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Evaluation of the Total Antioxidant Capacity and Total Phenol Content of the Wild and Cultivated Variety of Aegle Marmelos (L) Correa Leaves Used in the Treatment of Diabetes

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Abstract : Aegle Marmelos leaf has been used as a remedy for various gastrointestinal infections and lowering blood sugar level in traditional system of medicine in India due to the presence of various constituents such as flavonoids, tannins and alkaloids (eg. Aegelin, Marmelosin, Luvangetin).The objective of the present study was to evaluate the total antioxidant activity, total and individual phenol content of the wild and cultivated variety of Aegle marmelos leaves to assess the role of this plant in ethanomedicine in India. The methanolic extracts of the leaves were screened for total antioxidant capacity through Ferric Reducing Antioxidant Potential (FRAP) and 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay; Total Phenol content (TPC) through spectrophotometric technique based on Folin Ciocalteau assay and for qualitative estimation of phenols, High performance Liquid Chromatography was used. The TPC of wild and cultivated variety was 7.6% and 6.5% respectively whereas HPLC analysis for quantification of individual polyphenol revealed the presence of gallic acid, chlorogenic acid and Ferullic acid in wild variety whereas gallic acid, Ferullic acid and pyrocatechol in cultivated variety. FRAP values and IC 50 value (DPPH) for wild and cultivated variety was 14.65 µmol/l and 11.80µmol/l; 437 µg/ml and 620µg/ml respectively and thus it can be used as potential inhibitor of free radicals. The wild variety was having more antioxidant capacity than the cultivated one it can be exploited further for its therapeutic application. As Aegle marmelos is rich in antioxidant, it can be used as food additives to delay the oxidative deterioration of foods and as nutraceutical in medicinal formulation against degenerative diseases like diabetes.

Keywords : antioxidant activity, aegle marmelos, antidiabetic, nutraceutical
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