In the present study, gold nanoparticles were synthesized through the *Taraxacum officinale* plant extract as a reducing and stabilizing agent. Tetrachloroauric acid was used as the precursor salt. The experimental results were characterized by Ultraviolet-Visible Spectroscopy (UV-Vis), Infrared Spectroscopy (FTIR), X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). The antioxidant potential (DPPH) of the *Taraxacum officinale* plant extract was analyzed showing a value of 89.6% that indicates be an excellent reducing agent for synthesizing metal nanoparticles. The presence of the AuNPs was initially confirmed by UV-Vis technique that shows the characteristic SPR absorption band in the range of 500-600 nm. It was found that as the plant extract concentration increases the number of gold nanoparticles formed increased. On the other hand, the FTIR technique showed alcohol, alkanes, aromatics, carboxylic acid, and halides functionals groups are involves in the formation of the NPs. XRD and SEM revealed an average gold nanoparticles size of 18 nm. TEM analysis shows several AuNPs shapes such as spherical, hexagonal and triangular. The presence of different AuNPs morphologies is due to the ligands biomolecules that are also present in the *Taraxacum officinale* plant extract.

**Keywords:** Gold nanoparticles, Characterization, Antioxidant potential

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