

## Size Selective Synthesis of Sulfur Nanoparticles and Their Anti Cancer Activity

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**Abstract :** Sulfur is an important element has many practical applications in present as nanoparticles. Nanosize sulfur particles also have many important applications like in pharmaceuticals, medicine, synthesis of nanocomposites for lithium batteries, modification of carbon nanotubes. Different methods were used for nano-sized particle synthesis; among those, chemical precipitation, electrochemical method, micro-emulsion technique, composing of oil, surfactant, co-surfactant, aqueous phases with the specific compositions and ultrasonic treatment of sulfur-cystine solution. In this work, sulfur nanoparticles (S NPs) were prepared by a quick precipitation method with and without using a surfactant to stabilize the formed S NPs. The synthesized S NPs were characterized by XRD, SEM, and TEM in order to confirm their sizes and structures. Application of nanotechnology is suggested for diagnosis and treatment of cancer. The anticancer activity of the prepared S NPs has been tested on various types of cancer cell clones including leukemia, kidney and colon cancers.

**Keywords :** sulfur nanoparticles (S-NPs), TEM, SEM, anti cancer activity, XRD

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