

Formulation and Evaluation of Herbal Liniments Using Datura Leaves (*Datura Stramonium*)

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Abstract: Herbal liniments have long been valued for their therapeutic benefits in traditional medicine, offering natural solutions for pain relief, inflammation reduction, and wound healing. This study, an herbal liniment was formulated using the leaves of *Datura stramonium*, a herb renowned for its analgesic, anti-inflammatory, and antimicrobial activity. Fresh leaves of *Datura* were collected under safe conditions, shade-dried, and extracted by hydro-alcoholic solvents to extract maximum active constituents. The resultant extract was prepared as a liniment base with the aid of suitable oils and emulsifying agents. The final liniment was checked for significant parameters like appearance, pH, spreadability, viscosity, and stability at varied conditions of storage. Preliminary phytochemical screening identified alkaloids, flavonoids, tannins, and steroids as present, and these compounds are thought to account for the medicinal activity of *Datura*. The liniment demonstrated encouraging anti-inflammatory and weak analgesic activities in preliminary testing, indicating its potential as an adjunct therapy for muscle aches, sprains, and minor injuries. Efforts were made to detoxify and standardize the extract to reduce any toxic effects of *Datura* alkaloids. This study highlights the importance of traditional medicinal plants like *Datura* in modern herbal formulations and provides a scientific foundation for the development of safe, effective, and affordable liniment preparations. Additional clinical assessments and toxicological investigations are suggested to determine the complete therapeutic potential and safety profile of the formulated product.

Keywords: *Datura stramonium* leaves, Herbal liniment, Anti-inflammatory, Analgesic activity, herbal topical formulation, Pain relief

