

Aikyam Team from Bapatla College of Pharmacy Develops Process for In-home Production of Herbal Hand Sanitizer

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Aikyam team from Bapatla College of Pharmacy addresses the fundamental challenge of **maintaining proper hand hygiene** in environments where soap and water may not be readily available, such as public spaces, schools, and workplaces. Because hands touch hundreds of surfaces daily, they become vectors for bacteria, viruses, and other pathogens, making hygiene the "first line of defense" against illnesses like the cold and flu.

More specifically, this herbal formulation seeks to overcome several **limitations associated with commercial chemical sanitizers**, including:

- **Skin Health Issues:** Commercial products often rely on harsh alcohols and synthetic additives that strip natural oils, leading to **dry skin and potential irritation**.
- **Chemical Exposure:** Synthetic sanitizers contain various chemicals and artificial fragrances that users may wish to avoid.
- **Environmental and Economic Factors:** The project highlights that commercial options can be **expensive** and typically involve **plastic packaging**, whereas this herbal alternative is eco-friendly and affordable to produce.

By using ingredients like **Tulsi** for its antimicrobial properties and **Aloe Vera** to counter the drying effects of alcohol, the project addresses the need for a sanitizer that is both highly effective at killing germs and **gentle on the skin**.

The project focuses on the development of a laboratory-scale **Herbal Hand Sanitizer Gel** that can be prepared at home. Positioned as a natural and eco-friendly alternative to synthetic commercial sanitizers, the project aims to provide effective hygiene that is gentle on the skin.

Core Product and Ingredients

The formulation is a 100 ml batch of gel that combines traditional herbal knowledge with pharmaceutical science. Its key active components include:

- **Tulsi Extract (*Ocimum sanctum*):** Acts as a powerful antimicrobial agent containing eugenol and linalool to fight infections.
- **Aloe Vera Gel:** Serves as a natural moisturizer and soothing agent to counter the drying effects of alcohol and promote skin healing.
- **70% Ethanol:** Utilized as the primary disinfectant at an optimal concentration that facilitates protein denaturation for maximum microbial kill.
- **Supporting Excipients:** Includes **Glycerin** as a humectant to lock in moisture and **Carbopol 940** as a gelling agent to create the desired texture.

Production and Technical Standards

The preparation process involves specialized steps such as the maceration of Tulsi leaves and the careful formation of a gel base through pH adjustment (targeting a **pH of 5–6**). Maintaining a steady stirring process while adding ethanol is highlighted as a critical parameter to prevent gel instability.

Testing and Results

The herbal sanitizer was tested by faculty members and the college Principal to evaluate its effectiveness and skin compatibility. Initial feedback described the product as **non-sticky** and easy to use, noting a **pleasant herbal fragrance** and a good moisturizing effect, with suggestions to further enhance the longevity of the scent.

Links

[Project presentation](#)

[Project video](#)

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