COMPARATIVE STUDY ON VARIOUS LOW COST MATERIALS IN WATER DEFLUORIDATION

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SUMMARY: A large number of low cost geomaterials and biomaterials have been tested in their natural and modified forms in water defluoridation. Synthetic siderite, magnesia amended silicon dioxide, laterite, kaolonite clay, Algerian clay, synthetic hydroxyapatite, concrete, hydrated cement, bleaching powder and calcium chloride modified natural zeolites have been reported good fluoride (F) removal capacity but require pH less than 7 and hence, not effective in drinking water treatment. Alumina had reported a maximum F removal efficiency and widely been studied in single and combined forms. Use of alumina also requires acidic pH and neurotoxin itself. Using biopolymers such as chitosan, fungal biomass, carbons, collagen fibers and others are not practically suitable because many chemical processes applied during their development. Calcite has been suggested a good F removal agent and the process involved both adsorption and precipitation. In the comparative analysis it was concluded that geomaterials are much safer in drinking water defluoridation

Key words: Geomaterials, Biomaterials, Defluoridation, Alumina, Calcite.

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