

Purification and Evaluation of Lectin-like Protein from *Terminalia catappa* (TC) Seeds for its Physicochemical and Antimicrobial Properties

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Lectins are a varied group of proteins that play key roles in biological processes exhibiting unique structural and functional properties. Lectins are proteins that can specifically bind to carbohydrates, and play a role in processes such as cell adhesion, immune responses, and intracellular signaling. Lectins have potential to regulating blood sugar levels, defend against pathogens, and prevent cancer progression, making them promising candidates for therapeutic applications. *Terminalia catappa*, a large tropical tree, is known for its medicinal properties. This study aimed to purify and characterize lectins from TC seeds. The research involved extracting and partially purifying the lectin, followed by tests such as hemagglutination assays, stability under varying temperature and pH conditions, EDTA dependence, metal ion effects, sugar specificity, and antibacterial activity. Hemagglutination was observed in human blood group B+. The findings suggest that TC seed lectin is stable within a moderate temperature and pH range. Its EDTA dependence indicates it may be a metalloprotein, interacting with metal ions, except Hg^{2+} . Although initial antibacterial tests showed limited activity, further research is needed to fully explore its therapeutic potentials.

Key words : Lectin, *Terminalia catappa*, Metalloprotein