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FORMULATION AND EVALUATION OF *Barleria cristata* LEAF

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ABSTRACT

Herbal formulations have gained wide acceptance due to their safety, efficacy, and minimal side effects when compared to synthetic preparations. *Barleria cristata*, commonly known as Philippine violet, is a medicinal plant traditionally used for its anti-inflammatory, antimicrobial, antioxidant, and wound-healing properties. The present study focuses on the formulation and evaluation of a herbal topical preparation using *Barleria cristata* leaf extract. The leaves were collected, authenticated, dried, powdered, and subjected to extraction. The obtained extract was incorporated into a suitable herbal base to prepare a topical formulation. The prepared formulation was evaluated for various physicochemical parameters such as appearance, pH, spreadability, homogeneity, grittiness, and stability. The results indicated that the formulation possessed acceptable physicochemical characteristics and good stability, suggesting that *Barleria cristata* leaf extract can be effectively used in herbal topical formulations.

KEYWORDS: *Barleria cristata*, herbal formulation, topical preparation, evaluation, medicinal plant.

INTRODUCTION

Medicinal plants have been used as therapeutic agents since ancient times and continue to play a significant role in modern healthcare systems. Herbal formulations are preferred due to

their biocompatibility, safety, and reduced adverse effects. Topical herbal formulations are widely used for the treatment of skin disorders such as inflammation, wounds, infections, and burns. *Barleria cristata* (Family: Acanthaceae) is an ornamental and medicinal plant known for its pharmacological activities including anti-inflammatory, antimicrobial, antioxidant, analgesic, and wound-healing effects.

The leaves of *Barleria cristata* contain bioactive compounds such as flavonoids, phenolics, tannins, and glycosides which contribute to its medicinal properties.

The present study aims to formulate a herbal topical preparation using *Barleria cristata* leaf extract and evaluate its physicochemical properties to assess its suitability for topical application

MATERIALS AND METHODS

Fig. 1: *Barleria cristata* leaf.

Materials Plant Material

Fresh leaves of *Barleria cristata* were collected from the local area. The plant material was authenticated by a qualified botanist. The leaves were washed thoroughly with running water to remove dirt and impurities.

Chemicals and Reagents

- Ethanol (analytical grade)
- Distilled water
- Normal saline (0.9% NaCl)
- Potassium hydroxide

- Sodium carbonate
- Methyl paraben
- Ceto-stearyl alcohol
- Stearic acid
- Glycerin
- Ferric chloride
- Rose water
- Concentrated hydrochloric acid
- Concentrated sulphuric acid
- Aceticanhydride.

Equipment

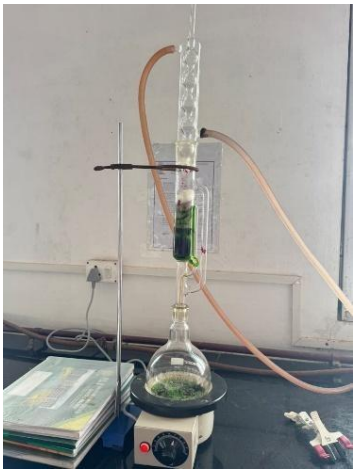

Fig. 2: Soxhlet apparatus.

- Soxhlet extraction apparatus
- Hot plate
- Water bath
- Incubator
- Centrifuge
- Analytical balance
- pH meter
- Beakers, test tubes, pipettes
- Mortar and pestle
- Microcentrifuge (Eppendorf) tubes
- Glass slides.

BiologicalMaterial

Fresh human blood collected from a healthy volunteer with proper ethical consideration.

METHODS

1. Preparation of Plant Extract

The collected *Barleria cristata* leaves were shade-dried at room temperature and powdered using a mechanical grinder. The powdered material was stored in an airtight container. Extraction was carried out using ethanol by Soxhlet extraction. The extraction process was continued until the siphon tube solvent became colorless. The extract was filtered and concentrated using a water bath at low temperature. The dried extract was stored in a desiccator until further use.

2. Preliminary Phytochemical Screening

The prepared extract was subjected to preliminary phytochemical tests to identify the presence of bioactive constituents such as alkaloids, flavonoids, tannins, phenolic compounds, glycosides, and terpenoids using standard chemical tests.

3. Formulation of herbal cream

Fig. 3: Formulation of cream.

- **PreparationofOilPhase**

  Ceto-stearyl alcohol and stearic acid were weighed accurately and melted together in a china dish on a hot plate at approximately 70 °C.

- **PreparationofAqueousPhase**

  Glycerin, potassium hydroxide, sodium carbonate, methyl paraben, *Barleria cristata*

  extract, rose water, and distilled water were heated separately in a beaker at 70 °C.

Emulsification

The heated aqueous phase was slowly added to the oil phase with continuous stirring until a uniform cream was formed. The cream was allowed to cool with gentle stirring to obtain a smooth and homogeneous formulation.

Evaluation of Barleria cristata Leaf Formulation

1. **Physical Appearance**

The formulation was visually observed for color, odor, texture, and consistency. A good formulation should be smooth, uniform, and free from lumps or phase separation.

2. **pH Determination**

The pH of the formulation was measured using a digital pH meter. The pH should be within the skin-friendly range (5.0–6.5) to avoid irritation.

3. **Homogeneity**

A small quantity of the formulation was rubbed between fingers to check uniformity. The formulation should be homogeneous without any gritty particles.

4. **Spreadability**

Spreadability indicates how easily the formulation spreads on the skin. Good spreadability ensures better patient compliance and easy application.

5. **Washability**

Washability was tested by applying the formulation on skin and washing with water. The formulation should be easily washable without leaving oily residue physicochemical parameters. Phytochemical screening confirmed the presence of various bioactive compounds responsible for therapeutic activity. Stability studies indicated no

RESULTS AND DISCUSSION

The formulated herbal preparation showed acceptable organoleptic characteristics and significant changes in the formulation, suggesting good stability. The results validate the traditional use of *Barleria cristata* leaves and support their potential in herbal drug formulation.

CONCLUSION

The study successfully formulated and evaluated a herbal preparation using *Barleria cristata* leaves. The formulation exhibited satisfactory physicochemical properties, stability, and phytochemical composition. This plant can be considered a promising candidate for the development of effective herbal formulations.

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