E2-45: Antioxidant properties of Indian Gooseberry (Nelli, *Phylanthus emblica*) extracts with fish oils

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Fish oils are a well known food material as well as a medicine. Due to high unsaturation characteristics, fish oils, are very susceptible to oxidation and

hydrolysis and therefore preservation of fish oils is important. Applicability of Indian Gooseberry (Nelli, *Phylanthus emblica*) extracts on preservation of fish oils was investigated.

The active components of dried Indian gooseberry were extracted by 3 different polar solvents, i.e. ethanol, methanol and water. The extracts were applied to the fish oils in 2000ppm concentrations. The reference sample was treated with 200ppm of Butylated hydroxy toluene (BHT). The activity of these 4 different treatments with untreated sample (control) was determined by measuring peroxide value (PV), free fatty acid value (FFA) and fatty acid composition (FAC) on 8 occasions over a 44 day storage period at room temperature (30°C)

There were significant higher ($p<0.05$) peroxide values recorded in the control sample compared to the other 4 treatments up to 24th day of storage. The amount of saturated and monounsaturated fatty acids increased whereas the polyunsaturated fatty acids decreased very rapidly in the control sample during the study. This might be due to the conversion of unstable polyunsaturated fatty acids into more stable saturated and monounsaturated fatty acids. The ethanolic extract treatment recorded the lowest PV, FFA and lowest conversion of fatty acids up to 30th day of storage, indicating the highest antioxidant activity. The antioxidant activity of the ethanolic extract was also higher when compared to BHT in this concentration. The methanolic extract also showed a considerable antioxidant activity followed by the water extract.

The results showed the possibility of using ethanol and water extracts of dried Indian Gooseberry (Nelli) in controlling oxidation in fish oils, fats and oil based food products.

Financial assistance by the European Economic Community under the project, Improved Utilization of low value fish species (Research Area III - Fish Lipids (STD-3), No TS3-CT93-0207) is acknowledged.