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## **Antioxidant activity of ethanolic extract and its fractions of *Tribulus terrestris* fruit**

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*Tribulus terrestris* L., Zygophyllaceae, is popularly known in Brazil as “abrolhos”, “videira da punctura”, among others. Pharmacological studies suggest that the species has aphrodisiac action, antihypertensive, antibacterial and antioxidant activities. Extracts of this species contain, mainly, steroidal saponins, alkaloids and flavonoids.<sup>1</sup> The aim of this work was to quantify the total phenolic and flavonoid content and to evaluate the antioxidant activity of ethanolic extract (EE) of the fruit of *Tribulus terrestris* L., and its fractions such as hexane (Hex), dichloromethane (DCM), ethyl acetate (EthAc), *n*-butanol (BuOH) and aqueous methanol-soluble (AQsol). The EE was obtained from the sprayed dry fruit (3 kg) by means of dynamic maceration in ethanol 92°. An aliquot of this extract was taken for liquid-liquid partition procedures. The EE was resuspended in distilled water and partitioned sequentially in Hex, DCM, EtOAc and BuOH. Methanol (MeOH) was added to the aqueous fraction (AQ), the aqueous soluble fraction being separated in methanol (AQsol) from that insoluble (AQinsol). Each fraction was dried on a rotary evaporator under reduced pressure at  $40 \pm 2$  °C and then kept in desiccator under vacuum to dryness. To evaluate the antioxidant activity, sample extract and fractions were used at a concentration of 20 mg ml<sup>-1</sup>. DPPH (2,2-diphenyl-1-picrylhydrazyl-hydrate) and ABTS [2,2'-azino-bis-(3-ethylbenz-thiazoline-6-sulfonic acid)] free radicals scavenging assays were performed and compared to standard butylated hydroxytoluene (BHT) and 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid (Trolox) respectively. Phenols values were expressed as gallic acid equivalents (GAE) and flavonoids values were expressed as mean (mg g<sup>-1</sup>) in quercetin equivalents (QE). All tests were performed in triplicate. Regarding the total phenolic content ranged from  $9.82 \pm 0.15$  to  $31.72 \pm 0.30$  mg GAE g<sup>-1</sup> crude extract, whereas flavonoids ranged from  $7.75 \pm 0.35$  to  $34.45 \pm 4.66$  mg QE g<sup>-1</sup> crude extract. Among the fractions, BuOH fraction exhibited the highest amounts of total phenolic and flavonoids. In contrast, AQsol fraction, showed the lowest amounts of total phenolics and flavonoids with poor antioxidant activity. EthAc fraction showed the highest free radical scavenging activity with an IC<sub>50</sub> of  $0.12 \pm 0.01$  and  $0.48 \pm 0.03$  mg/ml, in the ABTS and DPPH assays, respectively. Hex fraction did not exhibit any antioxidant activity. Acknowledgments: CAPES, CNPq and FAPEMIG.

Keywords: Plant extracts, Phenols, Flavonoids.

### References:

<sup>1</sup>Chhatre, S., Nesari, T., Somani, G., Kanchan, D., Sathaye, S., 2014. Phytopharmacological overview of *Tribulus terrestris*. Pharmacogn. Rev. 8, 45-51.