



Eco-Friendly Silver Nano Films for the Adsorption of Fluoride Ions Based on Light Scattering Phenomenon

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Abstract : Nano silver particles embedded with chitosan have been synthesised by non-toxic green method and characterised by UV-VIS, FTIR, FESEM, EDS and XRD. The formation of silver nanoparticles is characterised by UV-VIS Spectroscopy which shows a characteristic absorption band at 454 nm. The Field Emission Scanning Electron Microscope (FESEM) images confirm the presence of Ag NPs. The crystal structure and the average particle size of 20nm was estimated by using XRD. The film has been shown to be effective for the detection and the removal of one of the inorganic pollutant fluorides from natural wastes and wastewaters within the response time of 2-3 sec. This novel technique provides a selective methodology for the removal of fluoride ions and has been satisfactorily applied to its quantification in parenteral solutions.

Keywords: Silver nano particles, FESEM, XRD, UV-VIS, FT-IR, fluoride ions.

V. Durga Praveena *et al* /International Journal of ChemTech Research, 2016,9(4),pp 288-295.
