Free Radical Scavengers and Antioxidants from *Tagetes mendocina*

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Tagetes mendocina (Asteraceae) is a medicinal plant widely used in the Andean provinces of Argentina. Preliminary assays showed free radical scavenging activity in the methanol extract of the aerial parts, measured by the decoloration of a methanolic solution of the 1,1-diphenyl-2-picrylhydrazyl radical (DPPH) and scavenging of the superoxide anion. Assay-guided isolation led to 4′-hydroxyacetophenone (**1**), protocatechuic acid (**2**), syringic acid (**3**), patuletin (**4**), quercetagetin 7-*O*-*β*-D-glucoside (**5**), patuletin 7-*O*-*β*-D-glucoside (**6**) and axillarin 7-*O*-*β*-D-glucoside (**7**) as the free radical scavengers and antioxidant compounds from *Tagetes mendocina.* On the basis of dry starting material, the total phenolic content of the crude drug was 3.00% with 0.372% of flavonoids. The content of compounds **1**–**7** in the crude drug was 0.008, 0.015, 0.010, 0.029, 0.238, 0.058 and 0.017%, respectively. Quercetagetin 7-*O*-*β*-D-glucoside proved to be the main free radical scavenger of the extracts measured by the DPPH decoloration test as well as for quenching the superoxide anion and inhibition of lipoperoxidation in erythrocytes. In the lipid peroxidation assay the percentual inhibition was related with the number of methoxy groups in the molecule, ranging from 86% for the quercetagetin glucoside to 67% for the monomethoxylated and 31% for the dimethoxylated derivative. The compounds showed low cytotoxicity towards human lung fibroblasts with $IC_{50} > 1$ mM for compounds **1**–**3** and 0.24 to 0.52 mM for the flavonoids **4**–**7**.

Key words: Tagetes mendocina, Phenolics, Antioxidant Activity