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**Green synthesis of Ag-Fe nanoparticles using cotinus coggygia:
Preparation, characterization and photothermal potential**

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Photothermia is a new modality in hyperthermia treatment that is based on the capabilities of some nanoparticles to convert infrared laser irradiation into heat. Initially used as a cancer therapy, this novel technique has expanded its therapeutic prospects, demonstrating high potential in wound healing. Low level laser therapy as well as mild hyperthermia are associated with an increase in cell proliferation. Furthermore, the careful selection of photoconverting nanoparticles can additionally increase the antibacterial and proliferative effect of phototherapy. For instance, iron ions proved to have regenerative potential, while silver ions exhibited good antibacterial properties. Nanoparticles obtained by green synthesis are also of great interest, as they may have additional therapeutic potential. The bioactive molecules from the plant species which were used as a reducing agent open vast opportunities for improved treatment.

The aim of the present work was the formulation and characterization of bimetallic Ag-Fe nanoparticles obtained by green synthesis. As reducing agent, *Cotinus coggygia* aqueous extract was used, which was mainly employed to heal injuries of the skin and mucosal tissues. The obtained nanoparticles were characterized by TEM, EDX spectroscopy, DLS and FT-IR. Their photothermal potential at 808 nm laser irradiation was observed by a thermocamera. The results revealed the successful synthesis of Ag-Fe nanoparticles with good photothermal capabilities.

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