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Effects of autoxidized groundnut oils on activities of digestive enzymes - lipase and pepsin

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Effects of groundnut oil, autoxidized by various modes *viz.*, i) aeration at 98 °C for 10 h; ii) heated in oven at 200 °C for 20h; iii) heated by flame, for 10 h and iv) oil stored with moisture (5%) for 24 weeks at 37 °C, on two digestive enzymes, lipase and pepsin, were investigated. The studies were carried out by incubating the enzymes *in vitro* with autoxidized oil samples for 3h at 37 °C and enzymes were assayed for activity. Results showed that all types of autoxidized groundnut oils inhibited the activities of enzymes by 50% in the first hour of incubation itself. However, in all cases considered, oven-heated oil strongly inhibited the lipase activity, which reached to lowest level of 27.6% in the third hour of prolonged incubation. The other autoxidized oil samples deactivated the lipase between 30-40% of original activity during incubation. Unlike lipase, the activity of pepsin was regained after first hour of incubation. On prolonged incubation, the pepsin regained its activity to the extent of more than 50% of original activity with exception of oven-heated oil, which showed only 41.9% activity in the third hour of incubation. The level of activity depended on the level of toxicity (hydro peroxides and carbonyl compounds) in autoxidized oils.