

Statement of Research or Professional Works

My research interests lie at the intersection of **ethnobotany**, **medicinal plant research**, and **bioinformatics**, with a focus on linking traditional knowledge to modern scientific applications. For my Ph.D. dissertation at Christ University, I conducted extensive **fieldwork in the Sonamukhi Block of Bankura District, West Bengal**, documenting the medicinal practices of traditional healers and identifying plants with therapeutic potential. This ethnobotanical documentation was complemented by laboratory assays that assessed antioxidant properties of selected species. My work has been published in peer-reviewed journals and presented at both national and international conferences, contributing to the preservation and scientific validation of traditional medicinal knowledge.

Alongside field-based ethnobotany, I have pursued **computational and biochemical approaches** to medicinal plant research. During my M.Sc., I completed a thesis project involving **GC-MS profiling of *Curcuma longa* (turmeric)** and **in-silico molecular docking** of identified compounds against breast cancer proteins. This study deepened my expertise in **bioinformatics tools, phytochemical analysis, and molecular docking**, areas I continue to integrate into my current scholarship. My research portfolio spans from molecular-level investigations to community-based ethnographic studies, reflecting a commitment to both scientific rigor and real-world relevance.

I also hold a **published patent (2025)** for a **herbal composition promoting bone fracture healing and bone tissue regeneration**, developed in collaboration with colleagues. This patent highlights my interest in translational science—bridging traditional plant knowledge with innovations in modern therapeutics.

Looking ahead, I am interested in expanding my research in ways that connect students directly with the environment around them. At Deep Springs, I envision projects that link **plant ecology, ethnobotany, and applied bioinformatics**, encouraging students to explore the unique desert ecosystem while also applying computational and biochemical tools to their findings. My goal is to involve students not just as observers, but as collaborators in research—designing studies, collecting data, and analyzing results in ways that empower them as emerging scientists.

Ultimately, my professional work reflects a commitment to **integrating traditional ecological knowledge with contemporary science** and to **mentoring students through authentic research experiences**. I see Deep Springs as an ideal environment to further this mission, given its strong emphasis on place-based learning, intellectual breadth, and student engagement in all aspects of academic life.

Sincerely,

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