Reviews on Spectrophotometric trace determination of Cerium along with its biological studies

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Abstract

Cerium is a rare earth element found in minerals such as allanite [(Ca,Ce) (Al2Fe2+) (Si2O7) (SiO4) O (OH)], monazite[(Ce,La,Nd,Th)(PO4)], bastnaesite[(Ce,La)(CO3)F)], cerite [(Ce,Ca)9 (Fe,Mg) (SiO4)3(HSiO4)4(OH)3)] andeuxenite [(Y,Ca,Ce,U,Th)(Nb,Ti,Ta)2O6)]out of which monazite and bastnaesite are the main source of cerium. Several techniques have been developed for the micro determination of cerium, such as potentiometric, spectrofluorimetric, flow injection, voltammetry, fluorescence, and UV-vis spectrophotometry. These techniques have different advantages and disadvantages in terms of time, amount, selectively, cost, and procedure. The spectrophotometric determination requirements were simple and at the same time it has high sensitivity for trace amount determination. There is still a need for the development of cerium trace determination with a selective, sensitive, and cost-effective technique. Cerium salts are widely used now a day in biomedical sciences for anticancer, antifungal, and antibacterial studies because of their decreased toxicity to mammalian cells.

Keywords: Antibacterial, Anticancer, Cerium, Spectrophotometry.