



Review On Herbal Face Scrub From *Oryza Sativa*

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Abstract:-

The present study focus on the formulation and evaluation of a herbal face scrub prepared from *Oryza sativa* (rice). *Oryza sativa* is rich in bioactive compounds such as vitamins, minerals, and antioxidants that help nourish the skin, remove dead cells, and promote a natural glow. The rice powder acts as a gentle exfoliating agent, effectively cleansing the skin without causing irritation. To enhance the scrub's efficacy, natural ingredients like honey, aloe vera gel, and turmeric may be incorporated for their moisturizing, healing, and antimicrobial properties. The herbal formulation is safe, eco-friendly, and free from synthetic chemicals, making it suitable for all skin types. The study aims to develop a cost-effective and natural alternative to synthetic exfoliants, providing a smooth, radiant, and healthy skin appearance.

Keyword:- *Oryza sativa*, herbal face scrub, rice powder, natural exfoliant, antioxidant, skin nourishment, turmeric, honey, aloe vera, eco-friendly formulation, chemical-free, skincare, cost-effective.

1) INTRODUCTION:-

The pursuit of effective and biocompatible skincare formulations has led to increasing interest in plant-derived ingredients, particularly those rooted in ethnopharmacology and traditional medicine. Rice (*Oryza sativa*), a staple crop globally, has long been utilized in topical applications for skin enhancement due to its biochemical profile, which includes phenolic compounds, ferulic acid, γ -oryzanol, phytic acid, and essential fatty acids. These compounds exhibit antioxidant, anti-inflammatory, and moisturizing properties, making rice derivatives such as rice bran powder and rice water valuable components in dermatological preparations.

When combined with herbal extracts, rice-based scrubs represent a synergistic approach to skin care, offering both mechanical exfoliation and biochemical skin conditioning. Herbal constituents—such as *Curcuma longa* (turmeric), *Azadirachta indica* (neem), *Aloe vera*, and *Camellia sinensis* (green tea)—contain diverse phytochemicals, including flavonoids, alkaloids, and polyphenols, that contribute antimicrobial, anti-aging,

and depigmenting effects. These multi-targeted actions are particularly beneficial in managing common skin concerns such as hyperpigmentation, acne, and oxidative stress-induced dermal aging.

This review critically examines the formulation science, bioactivity, and dermatological potential of rice-based herbal scrubs. Emphasis is placed on their physicochemical properties, mechanisms of action at the cellular level, and the evidence from in vitro, in vivo, and clinical studies. Furthermore, challenges related to formulation stability, standardization of herbal components, and regulatory considerations are also discussed, aiming to bridge the gap between traditional cosmetic practices and modern dermatological science.

This research is the study of natural preparation rice scrub with the help of rice which is our major constituent. Many people in the world suffer from the problem of pimples especially the youth. These pimples can be cured easily. Today's youth is facing this issue and when such things happen they get frustrated and it lowers their confidence. In this project we have used natural things like rice flour, honey, walnut, gram flour, etc. The process of making rice scrub, where mainly rice flour is used. This scrub is very health conscious as it has honey which has many antioxidants that are great for the skin. Rice flour and honey specially used for the purpose of oily skin. And gram flour is rich in proteins and carbohydrates consists of no gluten.

Anatomy and Physiology of Skin:-

The skin is the largest organ of the body, accounting for about 15% of the total adult body weight. It has a surface area of about 1.5 to 2 m² in adults and it includes glands, hair and nails. It performs many vital functions, including protection against external physical, chemical, and biologic assailants, as well as prevention of excess water loss from the body and a role in thermoregulation. The skin is continuous, with the mucous membranes lining the body's surface.

Skin thickness varies by body region and is influenced by the thickness of the epidermal and dermal layers. Hairless skin in the palms of the hands and soles of the feet is the thickest due to the presence of the stratum lucidum, an extra layer in the epidermis. Regions lacking this extra layer are considered thin skin.

The integumentary system is formed by the skin and its derivative structures. The skin is composed of three layers: the epidermis, the dermis, and subcutaneous tissue. The outermost level, the epidermis, consists of a specific constellation of cells known as keratinocytes, which function to synthesize keratin, a long, threadlike protein with a protective role.

The middle layer, the dermis, is fundamentally made up of the fibrillar structural protein known as collagen. The dermis lies on the subcutaneous tissue, or panniculus, which contains small lobes of fat cells known as lipocytes. The thickness of these layers varies considerably, depending on the geographic location on the anatomy of the body. The eyelid, for example, has the thinnest layer of the epidermis measuring less than 0.1 mm,

Whereas the palms and soles of the feet have the thickest epidermal layer, measuring approximately 1.5 mm. The dermis is thickest on the back, where it is 30-40 times as thick as the overlying epidermis

layers of skin:

- **Epidermis**, the top layer.
- **Dermis**, the middle layer.
- **Hypodermis**, the bottom or fatty layer.

Structure of Skin:

The human skin structured of following layers-

- Epidermis
- The Dermal-Epidermal Junction
- Epidermal Appendages
- Dermis
- Subcutaneous
- Fat

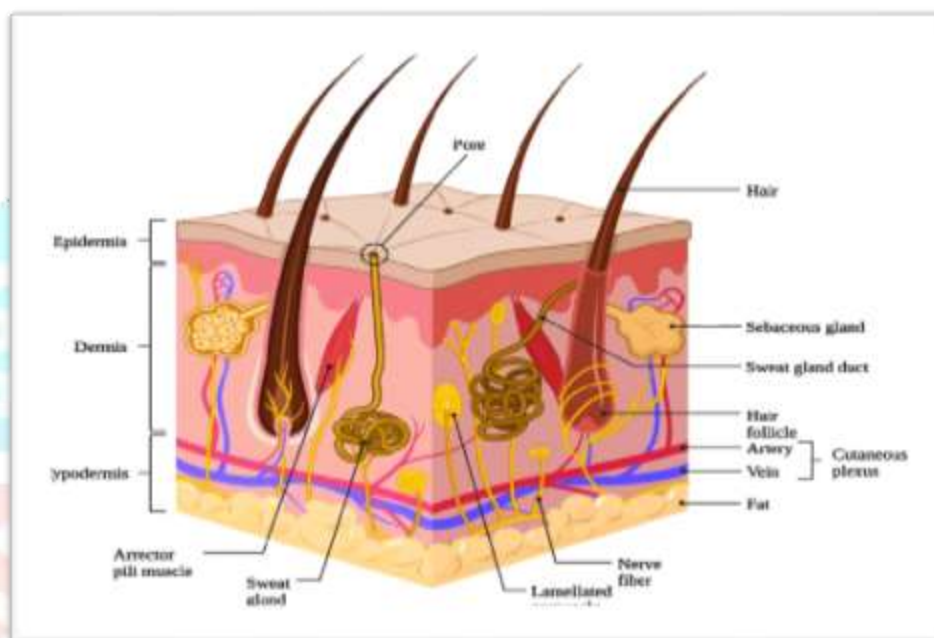


Fig no.1: Structure of skin

2) REVIEW OF LITERATURE:

1. Harshitha R et al. (2024) — Formulation and Evaluation of Natural Rice Flour Face Scrub Uses unpolished rice flour with shea butter, coconut oil, vitamin E for exfoliation and skin texture improvement; evaluated for pH, viscosity, spreadability, washability, etc.

2. Prashant, Rahul & Sreekanth (2022) — Formulation and Evaluation of Herbal Face Scrub (IJPBA) A herbal scrub prepared using rice powder as key exfoliant along with sandalwood, orange peel and rose water; evaluated on pH, consistency, spreadability, irritability and found non-irritant and effective.

3. Tanuja Satpute et al. (2025) — A Review on Formulation and Evaluation of a Polyherbal Face Scrub (IJRASET) Includes rice flour in the formula alongside beetroot, honey, aloe vera, turmeric, almond oil; evaluated for appearance, pH, comfort, spreadability, washability; positive skin health impact.

4. Baride et al. (2025) — Formulation and Evaluation of Poly Herbal Facial Scrub (EPRA IJRD) Rice flour combined with aloe vera, turmeric, carrot powder, orange peel, rose water, coconut oil; evaluated for various physical and sensory parameters—found effective for skin exfoliation and brightening.

5. Aglawe et al. (2019) — Preparation and Evaluation of Polyherbal Facial Scrub (J. Drug Delivery and Therapeutics) A poly-herbal scrub including rice bran/powder among other herbal actives; assessed for cleansing efficacy and stability.

6. Mahajan, Gayakwad, Tiwari & Darwhekar (2020) — Formulation and Evaluation of Herbo-Mineral Facial Scrub Contains herbal and mineral actives including rice-based exfoliants; evaluated for texture, pH, washability, homogeneity and found favorable.

7. Kumar et al. (2021) [mentioned in review] — Incorporation of *Nigella sativa* in Poly-Herbal Facial Scrub Although focus is *Nigella sativa*, rice flour is cited as base in multi-herbal scrub designs (2021 formulations)

8. Vishal et al. (2020) — Multi-Purpose Herbal Scrub using *Limonia acidissima* and rice components Includes rice powder in poly-herbal scrub evaluated in J. Drug Delivery and Therapeutics, 2020.

9. Shruti S. Jadhav et al. (2024) — Formulation and Evaluation of Herbal Facial Scrub Using Exfoliating Agent (IJRASET) While not rice-only, rice powder is a common exfoliating agent in poly-herbal scrub formulation; evaluated for safety and efficacy of exfoliation action.

10. Sushil Kumar Pal et al. (2024) — Formulation and Evaluation of Herbal Face Scrub (IJSRU) Rice powder is among main ingredients alongside orange peel, vitamin E, neem and rosemary; assessed for pH, viscosity, spreadability, foamability etc.

11. Rice (*Oryza sativa*) has been widely recognized for its cosmetic and dermatological benefits. Traditionally, rice powder and rice bran have been used in Asian beauty rituals as natural exfoliants and skin brighteners. According to Anitha et al. (2018), rice contains bioactive compounds such as ferulic acid, γ -oryzanol, and vitamin E, which act as potent antioxidants and protect the skin from oxidative damage and premature aging.

12. Singh and Patel (2020) demonstrated that finely milled rice powder acts as a gentle physical exfoliator that helps remove dead epidermal cells, unclog pores, and improve skin tone. Moreover, rice bran oil contains essential fatty acids that maintain skin moisture and barrier function (Rathi et al., 2021).

13. The inclusion of herbal ingredients enhances the scrub's therapeutic potential. For example, Aloe vera gel is rich in polysaccharides and glycoproteins that soothe irritated skin and promote regeneration (Gupta et al., 2019). Turmeric (*Curcuma longa*) provides anti-inflammatory and antimicrobial action due to curcumin, which helps reduce acne and pigmentation (Kumar et al., 2020).

14. Neem (*Azadirachta indica*), a traditional medicinal plant, exhibits antibacterial and antifungal activity, preventing skin infections and pimples (Sharma et al., 2019). Honey, a natural humectant, provides moisture and antioxidants that soften the skin surface (Patel & Nair, 2021). Green tea extract (*Camellia sinensis*) adds polyphenols and catechins that inhibit free radical damage and promote youthful, radiant skin (Lee et al., 2018).

15. Formulations combining rice powder with these herbal ingredients have been reported to show improved exfoliation efficiency, enhanced antioxidant activity, and reduced irritation compared to chemical scrubs (Dey et al., 2022). Herbal scrubs are biodegradable, non-toxic, and suitable for all skin types, aligning with the current trend toward natural and eco-friendly cosmetics.

➤ **SCRUB :-**

A rice-based scrub is a natural exfoliant made primarily from ground rice grains or rice powder, often mixed with other ingredients like honey, yogurt, or essential oils. It is used for exfoliating dead skin cells, cleansing pores, and improving skin texture.

❖ **Benefits of Scrub :**

- **Gentle Exfoliation-**
Finely ground rice particles gently remove dead skin cells without irritating the skin, suitable even for sensitive skin types.
- **Brightening Effect**
Rice contains compounds like **ferulic acid** and **allantoin**, which can brighten dull skin and reduce pigmentation.
- **Rich in Antioxidants**
Rice contains antioxidants that fight free radicals, helping reduce signs of aging.
- **Oil Control**
Absorbs excess sebum and helps in reducing acne caused by clogged pores.
- **Smooth Skin Texture**
Regular use improves skin smoothness and promotes a healthy glow.
- **Natural and Chemical-Free**
Often free from harsh chemicals, making it eco-friendly and skin-safe.

❖ **Advantages of Scrub:**

- **Natural & Biodegradable-**
Eco-friendly alternative to plastic microbeads
- **Suitable for Most Skin Types-**
Can be customized (e.g., with yogurt for dry skin, lemon juice for oily skin)
- **Affordable & Accessible-**
Rice is inexpensive and widely available.
- **DIY Friendly-**
Easy to make at home using pantry ingredients.
- **Cultural Relevance-**
Traditional in many Asian skincare routines, particularly in Japan and Korea.

❖ **Disadvantages of Scrub:**

- **Short Shelf Life (for DIY versions)-**
Homemade scrubs can spoil without preservatives.
- **Over-Exfoliation Risk-**
Excessive use can damage the skin's barrier and cause dryness or sensitivity.
- **Messy Application-**
Can be messy to use and clean up compared to commercial products.
- **Not Ideal for Severe Skin Conditions-**
Not recommended for those with eczema, psoriasis, or inflamed acne without dermatologist approval.

❖ **Applications of scrub:-**

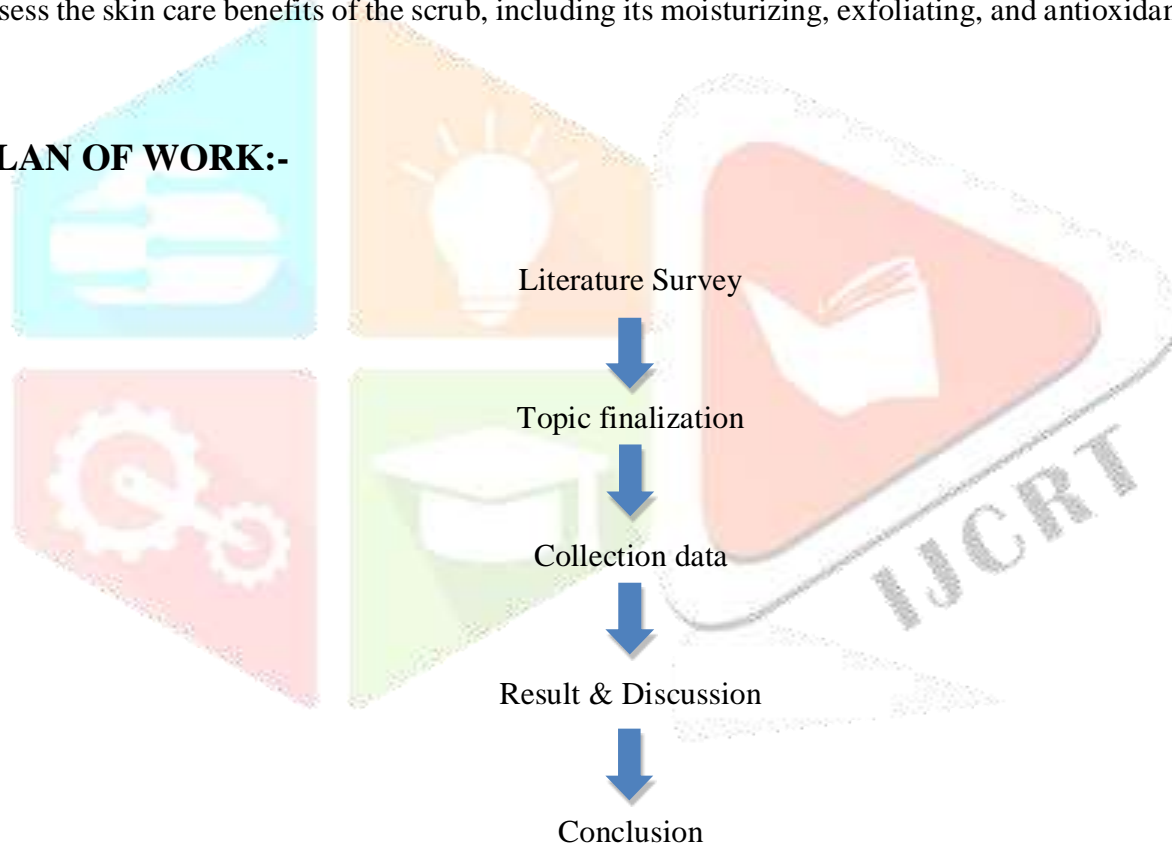
- **Face Scrub**
Used to exfoliate dead skin cells, unclog pores, and brighten the complexion
- **Body Scrub**
Applied to arms, legs, and back to smooth rough patches and improve skin tone.
- **Hand and Foot Exfoliator**
Softens dry or cracked skin, especially on heels and knuckles.
- **Scalp Scrub (Occasionally)**
Removes buildup and promotes circulation (only when finely ground and rinsed well).
- **Pre-Makeup Skin Prep**
Helps create a smooth base for better makeup application

3)AIM & OBJECTIVES:-

AIM: - Review on herbal face scrub from *Oryza sativa*

OBJECTIVES: -

- To explore the traditional and contemporary uses of herbal scrubs in skincare, with emphasis on rice-based formulations.
- To identify the key active ingredients in herbal scrubs and analyze their pharmacological and dermatological properties (e.g., exfoliating, anti-inflammatory, antioxidant, moisturizing).
- To review scientific literature and clinical studies supporting the efficacy and safety of rice-based and other herbal scrubs.
- To assess the advantages and disadvantages of using herbal scrubs in comparison to synthetic exfoliants.
- To evaluate the potential applications of rice-based scrubs in cosmetic, therapeutic, and dermatological products.
- To identify gaps in current research and propose directions for future study and product development in the field of herbal exfoliants
- To prepare a rice-based herbal using natural ingredients.
- To evaluate the physical, chemical and microbiological stability of the scrub.
- To assess the skin care benefits of the scrub, including its moisturizing, exfoliating, and antioxidant properties.

4) PLAN OF WORK:-

5) TIME LINE:-

TIME DURETION	WORK OF PLAN
First 1 to 5 days	Finalization of topic
5 to 10 days	Literature of survey
10 to 16 days	Collection of data
16 to 26 days	Compilation of data
26 to 32 days	Data interpretation
32 to 45 days	Submission

6) PLANT PROFILE:-

Rice:

Synonyms: Grain, *Oryza sativa*, white rice

Biological Source: - Dried mature grain of *Oryza sativa* plant. Seeds (*grains*)

Family: - Poaceae



Fig no.2:- Rice

Chemical Constituent

Rice is primarily composed of carbohydrates (70-80%), mainly starch, followed by protein (6-8%) and fat (1-2%)

Uses:-

Oil control, moisture skin, UV protection, Skin whiteing

Gram Flour:-



Fig.no.3:- Gram flour

Biological Source:

Gram flour is obtained by grinding dried seeds of *Cicer arietinum* (Chickpeas).

Chemical Constituents:

Carbohydrates 50–60% (mostly starch) Energy source

Proteins 20–25% (high-quality plant protein) Body building and repair

Dietary Fiber 10% Aids digestion, controls blood sugar Fats

Uses:

Skin cleansing, Tan removal, Exfoliation, Acne treatment

Turmeric Powder: -



Fig.no 4:-Turmeric Powder

Biological source:-

Turmeric is obtained from the dried rhizomes of the plant *Curcuma longa*, which is a perennial herb.

Chemical Constituents:

Essential Oils ~3–5% (turmerone, zingiberene) Antimicrobial, aromatic, skin healing
Starch 40–50% Energy source
Proteins ~6–8% Nutritional value.

Uses of Turmeric:

Skin protection, Reduce acne pimples, Oil control, Skin brighten.

Aloe vera: -

Fig no.5:-Aloe vera

Biological Source:

Aloe vera is a succulent plant, and the gel is extracted from the inner parenchyma (clear part) of the leaves.

Chemical constituents:

Vitamins A, C, E, B12, Antioxidant, skin protection

Minerals Calcium, zinc, magnesium, potassium

Uses of aloe vera: -

Skin moisturizer - light and non-greasy for daily use.

Anti-acne and anti-aging - clear pores, reduces wrinkles.

Honey: -



Fig no.6:- Honey

Biological Source:

Honey is a natural sugar-rich secretion made by honey bees (*Apis* species), especially *Apis mellifera*, from the nectar of flowers.

Chemical Constituents of Honey:

Carbohydrates 75–80% (mainly fructose ~38%, glucose ~31%) Energy source Water ~17–20% Affects viscosity and shelf-life Proteins & Enzymes Invertase, amylase, glucose oxidase Digestion aid, antibacterial activity.

Uses:-

- Moisturizer – Hydrates dry skin when used as a face mask.
- Acne treatment – Has antibacterial properties that help reduce acne.
- Hair care – Can add shine and moisture to hair when used in masks.
- Lip balm – Heals and softens dry, chapped lips.
- Cosmetic: Honey is used in face masks, lip balms, and other beauty products.

7) PROCEDURE TO PREPARE THE SCRUB: -

1. Clean Workspace:

- Wash your hands and ensure all utensils and bowls are clean and dry.

2. Base Mixing:

- In a clean bowl, of aloe vera gel. This will be your base.

3. Add Dry Ingredients:

- Add gram flour (besan)
- Add rice powder
- Add a pinch of turmeric powder
- Mix all the dry ingredients well into the aloe vera gel.

4. Add Liquids:

- Pour in of rose water
- Add of honey
- Add of glycerin
- Mix everything thoroughly until a smooth, thick paste is formed.

5. Check Consistency:

- If the mixture is too thick, add a little more rose water. If too runny, add more gram flour or rice powder.

6. Store or Use Immediately:

- For immediate use: Apply to clean face and gently scrub in circular motions. Leave it on for 10-15 minutes, then rinse with lukewarm water.
- For storage: Store in an airtight container in the refrigerator for up to 3–5 days.

8) CONCLUSION:

The rice-based herbal scrub proves to be an effective, natural, and eco-friendly skincare product. The combination of rice powder and herbal ingredients helps to gently exfoliate dead skin cells, remove impurities, and improve skin texture. Regular use of this scrub promotes smooth, radiant, and healthy skin without the side effects of synthetic chemicals. Thus, it serves as a safe and affordable alternative for maintaining natural beauty and skin health.

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