



دانشگاه علوم پزشکی و خدمات
بهداشتی دامانی کاشان

بسمه تعالی

فرم چکیده سخنرانی ژورنال کلاب دانشجویان کارشناسی ارشد

دانشکده بهداشت، دانشگاه علوم پزشکی کاشان



نام و نام خانوادگی دانشجو: ریحانه سببیان

شماره دانشجویی: ۹۹۱۱۷۳۱۰۰۴

رشته تحصیلی: مهندسی بهداشت محیط

استاد راهنما: دکتر مصطفایی

تاریخ برگزاری جلسه: ۱۴۰۱/۱۰/۰۳ ساعت: ۱۳:۰۰-۱۲:۰۰

Efficient Removal of Methyl Red Dye by Using Bark of Hopbush



water

Gul S, Kanwal M, Qazi RA, Gul H, Khattak R, Khan MS, Khitab F, Krauklis AE. Efficient removal of methyl red dye by using bark of hopbush. *Water*. 2022 Sep 11;14(18):2831.

(<https://doi.org/10.3390/w14182831>)

چکیده: ۲۱۲ کلمه

Methyl red (MR) dye, one of the azo dyes, is mutagenic and its persistence has negative effects on the environment and people's health. The current work is the first to demonstrate that methyl red dye can be removed effectively and sustainably, utilizing biomass derived from the bark of the *Dodonaea viscosa* (Hopbush) plant. The Hopbush bark shows effective adsorption of MR, upto 73%, under optimized conditions in an aqueous medium. The experimental conditions were optimized by examining the effect of time, initial dye concentration, pH and ionic strength on the adsorption process in an aqueous medium. Maximum (i.e., 73%) adsorption of MR removal (500 ppm) was observed in highly acidic conditions (pH = 1) at a contact time of 75 min. The pseudosecond-order kinetic model and Freundlich adsorption isotherm appeared to be the most appropriate for characterizing the MR's adsorption onto the bark of the *D. viscosa* plant. Furthermore, it was shown that bark powder outperformed animal charcoal, silica gel, and powdered flowers, as well as the leaves of the same species, in terms of adsorption capacity. Thus, a natural adsorbent that is inexpensive and readily available—the bark of the *D. viscosa* plant—can be used to effectively remove harmful dyes from contaminated water and protect water resources from harmful pollutants.