



ABSTRACT

The aim of the present study was to investigate the total antioxidant potential, antimicrobial activity, and phytochemical screening of *Centaurea iberica*. The antioxidant components were initially extracted in CH₃OH and subjected to partitioning with different solvents like n-Hexane, Chloroform, Ethyl Acetate, Butanol and Aqua. For antioxidant activities, various antioxidant assays have been employed. The total phenolic content in all fractions of plant extract is ranged from 16.73 mg of GAE/g of Sample) to 70.30 mg of GAE/g of Sample). The ethyl acetate fraction had the highest total phenolic content.

In DPPH assay, percentage inhibition increases as the concentration of extracts increases. *IC*₅₀ value (µg/ml) of crude methanolic extract and its fractions are also noted. The less *IC*₅₀ value indicates the higher radical scavenging capability. The *IC*₅₀ value of Ethyl acetate extract and Butanol extract are remarkably low. So these fractions have more antioxidant capacity. The methanolic, n-hexane, chloroform, ethyl acetate, Butanol and chloroform exhibited total antioxidant capacity 0.81±0.04, 1.10±0.01, 1.54±0.08, 1.36±0.12, 0.70±0.04, 0.36±0.01 respectively by Phosphomolybdenum method. The higher value of samples show the higher antioxidant ability.

In FRAP assay, Methanolic Extract 0.496±0.008µM, n - Hexane Extract 0.384±0.005 µM, Chloroform Extract 0.624±0.014 µM, Ethyl Acetate Extract 0.910±0.024 µM, Butanol Extract 0.683±0.019 µM, Aqueous Extract 0.436±0.010 µM equivalent to FeSO₄.7H₂O/g of sample.

Total Reduction Ability by Fe³⁺ - Fe²⁺ Transformation is increased with different higher concentrations of fractions. The ethyl acetate and n-hexane fraction show higher capability of reduction.

Flavonoids are considered to have intensive antioxidant activity. In the determination of total flavonoid content, the ethyl acetate exhibited higher value of 433.58±5.4 mg



equivalent to Quercetin/g of sample, chloroform exhibited value of 208.58 ± 12.8 mg equivalent to Quercetin/g of sample, Butanol exhibited value of 240.25 ± 8.8 mg equivalent to Quercetin/g of sample, and aqueous extract have value of 201.92 ± 11.3 mg equivalent to Quercetin/g of sample. The n- hexane extract showed less value of 150.25 ± 3.5 mg equivalent to Quercetin/g of sample which indicates the lesser presence of flavonoids in it. In ABTS assay, ethyl acetate fraction higher % scavenging effect of 58.01% and showed its higher scavenging abilities.

Phytochemical screening indicates the presence of sugars, flavonoids, phenols, cardiac glycosides, terpenoids, tannins and alkaloids.

Antimicrobial screening indicates the antibacterial and antifungal action of different fractions of crude methanolic extract of *Centaurea iberica*. The antibacterial activity is done by two gram positive bacteria (*Bacillus subtilis*, *Pasteurella multocida*) and two gram negative bacteria (*Eschresia coli*, *Staphillococcus aureus*). Ethyl acetate fraction showed remarkable clear zones for all these strains. Antifungal activity is done with two strains of fungi, *Aspergillus niger* and *Alternaria fusarium*. All fractions inhibited the growth of *aspergillus niger* but had no effect on *Alternaria fusarium*
