



## Walnut Shell Charcoal a Cost-effective Adsorbent for Removal of Methylene blue Dye from Aqueous Solution

Aijaz Ahmad lone\* and Nisha Sharma

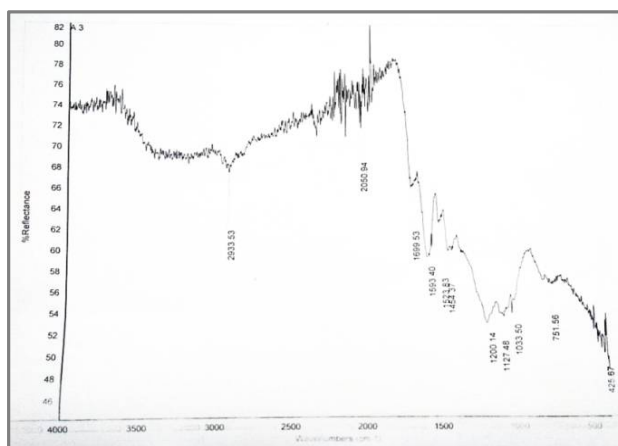
Department of Physical Sciences, Sant Baba Bhag Singh University Jalandhar, Punjab, **INDIA**  
Email: [chemistryajaz1988@gmail.com](mailto:chemistryajaz1988@gmail.com)

Accepted on 6<sup>th</sup> January, 2019

### ABSTRACT

Walnut shell charcoal act as a good adsorbent for removal of methylene blue dye. A batch adsorption study was carried out with variable parameters like adsorbent amount, contact time, initial dye concentration, pH, and salt effect. The morphology and functional groups present in Activated carbon walnut shell charcoal were investigated by X-Ray Diffraction (XRD) and Fourier transform infrared (FTIR) spectroscopy. Studies showed that the pH of aqueous solutions affected by dye removal as a result of removal efficiency increased with decreasing solution of pH, the results indicate that Walnut shell activated carbon could be employed as a low-cost alternative to commercial activated carbon in the removal of methylene blue from wastewater.

### Graphical Abstract



FTIR spectrum of loaded methylene blue on ACWSC.

**Keywords:** Activated Carbon of Walnut Shell, Methylene Blue, Adsorption.