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Antioxidant properties of betel (*Piper betel*)

The antioxidants quench free radicals involved in the genesis of chronic and degenerative diseases of aging, including heart diseases and some cancers. Lipid oxidation is a major determinant in the deterioration of food. Toxic substances formed by lipid oxidation could develop some diseases. Antioxidants maintain food quality by reducing oxidative breakdown of lipids. Antioxidants such as BHA (Butylated Hydroxy Anisole) and BHT (Butylated Hydroxy Toluene) are used to control lipid oxidation in food. Consumers are concerned about the safety of synthetics. Thus use of natural antioxidants to enhance the oxidative stability of food lipids has received special attention.

Betel essential oil, common betel and Malabulath ethanolic extracts, betel hot water extract, green tea hot water extract, vitamin E, safrol and BHT were compared for antioxidant activities by Thio Barbituric Acid Reactive Substances (TBARS) assay based on egg yolk.

Test solutions (0.1 cm^3) were added to tubes containing 0.5 cm^3 egg yolk homogenate and pH value adjusted to 3.5 with 1 M NaOH. Then 1.5 cm^3 of 0.8% TBA was added and adjusted final volume to 4 cm^3 with deionised water. Samples were vortexed, left in a 95^o

C water bath for 60 min. when the samples cooled. 5 cm^3 of n-butanol was added, vortexed, centrifuged and absorbance of butanol layer was taken at λ532 nm against n-butanol blank. Antioxidant index (AI) was calculated. Above procedure was followed for the control by using 0.1 of 8.1% (w/v) SDS instead of the test solution. Each experiment was done in triplicate.

Betel ethanolic extract has the highest AI (37.82) and safrol (24.34) the lowest. Ntioxidant activity of betel ethanolic extract was significantly different ($p>0.05$).