

Synthesis of Selenium Nanoparticles Using Seed Extract of Cumin and Its some Application

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIRMENTS FOR THE DEGREE OF

Master of Science

In

Chemistry

By

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2019-20

ABSTRACT

In recent science, Nanotechnology is a burning feel for the research. Nanotechnology deals with the Nano particles having a size of 1-100 nm in one dimension used significantly concerning medical chemistry, atomic physics and all other known fields. Nano particles are use extremely due to its small size, orientation, physical properties, which are reportedly shown to change the performance of any other materials which is in contact with these tiny particles. These particles can be prepared by different chemical, physical and biological approaches, But the biological approach is the most emerging approach of preparation. The use of seeds and their extracts is one of the most valuable methods which are gaining concerns due to their imperative biological benefits. Plants are not only beautiful but majestic because they are rich sources of various medicinally important substances. Here in the present work “synthesis of selenium nano particles” described. The Se NPs are formed by simple mixing of Cumin seeds extract and selenious acid (H_2SeO_3) solution. This mixture was stirred which gave a dispersion of Se NPs conjugated with Cumin secondary metabolites. The formation of Se NPs was observed by the change of colour from colourless to dark brown. The work was focused to determine the synthesis, its characterization and its applications. The suspension solution confirms the formation of Se NPs showed (310 nm) by UV analysis. The green synthesized Se NPs were characterized by UV–VIS, FTIR and XRD analyses. Biological synthesis involves the use of cumin seeds extract in the universal solvent namely water. The reaction process was simple and convenient to handle, and was monitored using ultraviolet visible spectroscopy (UV–VIS). The results were promising and rapid in the production of selenium nano particles.



Figure 1: Cumin seeds

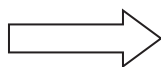


Figure 2: Cumin powder