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Phytochemical distribution and antioxidant capacity of different parts of *Tagetes erecta* Linn (Asteraceae)

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Tagetes erecta Linn species, popularly known as Marigold, belong to family Asteraceae, and is distributed in varied agro climatic zones in different parts of the globe. *Tagetes erecta* is considered as a multipurpose medicinal plant due to its diverse usages in traditional medicine, ornamental industry, and the agricultural sector. Although Marigold is a multipurpose plant, information on presence of secondary metabolites and the distribution of phytochemical and bioactive compounds in the plant parts are scattered. Therefore, the present study was undertaken to determine the Total Phenolic Content (TPC), Total Flavonoid Content, and Total Antioxidant Capacity of different parts (flowers, stems, leaves and roots) of *Tagetes erecta.* The TPC, TFC, and TFC were determined using Ferric Reducing Antioxidant Power Assay (FRAP), modified Folin-Ciocalteu colorimetric method, and a calorimetric method, respectively. All tested parts demonstrated the presence of TPC, TFC, and TAC. A significant higher TPC, TFC, and TAC were found in flowers than in other parts of plant (12.75 ± 0.25^{a}mg GAE /g DW, 48.81 ± 0.87^{a}mg RE/g DW and 105.27 ± 5.21^{a}mg TE/ g DW respectively). The lowest TPC, TFC and TAC were observed in roots (3.50 ± 0.60^{d}mg GAE /g DW, 8.29 ± 0.29^{d}mg RE/g DW and4.98 ± 0.43^{c}mg TE/ g DW respectively). Strong significant correlations were observed between TAC and tested secondary metabolites (TPC, R^2=0.989 and TFC, R^2=0.989).

Keywords:*Tagetes erecta,* Asteraceae, Antioxidant capacity, flavonoids, phenolic, plant parts

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