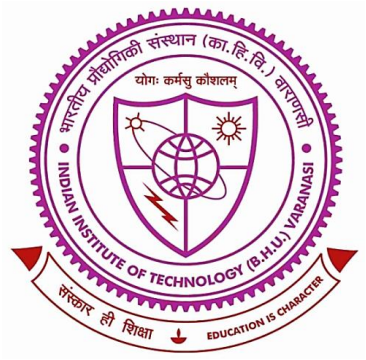
Biomass derived mesoporous carbon materials for treatment of dyehouse effluents



Thesis submitted in partial fulfilment for the

Award of Degree

DOCTOR OF PHILOSOPHY

By

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ABBREVIATIONS

- **MAC:** Mesoporous Activated Carbon
- **MAC@Al:** Gamma Alumina Decorated Mesoporous Activated Carbon
- **CHMAC:** Corn Husk-Based Mesoporous Carbon
- **FTIR:** Fourier Transform Infra-Red Spectroscopy
- **XRD:** X-Ray Diffraction
- **HR-TEM:** High-Resolution Transmission Electron Microscope
- **SEM:** Scanning Electron Microscope
- **UV-Vis:** Ultraviolet-Visible Spectroscopy
- **EDS:** Energy Dispersive Spectroscopy
- **COD:** Chemical Oxygen Demand
- **BOD:** Biological Oxygen Demand
- **RhB:** Rhodamine B
- **OG:** Orange G
- **CV:** Crystal Violet
- **nm:** Nanometer
- **BET:** Braunner-Emett-Teller
- **BJH:** Barret-Joyner-Halenda
- **TCI:** Tokyo Chemical Industry
- **w/w:** weight by weight
- **XPS:** X-Ray Photoelectron Spectroscopy

- **JCPDS:** Joint Committee on Powder Diffraction Standards
- **IUPAC:** International Union of Pure and Applied Chemistry
- **Imp.:** Impregnated
- **θ:** Angle (degree)
- **a.u.** atomic unit
- **BE:** Binding energy
- **eV:** Electron volt
- **mM:** Millimolar
- **s:** Second
- **λ:** Wavelength
- **k_2:** Pseudo-second order rate constant
- **k_1:** Pseudo-first order rate constant
- **mg/L:** Milligram per liter
- **M:** Molar
- **q_e:** Amount of adsorbed adsorbate on adsorbent in mg/g at equilibrium
- **q_m:** Langmuir monolayer adsorption capacity
- **R^2:** Coefficient of determination
- **ΔG^o:** Change in standard free energy
- **ΔH^o:** Change in standard enthalpy
- **ΔS^o:** Change in standard entropy

LIST OF FIGURES

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