

## MONPs as potential adsorbent for removal of toxic dyes

Wandit Ahlawat, Neeraj Dilbaghi and Sandeep Kumar\*

Department of Bio and Nano Technology, Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India.125001.

Worldwide water remediation has gained a huge importance<sup>1</sup>. Dyes also contributes enormous toxic molecules to water. From past few decades, numerous nanomaterials have been utilized for water remediation<sup>1</sup>. Metal oxide nanoparticles (MONPs), owing to their large surface area and surface activity, being proposed for removal of dye molecules acting as an excellent adsorbent<sup>1,2</sup>. In this study, MONPs have been synthesized and characterized using TEM, UV, PSA, FTIR etc. MONPs were then used for the removal of aqueous methyl orange and methylene blue as two models of anionic and cationic dyes. The experiments explored different parameters such as effects of contact time, pH, concentration of dyes. By evaluating the parameters, the dye uptake capacity and kinetic behaviour were determined for MONPs. MONPs validated exquisite kinetic and loading behaviour for both the dyes.

### References

<sup>1</sup>Santhosh,C., Velmurugan, V., Jacob, G., Jeong, S.K., Grace, A.N., Bhatnagar, A. *Chemical Engineering Journal* 2016, 306, 1116-1137. *Role of nanomaterials in water treatment applications : A review.*

<sup>2</sup>Ghaedi, M., Hajjati, S., Mahmudi, Z., Tyagi, I., Agarwal, S., Maity, A., Gupta, V.K. *Chemical Engineering Journal* 2015, 268, 28-37. *Modeling of competitive ultrasonic assisted removal of the dyes – Methylene blue and Safranin-O using Fe<sub>3</sub>O<sub>4</sub> nanoparticles.*

### Biographic Details

Name: Wandit Ahlawat

Title: MONPs as potential adsorbent for removal of toxic dyes

Affiliation, Country: Department of Bio and Nano Technology, Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India.125001.

Phone: +919991058588 E-mail: nano.wandit@gmail.com

Research interests: Focussed on synthesis of nanomaterials and their application in electrochemical sensors and water remediation.



➤ ICBNI -2017 abstract submission