

# Low cost adsorbents for single and multi-component system: Remediation of textile and pharmaceutical wastewater treatment



Thesis submitted in partial fulfilment  
for the Award of Degree  
**Doctor of Philosophy**

by

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## Acknowledgement

I would like to express my deepest gratitude to my supervisor, **Dr. Kesheo Prasad**, Department of Civil Engineering, Indian Institute of Technology (B.H.U.), for their invaluable guidance, encouragement, and expertise throughout the course of this research. Their unwavering support, insightful feedback, and patience have been instrumental in shaping this thesis. I am deeply indebted for the countless hours they devoted to reading drafts, providing detailed critiques, and motivating me to strive for excellence.


I would also like to extend my heartfelt thanks to **Prof. Sasankasekhar Mandal**, the Head of the Department of Civil Engineering, Indian Institute of Technology (B.H.U.), for their continuous encouragement and the opportunities provided by the department. Their leadership and commitment to fostering a positive academic environment have greatly contributed to the successful completion of this research.

I would also like to my heartfelt thanks to Shri Rajesh Prasad Ji and other office staff of Civil Engineering Department and sincere thanks to other department of IIT (BHU) for continuous support.

I would also like to my heartfelt thanks my friends and everyone who support me during research work.

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## List of abbreviations

BG	Brilliant green
BOD	Biochemical oxygen demand
CR	Congo red
CV	Crystal violet
DXN	Doxycycline
GO	Graphene oxide
GS	Ganga sand
MB	Methylene blue
MG	Malachite green
MO	Methyl orange
MWCNT	Multiwall carbon nanotube
NR	Neutral red
PANI	Polyaniline
RB	Rhodamine B
RSM	Response surface methodology
SCB	Sugarcane bagasse

## List of notation and symbols

$1/n$	Intensity
$C_e$	Equilibrium concentration
$C_i$	Primary concentration
$k_1$	Pseudo first order constant
$k_2$	Rate constant of the PSO
$K_F$	Freundlich coefficient
$m$	Mass
$q_e$	Adsorption capacity
$q_m$	Maximum adsorption capacity
$q_t$	Amount of adsorbed ions per unit adsorbent time
$V$	Volume