WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Formulation and Evaluation of Herbal Dusting Powder

Mr. Abhang Omkar Rajkumar[1], Mr. Gaikwad T.A.[2]

[1]Final Year B.Pha**ramcy Student, LNBCIOP, Raigaon, Satara**
[2]Asst. Prof., **LNBCIOP, Raigaon, Satara**

ABSTRACT:

Poly herbal dusting powders are gaining popularity as natural skincare solutions, leveraging the synergistic effects of multiple botanical extracts to address various skin concerns. This paper provides an in-depth exploration of the formulation process for poly herbal dusting powders, delving into the intricate details of ingredient selection, formulation techniques, and considerations for product development.

The formulation of poly herbal dusting powders begins with careful selection of botanical extracts known for their beneficial properties. Each herb contributes a unique set of bioactive compounds, including antioxidants, anti-inflammatory agents, antimicrobial agents, and skin-conditioning agents. Through a meticulous blending process, formulators aim to maximize the potency and efficacy of the final product while ensuring compatibility among the herbal extracts.

The development of poly herbal dusting powders requires a deep understanding of herbal medicine principles, as well as expertise in formulation science and cosmetic chemistry. By combining traditional knowledge with modern formulation techniques, skincare enthusiasts and industry professionals can create poly herbal dusting powders that offer holistic skincare benefits while adhering to principles of sustainability and naturalness.

INTRODUCTION:

Poly herbal dusting powders, a blend of multiple botanical extracts, offer a natural and holistic approach to skincare. Drawing from the rich tradition of herbal medicine, poly herbal formulations aim to harness the synergistic benefits of various plant-based ingredients to promote skin health and wellness. In recent years, there has been a growing interest in natural and herbal skincare products, driven by concerns over the potential adverse effects of synthetic chemicals and a desire for gentler alternatives.

The formulation of poly herbal dusting powder involves carefully selecting and combining botanical extracts known for their beneficial properties. Each herb brings its unique set of active compounds, including antioxidants, anti-inflammatory agents, antimicrobial agents, and skin-conditioning agents. By blending these herbs thoughtfully, formulators aim to create a multifunctional dusting powder that addresses various skincare concerns, such as excess moisture, irritation, inflammation, and microbial overgrowth.

Key considerations in the formulation process include the compatibility of botanical extracts, their concentration levels, and their potential interactions. Additionally, factors such as particle size, texture, and fragrance play a crucial role in the overall sensory experience and user acceptance of the dusting powder. Formulators strive to strike a balance between efficacy, safety, and user experience, ensuring that the final product meets both functional and aesthetic requirements.

In this article, we will explore the formulation of poly herbal dusting powder, delving into the selection of herbal ingredients, the formulation process, and considerations for product development. By understanding the principles behind poly herbal formulations and their potential benefits, skincare enthusiasts and industry professionals can make informed choices and contribute to the growing landscape of natural and sustainable skincare solutions.

TYPES: Dusting powder comes in two varieties:

1) Medical: Powders with medicinal properties are applied to minor skin disorders. They have to be unhindered. from infectious agents. Certain mineral elements need to be adequately sterilized because they may contain spores of gas gangrene, tetanus, etc The label also states that they should not be used on open wounds or areas of broken skin.

2) Surgical: Surgical dusting powders are used to burns, bodily cavities, large wounds, and infants' umbilical cords. These powders are sterile.

FORMULATION TABLE :

SR.NO.	INGREDIENTS	F1	F2	F3	F4
1.	**NEEM (EXTRACT)**	**1gm**	**1gm**	**1gm**	**1gm**
2.	**GINGER (EXTRACT)**	**1gm**	**1gm**	**1gm**	**1gm**
3.	**CINAMON(EXTRACT)**	**1gm**	**1gm**	**1gm**	**1gm**
4.	**TURMERIC(EXTRACT)**	**o.5gm**	**o.5gm**	**o.5gm**	**o.5gm**
5.	**TALCUM POWDER**	**qs**	**qs**	**qs**	**qs**
6.	**KAOLINE**	**qs**	**qs**	**qs**	**qs**

Net qty-50gm

The antimicrobial activities of herbal dusting powder

depend on the specific herbs used in its formulation. Here are some common herbs and their antimicrobial properties:

Neem: Neem has strong antimicrobial properties and is effective against bacteria, fungi, and viruses. It's commonly used in herbal preparations for its broad-spectrum antimicrobial activity.

Turmeric: Turmeric contains curcumin, which exhibits antimicrobial properties. It has been shown to inhibit the growth of various bacteria, fungi, and viruses, making it a valuable ingredient in herbal dusting powders.

When these herbs are combined into a dusting powder, they work synergistically to provide broad-spectrum antimicrobial activity. The powder can help prevent infections, soothe irritated skin, and promote overall skin health. However, it's essential to consider individual sensitivities and allergies when using herbal products, and consulting with a healthcare professional is recommended, especially for individuals with specific medical conditions or concerns.

PROCEDURE :

Ingredients Preparation: turmeric extract, neem extract, ginger extract, and cinnamon extract are prepared by adding distilled water in powder,further boil the prepration in water bath ,filter the solution ,collect the extract.

Formulation: Determine the desired proportions of each extract based on their potency and intended use. Start with a small amount and adjust as needed.Mix the extracts thoroughly to create a concentrated herbal blend.

Base Selection: Choose a suitable base for the dusting powder, such as talcum powder or Kaolin ,to provide the desired texture and absorbency.

Mixing in Mortar and Pestle: Place a small amount of the chosen base (talcum powder or Kaolin) in the mortar .Add a few drops of each herbal extract to the base in the mortar, starting with small amounts and adjusting as needed to achieve the desired concentration and fragrance.Use the pestle to grind and blend the herbal extracts into the base, applying gentle pressure and circular motions to ensure thorough mixing.

Gradual Addition: Gradually add more base and herbal extracts to the mortar, alternating between the two ingredients and continuing to blend until all components are well incorporated.Take care not to add too much liquid extract at once, as this may result in clumping or uneven distribution within the powder.

Mixing and Grinding:Continue grinding and mixing the ingredients in the mortar and pestle until a uniform mixture is obtained, with no visible clumps or lumps.

Optionally, pass the mixture through a fine mesh sieve or sifter to further refine the texture and remove any remaining particles or clumps.

(Prepared dusting powder passing through sieve number-120)

EVALUATION TEST'S FOR DUSTING POWDER:

1 .Appearance and Physical Characteristics: Visual Inspection: Check for uniformity of color, texture, and particle size.Odor Assessment: Evaluate the fragrance to ensure it meets specifications and is free from any off-odors.

2 .Particle Size Distribution: Determine particle size distribution using methods such as laser diffraction or sieve analysis to ensure consistency and optimal performance.

3 .pH Testing: Measure the pH of the dusting powder using a pH meter to ensure it falls within the specified range for skin compatibility.

3 .Abrasiveness In brief, an abrasiveness test for dusting powders involves evaluating the potential for the product to cause irritation or damage to the skin through friction. This can be done by applying the powder to a standardized skin surface or using an artificial skin substitute, then subjecting it to controlled rubbing or friction. After the test, the skin or artificial surface is examined for signs of redness, irritation, or damage. This helps assess the product's safety and suitability for use on the skin, especially in sensitive areas.

4 .The angle of repose for dusting powder is a critical parameter that reflects its flow ability, cohesion, and packing behavior. It's typically determined experimentally by pouring the powder onto a flat surface and allowing it to form a cone shape naturally. The angle formed by the slope of the cone is then measured to assess the powder's flow properties. A higher angle of repose indicates better flow ability, as the powder forms a steeper cone with minimal spreading. Angle of repose is equal to **tan1 (h/r).h** is the powder cone's height.**r** is the powder cone's radius.

5 . Moisture content: The following formula is used to compute the percentage of moisture content: Weight percentage (%) = Initial weight - Final weight / Initial weight * 100

6 . Bulk density and tapped density : The powder was put into a preweighed 25 ml container after being run through a no. 18 screen. graduated cylinder with markings in milliliters.Following two physical taps of the cylinder on a level tabletop, the bulk volume was determined. The tap density tester was used to measure the tapped volume after tapping at 250 drop-per-minute intervals of 500, 750, and 1250 taps. Bulk mass / bulk volume equals bulk density.

Mass of granules / volume of granules equals taped density.

7 . Hausner ratio: is a measure of the flowability of a powdered substance and is calculated by dividing the tapped bulk density of the powder by its untapped bulk density. It provides insight into how easily a powder can flow and pack under applied pressure. A higher Hausner ratio indicates poorer flowability, suggesting that the particles are more tightly packed and less able to move past each other freely. Conversely, a lower Hausner ratio suggests better flowability, indicating that the particles can move more easily and form a looser, more easily pourable bed. **Hausner ratio =(Tap density) /(Bulk density)**

Result and conclusion-

In conclusion, an antimicrobial herbal dusting powder can offer a natural and effective solution for addressing various skin concerns. By combining potent herbs neem, turmeric ,ginger, cinnamon, known for their antimicrobial properties. This powder provides a soothing and protective layer while helping to combat bacteria and fungi,

SR.NO	TEST	RESULT
A.	Colour	Brownish white
B.	Odour	Aromatic
C.	Appearance	Smoother
D.	Particle size	o.125
E.	Abrasiveness	Smoother
F.	Ph of the formulation	6.3
G.	Moisture content	2.96%w/v
H.	Bulk density	0.28g/cm3
I.	Tap density	0.31g/cm3
J.	Angle of repose	21%
K.	Carr's index	18%
L.	Hausner index	1.20

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