed in heat-treated sesame seeds with antioxidant and mould inhibitor ($a_1b_1c_1$).

Hence, sesame seeds shall be subjected to heat treatment followed by incorporation of a mould inhibitor and an antioxidant in order to prevent auto and enzymatic oxidation process that results in forming of highly volatile aldehydes and ketones that could result in producing an unpleasant smell.

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