ABSTRACT

The aerial parts of *Clematis connata* and *Tamarix dioica* were extracted in methanol-water (90:10) and partitioned with n-hexane, chloroform, ethyl acetate and n-butanol successively using partition chromatography. Total phenolic contents of all extracts were determined, using Folin–Ciocalteu reagent, and ranged between 15.9±0.8 to 265.7±1.4 for *Clematis connata* while these values are 47.5±0.6 to 511.1±1.8 for *Tamarix dioica*. The antioxidant potential of extracts was evaluated viz; DPPH, FRAP, ABTS and total antioxidant models. Ethyl acetate extract of both plants showed highest activity in DPPH (93±1.6%, IC_{50} 104±1.5 µg and 95±1.4, IC_{50} 102±1.9 respectively) FRAP (6.3±0.3 and 9.4±0.1 respectively), ABTS (0.405 and 0.403 respectively) and total antioxidant (1.098±0.05 and1.004±0.04 respectively). Ethyl acetate extract of both the plants showed highest antioxidant activity in all methods applied in the study. A strong correlations observed between total phenols, total antioxidant activity, DPPH and FRAP with R^2 values ranged from 0.7881 – 0.8827 for *Clematis connata* and 0.8363 – 0.9564 for *Tamarix dioica*. The results of the antimicrobial activity showed that the plant extracts from *Tamarix dioica* have very good antimicrobial activity against *Escherichia coli*, *Streptococcus thermophilus* and *Bacillus subtilis* due to the presence of alkaloids, terpenoids, saponins, flavonoids, and steroids. However, *Salmonella typhimorium* is considered resistant. All the extracts of *Clematis connata* showed remarkable activity against *E. coli* except n-butanol and aqueous extracts. Phyto-chemical investigation of *Clematis connata* revealed the presence of alkaloids, terpenoids, saponins, tannins, flavonoids, phenolics and steroids.