

Teacher Guide

This video lesson aims to show students how adsorption can be used to treat water contaminated with organic pigments. The lesson uses an alternative to activated carbon as a bio-adsorbent material (tamarind skin). The objective is to show that adsorption is an efficient treatment process, but that it is dependent on certain chemical parameters. In the example given it's evident to the student that the adsorptive process between the pigment and the biomaterial is mediated by electrostatic forces (ion-ion interaction). The tamarind skin, a lignocellulosic material, is negatively charged. It therefore adsorbs the cationic dye methylene blue more efficiently. The adsorption of the anionic dye indigo carmine is less evident. This difference in adsorption is visible in practice and serves to contextualize the theory of intermolecular interaction of the ion-ion type. It also demonstrates that the adsorptive process is an efficient technique for the treatment of water contaminated with dyes.