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**STUDIES OF PLANT EXTRACTS AS NATURAL
ANTIOXIDANTS**

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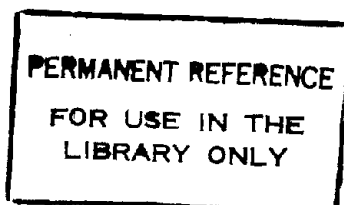
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STUDIES OF PLANT EXTRACTS AS NATURAL ANTIOXIDANTS

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Reactive oxygen species cause oxidative damage to living tissues, most organic substances, and commercial materials and antioxidants play an important role in protecting from the oxidative damages. Presently, synthetic antioxidants are widely used in industry for many applications but concern has now been expressed about the safety of these synthetics because of their potential carcinogenicity. Therefore there is a wide interest for natural antioxidants, which have already been recognized as safe.

The objectives of this study are identification of antioxidant properties of extracts of selected plants and isolation and identification of antioxidant compounds from the active extracts.

In the present study four plant species, *Elaeocarpus serratus* (Elaeocarpaceae), *Centella asiatica* (Umbellifereae), *Alternanthera sessilis* Linn DC (Amaranthaceae) and *Phyllanthus emblica* Linn (Euphorbiaceae) were investigated for antioxidant properties. The bioassay followed the β -carotene-linoleic bleaching and DPPH assays. The extracts of leaves of *E. serratus* exhibited good antioxidant activity in both these assays and this plant was therefore further studied for its antioxidant constituents. Chromatographic techniques were used in fractionation to isolate the active fractions and compounds. The DPPH quick TLC assay was extensively used for identification of antioxidant compounds on TLC.

Petroleum ether extract of *E. serratus* showed good antioxidant activity ($EC_{50} = 16.4 \mu\text{g mL}^{-1}$) which is comparable with those of vitamin C ($EC_{50} = 15.5 \mu\text{g mL}^{-1}$).

¹). The bioassay guided fractionation of both petroleum ether and Supercritical CO₂ extracts led to the isolation of five compounds 1-5. Only compound 2 exhibited antioxidant activity.

This study indicates that extracts of *E. serratus* have potential antioxidant properties and could be used as a promising antioxidant ingredient in cosmetic and food preparations.