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Development of green method for the defluoridation of groundwater

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Engineering of chitosan by praseodymium has been investigated to improve the adsorption properties as well as physical characteristics of chitosan. Modification of chitosan changes the original properties of chitosan so that it can be more suitable for adsorption of fluoride ions. In this study, chitosan-lanthanoids (Chi- La, Pr, Nd, Ce, Dy, Al, Ba) was synthesized by impregnation method. The Chi complex was characterized by scanning electron microscopic-energy dispersive X-ray spectroscopy (SEM-EDX), Fourier transform infrared (FTIR) and employed as an adsorbent for removal of fluoride ions from water in the batch system. The variables such as contact time, concentration of Pr, adsorbent dose, initial concentration of fluoride ions, and competitor anions were studied. Low cost green defluorinating techniques like preparation of soil pot, tea bag and brick usage were prepared for the removal of fluorine in drinking water by using chitosan complex.

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