

## *Abstract*

Essential oil of three species of *Eucalyptus* i.e. *Eucalyptus tereticorenis*, *Eucalyptus citridora* and *Eucalyptus sideroxylon*, two species of *Termeric Family* i.e. *Curcuma aromatica* and *Curcuma longa* available in Lahore were obtained by steam distillation. Different bioassays i.e. **DPPH, FRAP, Total Phenols and Acetyl Choline Esterase Assay** were performed on the purified sample. In DPPH highest radical scavenging activity among *Eucalyptus* species was shown by *Eucalyptus citridora* (87.5%) other species *Eucalyptus tereticorenis* and *Eucalyptus sideroxylon* showed 81.3% , 72.6% respectively. *Turmeric* species *Curcuma aromatica* and *Curcuma longa* showed % inhibition 87.3% and 84.4%. Highest ferric reducing ability was shown by *Eucalyptus sideroxylon* and *Curcuma longa* 0.130 and 0.138( $\mu\text{m}$ ) equivalent to  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ /g of sample respectively. Maximum amount of phenol was present in *Eucalyptus sideroxylon* and *Curcuma longa* 122.5 and 197.5 GAE/g of crudeextract respectively. *Curcuma aromatica* showed highest Enzyme inhibition activity.

Crude essential oil samples of selected plants of *Eucalyptus* and *Turmeric* were subjected to analysis of **GC-MS technique** which showed the presence of many volatile compounds. The essential oil of *Eucalyptus tereticorenis*, *Eucalyptus sideroxylon*, *Eucalyptus citridora* s *Curcuma aromatica* found to contain major components which are cineole (69.87), isopregol (28.26), eucalyptol (52.75) and gamma-elemene (40.18) respectively.

Different derivative of **Thiazolidine** compound were prepared and the bioassays including DPPH, FRAP and Acetyl Choline Esterase were performed and it was concluded that all the synthesized compounds were highly active against selective assays.