Evaluation of Antioxidant, Free Radical Scavenging Potential and Phytochemical Screening of Methanol Extract of *Bombax Malabaricum* DC. Prickles

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Introduction: *Bombax malabaricum* DC. is known as the red silk cotton tree, found in tropical America, Eastern Himalayas to South-East Asia. According to *Charak Samhita*, *Bombax malabaricum* is among the top ten antiseptic, and tissue regenerator. While, according to another classical literature *Sushrut Samhita*, *Bombax malabaricum* stem bark is useful in acne, hemorrhagic disorders, wound healing, and in burns. The trunk of plant bears prickles. The stem bark has been studied for its effect on acne. However, very limited work has been carried out for evaluating antioxidant and free radical scavenging potential of *Bombax malabaricum* prickles. ***Objective***: So, we were aimed to analyze the antioxidant potential and phytochemical screening of methanol extract of prickles of *Bombax malabaricum*. ***Materials and Methods:*** Leaves and stem of *Bombax malabaricum* DC. were collected in the month of Sep. 2007, from Junagadh, Gujarat, India. Herbarium no. SU/DPS/Herb/07-08/2 prepared and submitted in Department of Pharmaceutical Sciences, Saurashtra University, Rajkot, India for identification. Sun dried prickle powder was extracted in soxhlet apparatus with methanol. Extract was then dried on water bath not exceeding more than 50ºC. Dried extract was than used further for further study. Prickle methanol extract then were screened for qualitative chemical using reported methods.(Kokate, 2005) The free radical scavenging activity (FRSA) was calculated using the following equation:

$$\% \text{ FRSA} = \frac{\text{Control absorbance} - \text{Sample absorbance}}{\text{Control absorbance}} \times 100$$

DPPH FRSA	Nitric Oxide FRSA	H_2O_2 FRSA	Reducing
• by the decrease in its absorbance at 517 nm, induced by Prickle extract. (Yaushisakono, 1978)	• Nitric oxide was generated from sodium nitroprusside and measured by the Greiss reduction (Govindrajan et al, 2003)	• Scavenging of hydrogen peroxide was measured as per (Halliwell, 1991).	• The Fe^{3+} - Fe^{2+} transformation in the presence of the MPBC using the method of Oyaizu (Oyaizu, 1986).

Curcumin and ascorbic acid were used as standard.

Statistical analysis: Free radical scavenging activity tests were carried out in triplicate, n=3. The amount of extract needed to inhibit free radicals concentration by 50% (IC_{50}) was graphically determined by a linear regression method. Results were expressed as graphically/ IC_{50} + S.E.M.

Fig. 1 Prickles of *Bombax malabaricum* DC.

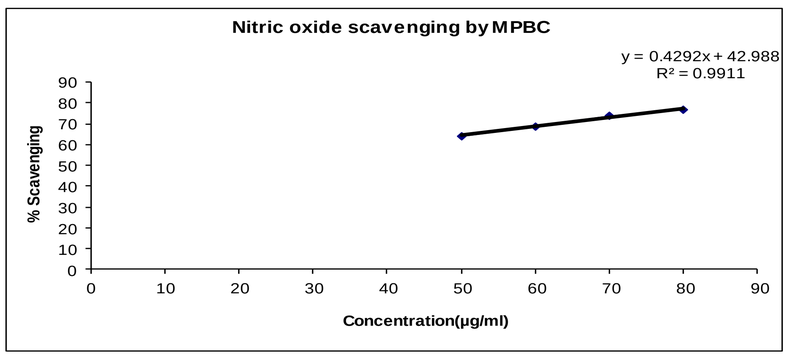

Fig. 2 Nitric oxide FRSA by MPBC

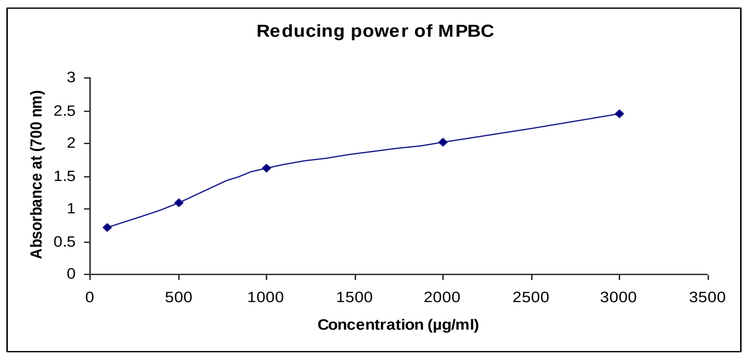

Fig. 3 Reducing power of MPBC

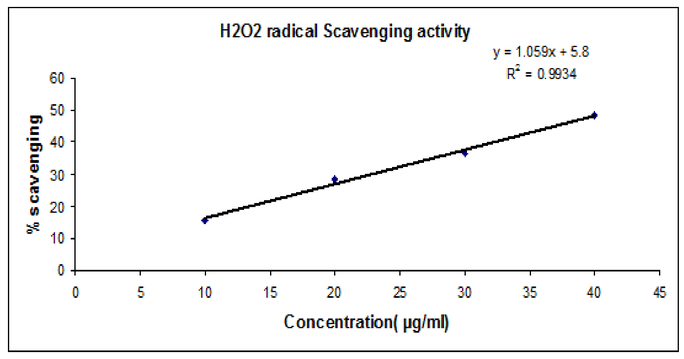

Fig. 4 H2O2 FRSA by MPBC

Results and discussion:

- MPBC strongly scavenged in a dose dependent manner, the DPPH free radical with an IC_{50} value of 35.30 ± 1.11 µg/ml. whereas, the reference compound Ascorbic acid was found with IC_{50} value of 31.30 ± 1.67 µg/ml. The concentration of MPBC needed for 50% scavenging of nitric oxide free radical (% inhibition) (IC_{50}) was found to be 16.33 ± 1.05 µg/ml whereas 39.32 ± 1.30 µg/ml for Curcumin. MPBC scavenged hydrogen peroxide free radical with IC_{50} value of 41.73 ± 1.17 µg/ml, while ascorbic acid was found with IC_{50} value of 187 ± 3.51µg/ml. Preliminary phytochemical screening reveled presence of phenolics, tannins, flavonoids, saponins, carbohydrates, phytosterols & triterpenoids in methanol extract of prickles of *Bombax malabaricum* DC.
- Phenols are powerful chain breaking antioxidants as well as it have good scavenging ability due to hydroxyl group. In addition to phenols play an crucial role in stabilizing in lipid peroxidation. Tannins are known to precipitate proteins leading to reduced secretion which is in correlation to traditional claims. (Tripathi, 1994) Thus our study provides link to scientific evidences for traditional claims of its used in wound healing and acne.

Conclusion: Thus, methanol extract of prickles of *Bombax malabaricum* DC. scavenged different free radicals efficiently due to the presence of polyphenols and tannins which might be helpful in free radical-induced diseases, such as wound healing, and acne.

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