

Isolation and Purification of Lectin-like Protein from *Terminalia catappa* Seeds Using Combination of Chromatographic Techniques

Fakeha Mohammed Rehan Shaikh¹ & Ashish Sambhaji Uzgare^{2*}

Department of Chemistry, Wilson College (Autonomous), Chowpatty Seaface Road, Mumbai 400007, Maharashtra, India

Fakeha.rehan4@gmail .com

INTRODUCTION & AIM

Plant lectins vary in structure, function, and carbohydrate-binding specificity, with seed-derived lectins showing strong erythrocyte agglutination and therapeutic potential. *Terminalia catappa* (Indian Almond) contains bioactive compounds, including lectin-like proteins. Traditional purification methods like affinity chromatography exploit lectin-carbohydrate binding for isolation.

This study aims to purify lectin-like protein from *Terminalia catappa* seeds using chromatographic techniques.

METHOD

Extraction of lectin

Purification steps:

1. Ammonium Sulphate Precipitation
2. Gel Filtration
3. Affinity Chromatography

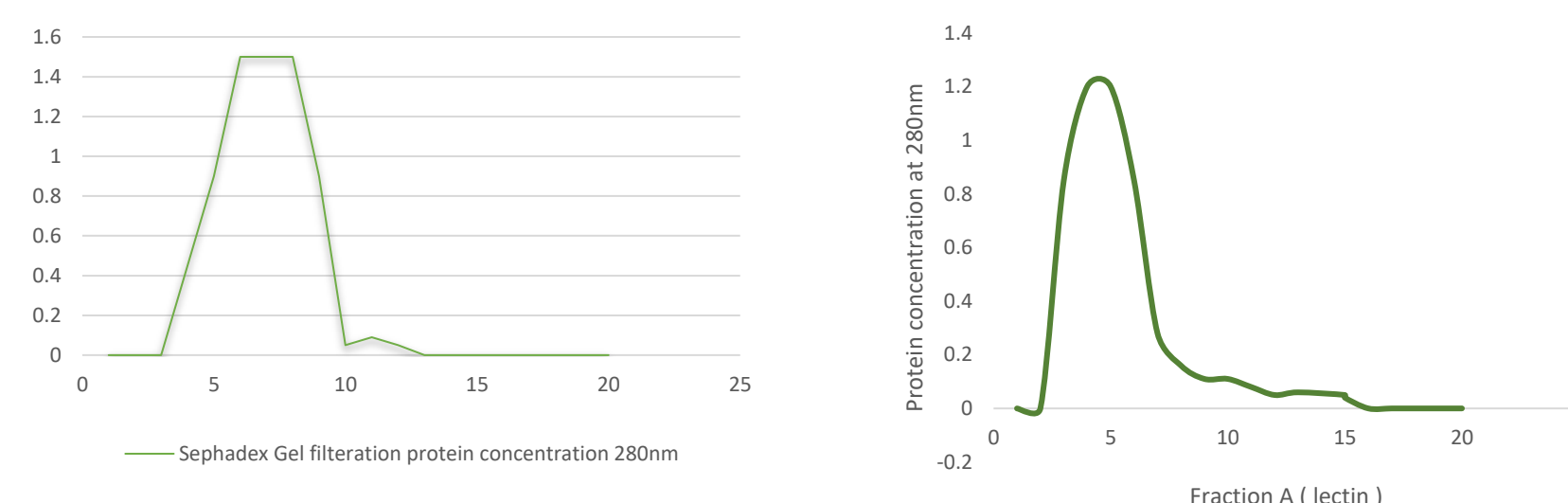
Hemagglutination Activity Test

Paper Chromatography

CONCLUSION

The present study demonstrates the successful extraction and purification of a biologically active lectin-like protein from *Terminalia catappa* seeds. Utilizing a series of chromatographic techniques, including affinity chromatography, the lectin was isolated and shown to possess hemagglutination activity, particularly with human blood group B. Amino acid profiling via circular paper chromatography indicated the presence of Leucine, Phenylalanine, and Tryptophan or Tyrosine, highlighting the protein's hydrophobic and aromatic character. These results suggest that *Terminalia catappa* seeds are a promising source of functional lectins with potential therapeutic value, meriting further investigation into their structural properties and biomedical applications.

RESULTS & DISCUSSION



Figures 1 & 2. Gel Filtration and Affinity Chromatography



Figure 3. Hemagglutination activity of lectin

This study successfully showed a purified lectin-like protein from the seeds of *Terminalia catappa*. The lectin was extracted using phosphate-buffered saline (PBS) and purified through a 2 steps process, including ammonium sulfate precipitation, dialysis, gel filtration with Sephadex G-75, and affinity chromatography using Seralose CL-4B. The purified lectin demonstrated hemagglutination activity with human blood group B.. Circular paper chromatography of *Terminalia catappa* seed lectin showed three Rf values: 0.75, 0.62, and 0.50, likely corresponding to Leucine, Phenylalanine, and either Tryptophan or Tyrosine.

FUTURE WORK / REFERENCES

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