The aim of this study was to investigate the adsorption capabilities of some natural adsorbents for the removal of fluoride from aqueous solution. The adsorption of fluoride onto diatomite and ignimbrite in aqueous solutions was studied in a batch system. Batch adsorption experiments were conducted to examine the influence of various parameters such as pH, adsorbent amount, contact time, initial fluoride concentration, and temperature.

In order to increase adsorption capacity, diatomite and ignimbrite were activated by H2SO4. The fluoride adsorption capacity of acid-activated form was found to be higher than that of the natural form of adsorbents.