The textile industry wastewater is originating from the dyeing and finishing processes. Major pollutants in the textile industry include high color, suspended solids, and dissolved organic matter. Meanwhile, most of these pollutants, except color, can be removed using chemical and physical methods. Schiff bases are used in textile industry and removal of these kind of compounds is difficult from wastewater. A large variety of efficient solid materials such as synthetic polymers [1] and natural fibers [2-4] were used for solid phase extraction of dye materials. Recently, the use of natural fibers (cellulose, silk, wool, etc.) as a sorbent in the removal of dye material has attracted significant interest because of their advantages over synthetic materials such as fibers, polymers etc. For this purpose, this study is using low cost materials. In this study, adsorption of dye from wastewater was investigated by using Antep (city in Turkey) pistachio nut shield powder which is low-cost material. A synthetic dye wastewater solution was prepared by using dark blue as model dye. The adsorption of dark blue from aqueous solution onto antep pistachio nut shield powder and waste- antep pistachio nut shield powder materials investigated. The optimum conditions for the removal of the analyte, including pH, amount of adsorbent, and agitation time of the sample solution, temperatures, initial dye concentrations and capacity were examined by batch tests. The dye removal was also studied using dynamic column processes and the dependence of adsorption on extremely determined column parameters, e.g., flow rate, amount of adsorbent, height of column. Under the optimum conditions, removal of dark blue dye loaded on antep pistachio nut shield powder was 94±2% at 95% confidence level, respectively for spiked water samples.

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References