HP-21: Evaluation of some biological activities of *Phragmites australis* rhizomes extract and phytosynthesized copper nanoparticles

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Abstract

This study intends to use the rhizomes of the Algerian *Phragmites australis* aqueous extract to phytosynthesize copper nanoparticles (CuNPs) and to investigate the anti-oxidant and anti-inflammatory activities of the plant and the nanoparticles. The new nanoparticles have been characterized using different techniques , for instance : UV-Vis spectroscopy, Fourier Transform Infrared Spectroscopy (FTIR), X- ray diffraction (XRD) and Scanning Electron Microscopy (SEM).Both rhizomes extract and CuNPs demonstrated noteworthy antioxidant properties, as evidenced by the results of the DPPH radical scavenging and FRAP essays. Regarding the anti-inflammatory activity,protein denaturation inhibition was measured in presence of our extract and CuNPs. The IC50 levels showed an important anti-inflammatory properties compared to the Diclofenac that was used as a standard. To conclude, *P.australis* rhizomes extract and its phytosynthesized copper NPs are a valuable natural resource that can be used as a potential source of bio-active compounds which is directed against inflammatory and oxidative stress diseases.

Keywords: *Phragmites australis* ,phytosynthesized copper NPs, Antioxidant, anti-inflammatory activity.