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"RESEARCH ARTICLE FORMULATION OF HERBAL ANTIPIGMENTATION CREAM BY USING BANANA PEEL"

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ABSTRACT:

The utilization of herbal remedies in skincare formulations has gained considerable attention due to their potential efficacy and minimal adverse effects. This study explores the formulation of a herbal antipigmentation cream utilizing banana peel powder, a byproduct often discarded despite its rich phytochemical composition. The banana plant, classified taxonomically under the genus Musa, provides the biological source for this innovative skincare product. Traditional uses of banana peel across various cultures underscore its diverse therapeutic properties, including skin moisturization, wound healing, and acne treatment.

The formulation process involves the extraction of banana peel powder through cold maceration, followed by the integration of key excipients such as beeswax, lemon oil, Vitamin E, glycerin, alum, rose water, and distilled water. This blend is meticulously mixed, blended, and adjusted to achieve the desired consistency and efficacy. Evaluation tests encompass macroscopic studies, determination of moisture content, and preliminary phytochemical screening, ensuring the quality, safety, and potency of the final product.

The findings of this research underscore the potential of banana peel powder as a valuable ingredient in skincare formulations, offering not only antipigmentation benefits but also moisturization, skin repair, toning, and hydration. The development of this herbal antipigmentation cream represents a harmonious amalgamation of traditional wisdom with contemporary scientific methodologies, promising a natural and sustainable solution to address skin pigmentation issues. This study contributes to the expanding field of herbal cosmeceuticals, bridging the gap between ancient knowledge systems and modern skincare innovations.

Keywords: Herbal, Antipigmentation Cream, Banana Peel Powder, Formulation, Skincare, Traditional Uses, Excipients, Extraction, Cold Maceration, Evaluation Tests, Phytochemical Screening, Sustainability, Cosmeceuticals.

Introduction:

Skin pigmentation disorders, characterized by uneven skin tone, hyperpigmentation, or hypopigmentation, represent a significant concern in dermatology and cosmetology. These conditions can arise due to various factors, including genetics, sun exposure, hormonal changes, inflammation, and aging. Among them, hyperpigmentation, commonly known as dark spots or age spots, is particularly prevalent and can significantly impact one's appearance and self-esteem.

In recent years, there has been a growing demand for safe and effective treatments for pigmentation disorders, leading to the exploration of herbal remedies as promising alternatives to conventional therapies. Herbal ingredients have long been utilized in traditional medicine systems worldwide for their therapeutic properties, including their potential to regulate melanin production, inhibit tyrosinase activity, and exert antioxidant effects.
The formulation of herbal antipigmentation creams represents a novel approach in addressing skin pigmentation concerns, offering a natural and gentle solution with minimal risk of adverse effects. By harnessing the synergistic effects of botanical extracts, essential oils, and plant-derived compounds, these creams aim to lighten dark spots, even out skin tone, and promote a radiant complexion.

This research paper focuses on the development and evaluation of a herbal antipigmentation cream formulated with carefully selected botanical ingredients known for their skin-brightening and melanin-inhibiting properties. Through systematic experimentation and analysis, the efficacy, safety, and mechanisms of action of the formulated cream will be explored, shedding light on its potential as a viable treatment option for individuals seeking to address pigmentation concerns while embracing natural skincare solutions.

The introduction of herbal antipigmentation creams signifies a paradigm shift towards holistic skincare approaches that prioritize the integration of traditional wisdom with modern scientific advancements. By bridging the gap between ancient herbal remedies and contemporary skincare needs, these creams offer promise in meeting the growing demand for effective, yet gentle, solutions for skin pigmentation disorders. This paper aims to contribute to the expanding body of knowledge in herbal dermatology, paving the way for innovative and sustainable approaches to skincare that promote both beauty and well-being.

Material:

Banana plant:

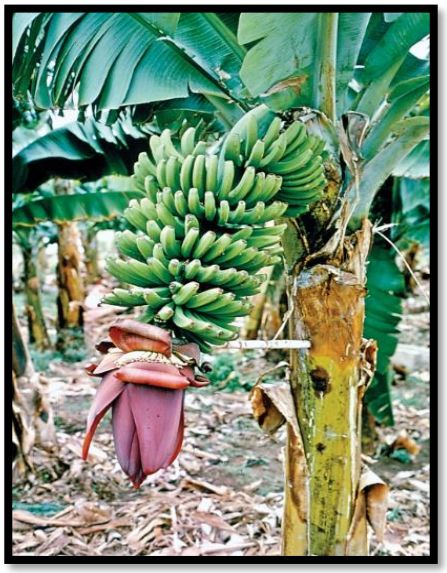

Fig No.1: Plant of Musa paradisiaca (Banana plant).

Taxonomical classification:

- Kingdom: Plantae
- Phylum: Angiosperms
- Class: Monocotyledons
- Family: Musaceae
- Genus: Musa

Biological source:

The peel of banana fruit belonging to the genus Musa, with the two main species Musa acuminate, Musa balbisiana.

Traditional Uses of Banana Peel:

1. Skin Care: Moisturizes, soothes skin, and relieves itching.
2. Wound Healing: Promotes healing and reduces inflammation.
3. Acne Treatment: Helps reduce inflammation and redness.
4. Teeth Whitening: Rubbing may help whiten teeth.
5. Splinter Removal: Assists in drawing out splinters.
6. Fertilizer:Provides nutrients for plants.
7. Shoe Shine: Cleans and polishes leather shoes.
8. Composting: Enriches soil with organic matter.
9. Livestock Feed: Used as a supplement for animals.

Excipient & uses:

Sr. No.	Ingredients	Uses
1	Bees wax	*Emollient*
2	Lemon oil	*Brightening*
3	Vit E	*Skin Repair*
4	Glycerin	Emulsifying agent
5	Alum	*Toning*
6	Rose water	*Hydration*
7	Distilled water	*Solvent*

Table no. 1: excipient and their uses

Method:

a) Collection, identification & processing of Plant:

The peel of fruit belonging to the genus Musa, with the main species being musa acuminata were collected from medicinal plant garden of Shri amolak jain vidya prasarak mandal, kada. Inner bark were cleaned & dried in shade. Powdered drug material was sieved through mesh. And the powder was subjected for further study.

b) Extraction:

Banana peel powder was extracted with water by using cold maceration process.

C) Formulation of herbal antipigmentation cream of banana peel:

Procedure:

Prepare the Herbal Extracts:

- Grind dried herbs like banana peels & alum into a fine powder.
- Extract lemon juice from fresh lemons.
- Add some distilled water in all ingredients.
- Ensure you have all other ingredients ready.

Mixing:

- In a clean bowl, mix the bees wax, vit.e, glycerine with the desired amount of herbal extracts.
- Start with small amounts and adjust according to your preference and skin sensitivity.
- Add a few drops of rose water.

Blending:

- Blend the mixture thoroughly until all the ingredients are well combined.
- Use a hand blender for a smoother consistency.

Adjusting Consistency:

- If the mixture is too thick, you can add a little water or rose water to adjust the consistency.
- If it's too thin, add more base cream or lotion.

Storing:

- Transfer the cream into clean, airtight containers.
- Store it in a cool, dry place away from direct sunlight to preserve its efficacy.

Formulation of herbal antipigmentation cream of banana peel:

Sr. No.	**Ingredients**	**Uses**	**Formulation**
1	Banana peel powder	*Moisturization*	**4.5 gm**
2	Bees wax	*Emollient*	**4.5 gm**
3	Lemon oil	*Brightening*	**3 ml**
4	Vit E	*Skin Repair*	**0.3 ml**
5	Glycerin	Emulsifying agent	**4.4 ml**
6	Alum	*Toning*	**1.5 ml**
7	Rose water	*Hydration*	**q.s**
8	Distilled water	*Solvent*	**11.25 ml**

Table no. 2: Formulation table.

Evaluation tests:

Macroscopic study of peel of fruit of *musa acuminata*

Sr. no	**Morphological Evaluation**
1	Color
2	Taste
3	Thickness

4	Surface
5	Aroma

Table no. 3: Macroscopic study of peel of fruit of *musa acuminata*

B] Determination Moisture Content:

Sr. No.	Evaluation Parameter
1)	Total ash value
2)	Acid insoluble ash
3)	Water soluble ash
4)	Sulphated ash

Table no. 4: Determination Moisture Content

Result:

A] Macroscopic study of peel of fruit of *musa acuminata* .

Sr. no	Morphological Evaluation	Observation
1	Color	Green to yellow to brown
2	Taste	Bitter
3	Thickness	1to3mm
4	Surface	Smooth with slightly rigid
5	Aroma	Sweet fruity& slightly strong aroma

Table no. 5: Macroscopic study of peel of fruit of *musa acuminata* .

B] Determination Moisture Content:

Loss on drying in inner bark of *Cinnamomum verum* powder was found to be 8% w/w.

Sr. No.	Evaluation Parameter	Result
1)	Total ash value	4 % w/w
2)	Acid insoluble ash	3% w/w
3)	Water soluble ash	5% w/w
4)	Sulphated ash	5 % w/w

Table no. 6: Determination Moisture Content

C] PRELIMINARY PHYTOCHEMICAL SCREENING:

Sr. No.	Phytochemicals	Chemical tests	Result
1)	Carbohydrates	Fehling's test	+
2)	Alkaloids	• Dragendroff's test	+
		• Mayer's test	+
		• Hager's test	+
4)	Flavonoids	• H2SO4 test	+
		• Lead acetate	+

(+) indicates Presence and (-) indicates Absence

Table no. 7: PRELIMINARY PHYTOCHEMICAL SCREENING

Conclusion:

In conclusion, the formulation of herbal antipigmentation cream from banana peel powder showcases a fusion of traditional wisdom with modern scientific methods. The utilization of banana peel, often discarded as waste, exemplifies sustainable and eco-friendly practices in skincare product development. Through meticulous extraction and formulation processes, key ingredients such as lemon oil, Vitamin E, and alum are incorporated to provide not only antipigmentation benefits but also moisturization, skin repair, toning, and hydration.

The comprehensive evaluation tests conducted ensure the quality, safety, and efficacy of the final product. Macroscopic studies of Musa acuminata peel provided insights into its physical characteristics, while determination of moisture content and preliminary phytochemical screening verified its chemical composition and potential bioactive components.

This research contributes to the expanding field of herbal cosmeceuticals, offering a natural alternative for addressing skin pigmentation issues. Furthermore, it highlights the importance of exploring traditional knowledge systems for novel cosmetic formulations, bridging the gap between ancient wisdom and modern science in skincare innovation. As consumers increasingly seek natural and sustainable skincare solutions, this herbal antipigmentation cream holds promise as a viable and effective option, paving the way for further exploration and development in the realm of botanical-based cosmetics.

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