

ABSTRACT

Two innovative, rapid and cost-effective approaches for evaluation of antioxidant potential are developed. N, N- Diphenyl Para PhenyleneDiamine (DPPD) decolorization assay and Diamino Naphthalene Decolorization assay are developed for the screening of antioxidant activity. Both of these assays evaluate the free radical scavenging activity of analytes. A chromogenic reaction takes place between DPPD and DAN with potassium persulfate at selective pH produces two distinct radical cations with maximum absorption at 700 nm and 575 nm in its first-order derivative spectrum. A linear inhibition of color production was observed with linearly increasing amounts of antioxidants, with correlation coefficients (R^2) ranging from 0.999 to 0.982. The antioxidant capacity of standard solutions of different hydrophilic and hydrophobic antioxidants was evaluated. Comparison of antioxidant capacity determined with these newly developed DPPD assay and DAN assay with the well-known 2,2'-azinobis-[3-ethylbenzthiazoline-6-sulfonic acid] (ABTS)-persulfatedecolorization assay indicated the efficacy and sensitivity of the procedure. The proposed assays are less expensive (costs about US\$5 per 100 assays) and require very short time for preparation of radical cation solution in comparison with ABTS assay. These novel assays are also applied for evaluation of antioxidant potential of *Typhadomigenesis* and *Centellaasiatica* and the results obtained are very much in accordance with other contemporary methods. DAN decolorization assay is applied to plasma samples to evaluate the antioxidant activity of plasma or the oxidative stress level of plasma. The results of phytochemical screening and Gas chromatographic analysis reveals that both *Typhadomigenesis* and *Centellaasiatica* are enriched with Flavonoids, alkaloids, polyphenols, Terpenoids and other important classes of phytochemicals.

Keywords: *Typhadomigenesis*, *Centellaasiatica*, DPPD, DAN, phytochemical screening, Gas chromatographic analysis, ABTS.