

Screening of Antioxidant Potential of Selected Barks of Indian Medicinal Plants by Multiple *in vitro* Assays

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Objective To evaluate the antioxidant potential in herbal extract barks of five therapeutically important medicinal plants native to India, i.e. *Crataeva nurvala* Buch.-Ham., *Buchanania lanzan* Spreng., *Aegle marmelos* Corr., *Dalbergia sissoo* Roxb. ex DC., and *Cedrela toona* Roxb. **Methods** Standardized aqueous alcoholic extracts from the selected barks having different target radicals, such as superoxide radical, nitric oxide, ABTS radical, and peroxidative decomposition of phospholipids, were prepared and screened by multiple *in vitro* assays. These extracts were also tested for total phenolic and tannin content and correlated with antioxidant capacity. **Results** Total phenolic and tannin contents were found to be the highest in *C. nurvala* (195 GAE mg/g and 218.3 mg/g CE). SOD mimetic activity was found to be the highest in *Crataeva nurvala*, although all barks showed activity more than 100 units/mg extract. Lipid peroxidation inhibitory potential was found to be the highest in *Crataeva nurvala* (83.4% inhibition of MDA formation/10 µg extract), and also showed a comparatively high NO quenching capacity (45.5% per 10 µg extract). The highest NO quenching potential was found in *Aegle marmelos* (47.3% per 10 µg extract). *Cedrela toona* showed the lowest LPO inhibitory potential and NO quenching capacity (50.5% and 30.5%, respectively). *Buchanania lanzan*, a medicinal plant extensively used for inflammatory disorders and *Dalbergia sissoo* also showed 72.5% and 69.1% LPO inhibitory potential/10 µg extract. Trolox equivalent antioxidant capacity ranged from 0.24 to 0.39 mmol/L TEAC/mg extract, indicating that all the barks tested had ABTS^{•+} radical quenching capacity. **Conclusion** Bark of *Crataeva nurvala* has the highest antioxidant capacity and a positive correlation between antioxidant activity and their phenolic content was found.

Key words: Superoxide dismutase; Lipid peroxidation; Nitric oxide quenching; Medicinal plant extracts; Reactive oxygen species; Antioxidants

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