Notification No. : 555/2024

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Name of the Scholar **:** Afroz Jahan

Name of the Supervisor **:** Prof. Nahid Nishat

Name of the Department/Centre **:**Chemistry

Topic of Research **:** Development of environmentally friendly thermosetting polymers from cardanol for protective applications

Findings

The work of my Ph. D thesis has been on examining renewable CNSL/cardanol polymers in coatings. It covers various aspects including CNSL composition, corrosion inhibition, the importance of coatings in corrosion prevention, economic implications, and biomedical applications. The complete work of my doctoral thesis is divided into five chapters in which Chapter 1 is the introduction which gives a brief overview of renewable resources, with a specific focus on CNSL/cardanol polymers and their applications in coatings. It explores the composition of CNSL, corrosion inhibition, the pivotal role of coatings in corrosion prevention, the economic ramifications of corrosion, and biomedical applications. The remaining four chapters were experimental focusing on different polymers, polymer composites and polymer nanocomposite. Chapter 2 fabrication of agro by-product derived green polyurea coatings with zero-VOC to combat corrosion and bacterial growth: A clean approach. Chapter 3 ambient-cured cardanol-derived polyurea coatings for anti-corrosive and anti-bacterial applications. Chapter 4 development of cardanol-based anti-bacterial and anti-corrosion bio-polyurea-epoxy composite coating for mild steel surface. Chapter 5 superhydrophobic robust CPUrea@CeO_2 nanocomposite coating for anti-corrosive and anti-bacterial applications.