

Assessment of antioxidant potentials of free and bound phenolics of *Hemidesmus indicus* (L) R.Br against oxidative damage

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ABSTRACT

Background *Hemidesmus indicus* R.Br. is a twining shrub commonly found in India, which was known to have wide pharmacological actions. 2-hydroxy-4-methoxy-benzoic acid (HMBA) and a number of pregnane glycosides were believed to be responsible for its various bioactivities. Until now, there are no reports regarding the antioxidant properties of phenolics from *H. indicus*. **Objective** To establish the role of phenolics in the properties of *H. indicus*. **Materials and Methods** *Hemidesmus* free phenolic fraction (HDFP) and *Hemidesmus* bound phenolic fraction (HDBP) have been isolated from *H. indicus*, and the antioxidant activity was evaluated for inhibition of lipid peroxidation, DNA protection, free radical scavenging (FRS), reducing power and cytoprotective activities. **Results** HDFP and HDBP exhibited potent inhibition of lipid peroxidation (IC₅₀ - 19.5 $\pm$ 0.5 and 21.7 $\pm$ 0.5 g gallic acid equivalent - GAE/mL), FRS (IC₅₀ - 7 $\pm$ 0.2 and 8.6 $\pm$ 0.2 gGAE/mL), reducing power (110.3 $\pm$ 2 and 33.5 $\pm$ 1 U/g) and red blood cell protection (14.8 $\pm$ 0.4 and 14.5 $\pm$ 0.5 g GAE/mL). HDFP is constituted by gallic (18%), caffeic (17%), ferulic acids (16%) and HDBP by syringic acid (35%) as major phenolic acids. Besides, both HDFP and HDBP contained significant levels of HMBA; in HDFP (10%) and HDBP (57%), respectively. Results indicated a 34-and 27-folds better contribution to the antioxidant activity by HDFP and HDBP, respectively, than that of HMBA. **Conclusion** Potent antioxidant activities of phenolics may be one of the mechanisms by which *H. indicus* is effective against several health disorders as encountered in traditional medicines.

KEYWORDS

Antioxidant activity . bound phenolics . DNA protection . free phenolics . red blood cell protection

REFERENCES