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### CERTIFICATE

This is to certify that the thesis entitled “*Spectroscopic and Mechanistic Approach for Bio-Remediation of Heavy Metals*” submitted for Ph.D. Degree in Chemistry by *Ms. Shilpi Kushwaha* incorporates the original research work carried out by her under my supervision.

(Dr. Padmaja Sudhakar)  
**Research Guide**

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A handwritten signature in black ink, appearing to read 'Shilpi' with a stylized flourish at the end.

Shilpi Kushwaha