

## INVESTIGATION OF ANTIOXIDANT ACTIVITY OF *Flacourtia indica* STEM BARK

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Antioxidants are essential compounds to maintain proper health conditions in human body by diminishing the oxidative stress. Synthetic antioxidants are found to be unsafe for human health. Hence, there is a growing interest on searching for natural resources with potent antioxidant activity. The antioxidant activity of the fractions of total ethanol extract of *F. indica* bark was determined by *in vitro* antioxidant assays. Previous studies have evaluated the antioxidant activity of methanolic and aqueous extracts of *F. indica* leaves. This study was aimed on investigating the antioxidant activity of petroleum ether, ethyl acetate, ethanol and total ethanol extract of *F. indica* bark using different antioxidant assays and fractionation of total ethanol extract. Total ethanolic extract of *F. indica* bark was obtained by extraction of the air-dried, powdered stem bark with ethanol using cold extraction technique. Ethanol extract was purified further by fraction using Dry Column Flash Chromatography (DCFC). The final 10 fractions were subjected to *in vitro* 2, 2-diphenyl-2-picrylhydrazyl (DPPH) assay to determine the percent radical scavenging activity. The total ethanol crude extract exhibited a good percent radical scavenging activity of 93.4%. Among fractions, F6 and F10 showed the highest scavenging effect of 93.4% and 92.5% respectively. The fractions F9, F4 and F8 showed moderate free radical scavenging activity having 85.3%, 65.8%, and 64.9% respectively. F1 and F2 fractions demonstrated the lowest scavenging effect of 6.4% and 5.5%. Sequential petroleum ether, sequential ethyl acetate, sequential ethanol and total ethanol extracts showed 7.8%, 37%, 62% and 93% percent radical scavenging activity, respectively. Ferric Reducing Antioxidant Power (FRAP) values of sequential ethyl acetate, sequential ethanol and total ethanol extracts were  $354.51 \pm 3.69$ ,  $393.31 \pm 6.07$  and  $463.10 \pm 2.3$  mg TE/g extract respectively. Oxygen Radical Absorbance Capacity (ORAC) values of sequential ethyl acetate, sequential ethanol and total ethanol extracts were  $625.27 \pm 0.1$ ,  $652 \pm 0.12$ ,  $515 \pm 0.12$  mg TE/g extract, respectively. Present investigation suggests that total ethanol extract fractions and sequential extracts except sequential petroleum ether extract exhibited high antioxidant activity. Furthermore, polar fractions and extracts showed more potency towards antioxidant activity than non-polar fractions and extracts. *F. indica* stem bark may be used as a potential source of antioxidant ingredient in nutraceutical products.

**Key words:** *Flacourtia indica*, Free radical, Antioxidant, DCFC, DPPH, FRAP, ORAC