

# Gold Nanoparticles from Grape Pomace Wastes: Cosmetic and Biomedical Applications

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## Extended Abstract

During the last decades, the demand of processes developed according to circular economy principles is progressively increasing. Among several aims, an alternative life for wastes as resources has been mainly considered as paradigm, due to the rapid industrialization and production of wastes of different typologies. For the purpose, a particular attention has been devoted towards food/agricultural wastes, as sustainable and renewable products. Indeed, many studies have been performed to propose strategies for transforming them and their by-products into value-added products. [1] Starting from these premises, a one pot green approach for the synthesis of gold nanoparticles (AuNPs) by using grape seeds wastewater has been developed during this work. [2,3] The obtained AuNPs have been characterized through several complementary techniques, namely UV-Visible, ATR-FTIR and XPS spectroscopies, XRD, TEM, DLS and Zeta Potential analyses. The role of the ionic strength, pH, and temperature after the AuNPs synthesis have been investigated for assessing if their stability could be affected by changing these physico-chemical parameters. The AuNPs photostability has been also explored at different irradiation times, by means of a sun simulator lamp. Foreseeing a potential use of the as synthesized AuNPs in cosmetic and biomedical field as multifunctional platforms, their antioxidant and skin-lightening activities have been tested by performing the ABTS and the tyrosinase-inhibition assays, respectively. [4] A preliminary in-vitro evaluation about the effect of AuNPs on cells viability has been also assessed, observing interesting results.

## References

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