## Patent Search

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Abstract:

An eco-friendly method for the synthesis of noble metal nanoparticles harnesses the natural properties of plant extracts. These extracts serve a dual role: acting as red agents to convert noble metal ions into nanoparticles and stabilizing the resultant particles to prevent agglomeration. The method offers the potential for producing nanoparticles with tailored properties based on the choice of plant extract, with applications spanning from medicine to electronics. The resultant nanoparticles are sus biocompatible, and versatile, ushering in a new era of green nanotechnology.

Complete Specification

Description:The present invention pertains generally to the field of nanotechnology and, more particularly, to the eco-friendly synthesis of noble metal nanoparticles. Specifically, the invention relates to a method and system for synthesizing noble metal nanoparticles using plant extracts as reducing and stabilizing agents. This gree synthesis approach offers an environmentally benign alternative to conventional chemical and physical methods, potentially reducing the use of toxic chemicals, lowe energy consumption, and minimizing waste production.

Background of the invention:

The realm of nanotechnology has witnessed rapid advancements in recent decades, particularly in the domain of nanoparticle synthesis. Nanoparticles, with their un size-dependent properties, have found applications in a myriad of fields ranging from electronics to medicine, catalysis to environmental remediation. Among these nanoparticles, those constituted of noble metals such as gold, silver, platinum, and palladium have garnered significant attention due to their distinctive optical, elect and catalytic attributes. However, the journey of noble metal nanoparticle synthesis has been fraught with challenges, primarily concerning sustainability, scalability, a environmental impact.

Historically, the synthesis of noble metal nanoparticles was dominated by methods employing a wide variety of chemical reductants and stabilizing agents. These che methods, although effective, often involved the use of toxic solvents, hazardous reductants, and energy-intensive processes. For instance, the Borohydride reduction method, one of the widely adopted methods, involves the use of sodium borohydride, a strong and sometimes unstable reductant. Furthermore, the by-products for during these reactions often presented disposal concerns, escalating environmental and health risks. Therefore, there emerged a pressing need for alternative synthe routes that would not only be efficacious but also environmentally friendly

View Application Status