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## Adsorptive separation of hexavalent chromium from its synthetic and real water using eggshell coated with magnetite nanoparticles

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nvironmental solid waste such as country eggshells were Effectively utilized to prepare magnetic nano-adsorbent (EM) by ultrasonic assisted co-precipitation method to remove Cr(VI). The sorbent surface, physiochemical, functional bond, and thermogravimetric weight loss, magnetic characteristics of prepared nano-adsorbent were investigated by using different analytical techniques: X-Ray diffractometer, field emission scanning electron microscope, thermogravimetric analyser, Fourier-transform infrared spectrophotometer, and vibrating sample magnetometer. The effect of cluster trial working parameters, such as time, initial Cr(VI) concentration, pH, and co-existing anions were examined. The Langmuir, Freundlich, and Temkin adsorption isotherms were analysed with the batch adsorption equilibrium data ensuring the multilayer adsorption of Cr(VI) onto the EM sites. Thermodynamic parameters were calculated for the batch adsorption process of Cr(VI) removal by EM adsorbent. The novel eggshell coated with magnetic nano-adsorbent (EM) have more prominent adsorbing potential for Cr(VI) removal from its aquatic environment and the best suited for

treating surface, underground and tannery effluent with good reusability strength.

## Biography

Sathish Sundararaman was born on 24 th May 1983, in Thanjavur district. He completed his undergraduate degree in Bachelor of Technology in Chemical Engineering from SASTRA University, Thanjavur, during the year 2000 - 2004. In 2010, he completed his post graduate degree in Master of Engineering in Environmental Engineering from Sathyabama University with a first class with distinction and was awarded a gold medal. S. Sathish started his professional career as Process Engineer in Manali Petrochemical Limited (SPIC), Chennai till 2011. He started the journey as an academician and researcher in Department of Chemical Engineering, Sathyabama University in the year 2011. He awarded a Ph.D degree from Sathyabama University in 2016. He has renowned publications in these research areas in national and international journal. He had interest in treatment of water/ waste water using bioremediation techniques. His research interests include: Green/Sustainable Chemistry, Nanotechnology, Biocatalysis. He has mentored Ph. D. and has published research papers in journals of high repute (published by ACS, Elsevier, Wiley, MDPI, Springer, etc.) in addition to being having co-authored Books & Edited special Issues of Journals.

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