

## Application of Response Surface Methodology (RSM) for Optimization of Fluoride Removal by Using Banana Peel

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**Abstract :** Good quality water is of prime importance for a healthy living. Fluoride is one such mineral present in water which causes many health problems in humans and specially children. Fluoride is said to be a double edge sword because lesser and higher concentration of fluoride in drinking water can cause both dental and skeletal fluorosis. Fluoride is one of the important mineral usually present at a higher concentration in ground water. There are many researches being carried out for defluoridation method. In the present research, fluoride removal is demonstrated using banana peel which is a biowaste as a biocoagulant. Response Surface Methodology (RSM) is a statistical design tool which is used to design the experiment. Central Composite Design (CCD) was used to determine the influence of the pH and dosage of the coagulant on the optimal removal of fluoride from a simulated water sample. 895 of fluoride removal were obtained in a acidic pH range of 4 – 9 and bio coagulant dosage of dosage of 18 – 20mg/L.

**Keywords :** Fluoride, Response Surface Methodology, Dosage, banana peel

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