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PEROXIDE VALUE IN REPEATEDLY HEATED VEGETABLE OILS USING DIFFERENT TYPES OF FOOD IN THE FRYING PROCESS

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Background:

Vegetable oils are commonly used repeatedly in cooking process. This process produces free radicals such as peroxides which have been implicated in pathogenesis of cardiovascular disorder. The present study was performed to determine the peroxide values of repeatedly heated palm oil and soybean oil which was used to fry *keropok lekor* and potato chips.

Materials and Methods:

Frying process was started with 2500 millilitre of one type of fresh vegetable oil fried with one kilogram of one type of food. The food was fried at 180° Celsius for 10 minutes. The cooling interval was fixed at 24 hours. Food quantity was reduced proportionately with amount of vegetable oil left till fifth time heated. The peroxide value was measured by Iodine liberation method

Results:

There was a significant increase in peroxide values of once, twice and five times heated for both palm and soybean oils with the latter having the highest values. The increase in peroxides values were significantly higher for *keropok lekor* (16.37±0.6) and potato chips (13.93±0.56) fried with soybean oil respectively compared to *keropok lekor* (13.85±0.53) and potato chips (11.67±0.56) fried with palm oil. The peroxides values of *keropok lekor* fried with both palm and soybean oil was significantly higher compared to potato chips, with the latter having the highest value.

Conclusion:

From this study, we conclude that thermally oxidized oils increase peroxide values. The increase in the peroxide value is influenced by heating frequency, types of oil and types of food. Oil that is rich in polyunsaturated fatty acids like soy oil produces higher peroxide value compared to monounsaturated palm oil. Fish related product like *keropok lekor* produce higher peroxide value compared to vegetable product like potato chips. It appears that the peroxide values of twice heated vegetables do not exceed the cut off points for oil quality (10 milliequivalent/kg oil).

Keywords:

peroxide value, palm oil, soybean oil, *keropok lekor*, repeatedly heated oil