



Formulation And Evaluation Of Cyper Rotundus Herbal Face Pack.

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ABSTRACT.

Cyperus rotundus, commonly known as nut grass, is a perennial plant widely recognized in traditional medicine. This review paper explores the phytochemical composition, therapeutic applications, and potential benefits of Cyperus rotundus, particularly in skincare, highlighting its use in herbal face packs.

□ Keywords

Cyperus rotundus Botanical properties, Traditional medicine, Phytochemistry Ethnobotany, Antimicrobial activity, Antioxidant properties, Medicinal uses, Invasive species, Agricultura limpacks, Ecological significance,

Therapeutic application

□ INTRODUCTION

Cyperus rotundus has been used in various cultures for its medicinal properties. It is rich in bioactive compounds that contribute to its efficacy in treating several health conditions, including skin disorders. This paper examines its traditional uses and modern applications, particularly in cosmetic formulations. Cyper rotundus commonly known as purple nutsedge or nutgrass is a perennial weed native to tropical regions but found worldwide.

Benefits of herbal face pack.

- ❖ Herbal face packs give skin nutrition.
- ❖ Depending on their herbal contents, herbal face packs can diminish acne, pimples, scars, and blemishes.
- ❖ Face packs typically exfoliate the skin's dead cells These face masks provide a calming and unwinding impact on the skin.
- ❖ They aid in quickly restoring the skin's lost radiance and glow.
- ❖ They help to prevent premature aging of skin.
- ❖ Natural face packs give the skin a youthful, healthy appearance.
- ❖ It keeps the skin's suppleness.

- ❖ Natural face masks improve the texture and tone of the skin and give it a glow when used frequently.
- ❖ The negative impacts of pollution and extreme weather can be successfully combated by using face packs sensibly.

Advantage of herbal face pack.

- ❖ Herbal products don't have negative side effects.
- ❖ It aids in eliminating our skin's dead cells.
- ❖ Herbal products are inexpensive.
- ❖ Products made from herbs are widely accessible.
- ❖ It is utilized to make our skin sparkle.

Disadvantage of herbal face pack .

- ❖ Sometimes our skin displays signs of irritability and redness.
- ❖ Inflammation has taken place.
- ❖ The effects of the face pack will develop gradually.

Traditional Uses:-

Traditionally, Cyperus Rotundus Has Been Employed For: Skin care and Digestive Issues Known To Alleviate Gastrointestinal Problems.

Skin Conditions: Used In Poultices For Wounds And Skin Irritations.

Antimicrobial: Applied In Treating Infections.

Applications In Skincare:-

The Application Of Cyperus Rotundus In Skincare, Especially In Face Packs, Is Gaining Traction Due To Its Beneficial Properties:

Antioxidant Activity: Helps Combat Oxidative Stress On The Skin.

Anti-Inflammatory Properties: Reduces Redness And Swelling, Making It Ideal For Sensitive Skin.

Moisturizing Effects: Aids In Retaining Skin Moisture And Enhancing Texture.

Review of Literature

Title: Formulation and Evaluation of *Cyperus rotundus*-Based Herbal Face Pack.

1.Cyperus rotundus (Nagarmotha)

Cyperus rotundus is a well-known medicinal herb in Ayurveda, commonly used for skin-related disorders. According to a study by Meena et al. (2014), *C. rotundus* possesses antibacterial, anti-inflammatory, and antioxidant properties, which are beneficial in reducing acne, blemishes, and improving overall skin health. Its bioactive compounds like sesquiterpenes and flavonoids help purify the skin and reduce oil secretion, making it an effective herbal ingredient in cosmetic formulations. The powdered form of its rhizome is commonly used in face packs for its soothing and cleansing action.

2. Gram Flour (Besan) Gram flour is widely recognized in traditional Indian skincare for its cleansing and exfoliating effects. As noted by Bansal and Jain (2016), gram flour helps remove dirt, dead cells, and excess oil from the skin. It also exhibits mild antimicrobial properties, making it suitable for oily and acne-prone skin types. Its natural alkalinity helps maintain the skin's pH balance. In herbal face packs, gram flour acts as a base that blends well with other herbal powders and liquids.

3. Honey Honey is a natural humectant and antibacterial agent, commonly used in skincare products to promote hydration and prevent infections. A study by Mandal and Mandal (2011) emphasized its wound-healing, moisturizing, and anti-inflammatory actions. Honey helps retain skin moisture, soothes irritation, and supports tissue regeneration. In face packs, honey improves spreadability, adds moisture, and enhances skin smoothness.

4. Coffee and Rose Water Coffee is rich in caffeine and antioxidants, which help tighten skin, reduce puffiness, and exfoliate dead skin cells. As reported by Sharma et al. (2018), caffeine enhances microcirculation in the skin, promoting a brighter and healthier complexion. Rose water, on the other hand, is a traditional coolant and toner, known for its anti-inflammatory and calming effects. It helps maintain skin hydration and pH, and gives a refreshing feel to the face pack. The combination of coffee and rose water in a face pack formulation adds rejuvenating and toning benefits.

“Formulation and Evaluation of *Cyperus rotundus* in skin care products”

5. Herbal Face Packs in Traditional Medicine

Herbal face packs are widely used in Ayurveda and Unani systems for their natural skin-healing, cleansing, and beautifying properties. According to Rathi and Pathak (2015), herbal formulations offer a chemical-free alternative to commercial cosmetics and often contain bioactive compounds like flavonoids, alkaloids, and tannins that nourish the skin. They also reduce the risk of allergic reactions, making them safer for long-term use. Herbal face packs are especially beneficial for conditions like acne, dull skin, and pigmentation.

6. Role of Antioxidants in Skin Care Antioxidants play a crucial role in protecting skin cells from oxidative stress caused by pollution, UV rays, and free radicals. A study by Kapoor et al. (2013) demonstrated that plant-derived antioxidants such as polyphenols, flavonoids, and tannins can delay signs of aging, reduce inflammation, and improve skin tone. In face pack formulations, ingredients like *Cyperus rotundus*, coffee, and honey contribute significant antioxidant activity, which enhances the therapeutic effect of the product.

7. Safety and Efficacy of Natural Ingredients in Cosmetics- The demand for natural ingredients in cosmetics has grown due to concerns over synthetic chemicals causing irritation or long-term damage. A review by Joshi and Singh (2018) highlights that plant-based ingredients not only provide therapeutic effects but are also biodegradable and eco-friendly. Ingredients like gram flour, rose water, and honey have been extensively tested for safety and are considered ideal for routine skincare. Their compatibility with different skin types adds to the appeal of herbal face packs.

Formulation of Herbal Face Packs -

A typical herbal face pack formulation using *Cyperus rotundus* may include:

Materials :-

Ingredients	Quantity	Category	Use
Cyper rotundus powder	5gm	Antioxidant, antiinflammantory	Skin clarifies and brightning
Gram flour	2gm	Antitannig	Remove dead skin cells
Cofee powder	1gm	antiageing	Glow, , detoxification
Coconut oil	2ml	Moisturizer	Moisturizing ,naurishing
Rose water	2ml	Hydrating,	Fragrance
Honey	4ml	Antimicrobial agent	Smoothing. glow
Glycerine	4ml	Preservative	Incerese life of product.
Purified Water	5ml	Solvent	Absorption

Material and Methodology:-

Nagarmotha (*Cyperus rotundus*) is known for its medicinal properties, especially in skin care. It helps in treating various skin issues like acne, dark spots, and skin brightning. Here's a simple methodology for preparing a herbal face pack using nagarmotha.

1. **Nagarmotha powder** (*Cyperus rotundus* powder) – 5gm of cyper rotundus root powder . obtained through root of cyper rotunds herb.

Medicinal uses of *Cyperus rotundus*:

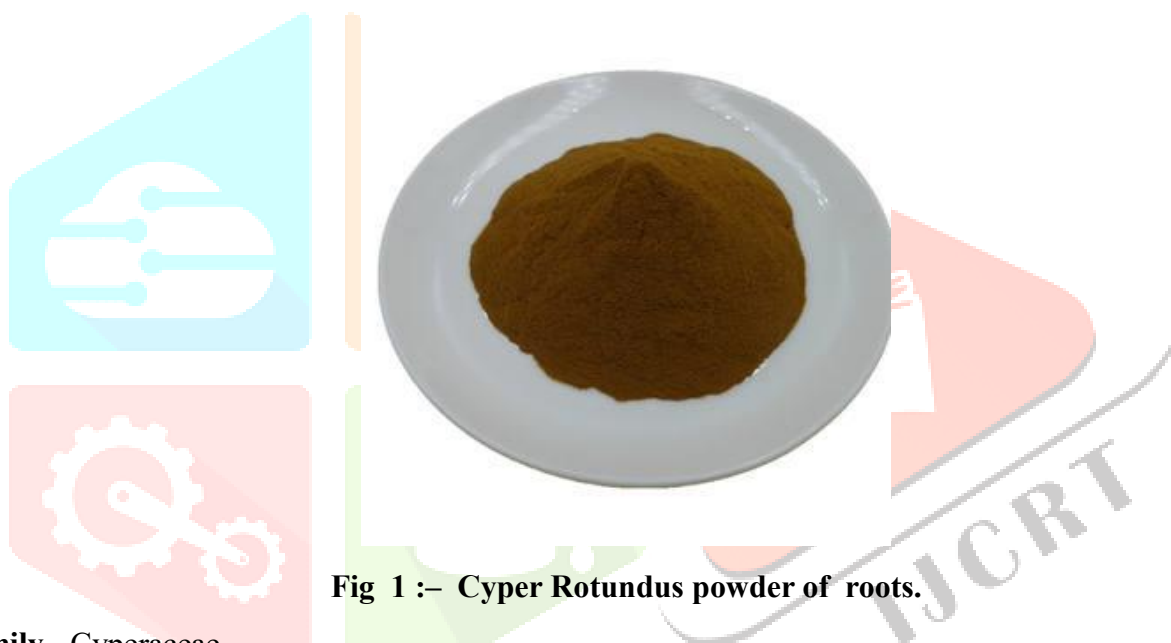
According to the Ayurveda, *Cyperus rotundus* rhizomes are considered:

• Astringent	• Diaphoretic
• Antispasmodic	• Aromatic
• Antitussive	• Carminative
• Stomachic	• Emmenagogue
• Vermifuge	• Antibacterial
• Diuretic	• Analgesic

They are used in treatment of nausea and vomiting, dyspepsia, colic, flatulence, diarrhoea, dysentery, intestinal parasites, fever, malaria, cough, bronchitis, renal and vesical calculi, urinary tenesmus, skin diseases, wounds, amenorrhoea, bronchitis, infertility, cervical cancer and menstrual disorders, and the aromatic oils are made of perfumes and splash.

Pharmacological Activities of Cyperus rotundus:-

•Anti-androgenic •Anti-inflammatory • Anti-diabetic •Anti-diarrhoeal, • Cytoprotective • Anti-pyretic • Anti-acne •Antifungal	•Anti-mutagenic • Anti- microbial • Anti-bacterial • Anti-oxidant • Cytotoxic • Apoptotic • Anti-Candida •Antidandruff
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Biological Information Of Cyper Rotundus -**Fig 1 :- Cyper Rotundus powder of roots.****Family** - Cyperaceae**Synonym** - Cyperus Rotundus Subsp Tuberosus Kuk**Kingdom** - Plant Kingdom**Division** - Magnoliophyta**Class** - Liliopsida**Order** - Cyperales**Common Name** - Nut Grass, Purple Flat Sedge**Ayurvedic Synonyms** - Musta . Mustaka. Abda**Hindi Name** - Motha, Nagarmotha**English Name** - Nut Grass . Coco Grass. Java Grass**Marathi Name-** Lavhala . Motha

The Characteristics Of Cyperus Rotundus, Also Known As Purple Nutsedge, Include: Stems: Erect, Smooth, Triangular In Cross-Section, And Not Branched

Leaves: Dark To Bright Green, Glossy, Grass-Like, And Up To 2-6 Mm Wide And 20 Cm In Length

Flowers: Dull Reddish-Purple Flower Cluster

Tubers And Seeds: Can Remain Dormant To Survive Periodic Flooding Or Dry Seasons
Reproduction: Reproduces Extensively By Rhizomes, Which Initially Are White And Fleshy With Scale Leaves, Later Becoming Ligneous Or "Wiry"

Dimensions: 2–4 Ft 7 In Tall And 0–5 In Wide

Fruit: Brown Or Copper Achene Flowers With Reddish-Purple To Reddish-Brown Spikelets.

Cyperus Rotundus Is A Perennial Sedge That Is A Common Weed In Tropical, Subtropical, And Temperate Areas. It Is Very Difficult To Control And Can Infest Crop Production Areas, Causing Large Losses In Crop Yields.

The Roots And Rhizomes Of Cyperus Rotundus Are Used For Medicinal Purposes, Such As Reducing Inflammation And Fever Or Relieving Pain. In India, This Species Is Used In Hair And Skin Products.

The Characteristics Of Cyperus Rotundus, Also Known As Purple Nutsedge, Include:

Roots : clarifies skin. Soothes irritation. Promote scalp health

Stems: Erect, Smooth, Triangular In Cross-Section, And Not Branched

Leaves: Dark To Bright Green, Glossy, Grass-Like, And Up To 2-6 Mm Wide And 20 Cm In Length

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Chemical Constituents -

Sesquiterpenoids	Hydrocarbons	Alkaloids
Patcholenone	Epoxides	Tannins
Sugeonyl	Ketones	Starch
Acetate	Monoterpenes	Glycosides
Sugetriol triacetate	Aliphatic alcohols	Fur chromones
Flavonoids	Gl ycerol	Sesquiteepens
Kaempferol	Linolenic	Sitosterol
Luteolin	Myristic	Fatty oils
Quercetin	Stearic	Omega
Beta-pinane	Beta-rotunol	Beta-cyporone
Beta-selinene	Cyperene	Camphene
Cypolorone	Copaene	Calcium cypertundone
D -fructose	D -glucose	D -copadiene
D -epoxyguaiene	Flavones	Omega - cymene
Rotundenol	Stearic acid	Sugetriol

2. • **Phytochemical Composition-**

3. Cyperus Rotundus Contains Numerous Phytochemicals, Including: -

4. **Flavonoids:** Antioxidant Properties That Help Protect The Skin.

5. **Essential Oils:** Anti-Inflammatory And Antimicrobial Effects.

6. **Taniins:** Astringent Properties Beneficial For Skin Tightening. **Saponins:** Enhances Skin Hydration And Smoothness.

2. Gram Flour – for remove dead skin cells. Gram flour, also known as besan or chickpea flour, is a nutritional powerhouse. It's a rich source of protein, fiber, and essential vitamins and minerals like folate, iron, and magnesium. It's a good source of protein for vegetarians and vegans and may aid in weight management due to its high fiber and filling nature. Additionally, it can help regulate blood sugar and reduce inflammation.

Biological Information:



Fig 2:- Gram Flour

Protein and Fiber: Gram flour is a significant source of plant-based protein, offering approximately 20-22 grams per 100 grams. Its high fiber content promotes digestive health and may aid in weight management by keeping you feeling fuller for longer.

Vitamins and Minerals: It is rich in folate (essential for red blood cell formation and pregnant women), iron (supports energy levels and prevents anemia), and magnesium (helps regulate blood pressure and blood sugar).

Low Glycemic Index: Gram flour has a low glycemic index, meaning it has a slower and more sustained effect on blood sugar levels compared to refined flours like wheat.

Medicinal Information:

Anemia Prevention: Gram flour's high iron and calcium content contributes to red blood cell production and helps prevent anemia.

Anti-Inflammatory: It contains butyrate, a short-chain fatty acid that can reduce colon inflammation.

Antioxidants: Gram flour is a source of antioxidants, which may help protect against cell damage.

Weight Management: Its high fiber and protein content, along with its low glycemic index, can help with weight management.

Chemical Information:

Carbohydrates: Gram flour is primarily composed of carbohydrates, around 50-60%.

Protein: Protein content is high, around 20%.

Fat: It contains about 5% fat, mostly polyunsaturated.

Amino Acids: It contains essential amino acids like lysine.

Other Components: It also contains vitamins (A, C, B1, B6) and minerals (zinc, magnesium, potassium, phosphorus, iron)

3. Coffee powder – coffee powder antiaging and antitanning properties. Coffee powder can be beneficial for skincare due to its rich antioxidant and anti-inflammatory properties, including caffeine and chlorogenic acids. It can help with various skin concerns like acne, puffy eyes, and improving skin texture.

Biological and Medicinal Properties:



Fig 03:- Coffee Powder

Antioxidant: Coffee contains various phenolic compounds, including chlorogenic acids, which act as antioxidants. These antioxidants help protect the skin from damage caused by free radicals.

Anti-inflammatory: Caffeine and other compounds in coffee have anti-inflammatory properties, which can help reduce redness and swelling, particularly beneficial for acne and puffy eyes.

Antibacterial: Coffee can help combat acne-causing bacteria, contributing to its effectiveness in treating acne.

Exfoliation: The natural texture of coffee grounds provides gentle exfoliation, helping to remove dead skin cells and unclog pores. **Skin Brightening:** Antioxidants in coffee can help reduce hyperpigmentation and brighten the skin tone.

Chemical Components: Chlorogenic Acids (CGAs): These are the most abundant phenolic compounds in coffee and are known for their antioxidant and anti-inflammatory effects.

Caffeine: This alkaloid stimulates blood flow, which can help reduce puffiness and improve skin elasticity. **Phenolic Compounds:** Other phenolic acids and flavonoids contribute to the overall antioxidant and anti-inflammatory activity of coffee.

Tannins: These compounds can help reduce skin inflammation and tighten pores.

Fixed Oils: These provide moisturizing properties to the skin.

Skincare Applications:

Acne Treatment: The antibacterial and anti-inflammatory properties of coffee make it a potential treatment for acne.

Puffy Eyes: Coffee can help reduce puffiness and improve the appearance of dark circles around the eyes.

Skin Exfoliation: Coffee grounds can be used as a natural scrub to remove dead skin cells and improve skin texture.

Skin Brightening: Antioxidants in coffee can help reduce hyperpigmentation and brighten the skin tone.

Anti-aging: Coffee's antioxidant and anti-inflammatory properties can help protect against skin aging.

Cellulite Reduction: Caffeine can stimulate blood flow and fat burning, potentially helping to reduce the appearance of cellulite.

4. Coconut oil- for moisturizer and nourishing skin.

Coconut oil is a valuable natural ingredient for skincare due to its unique biological and medicinal properties, particularly its antimicrobial, anti-inflammatory, and moisturizing effects. It's derived from the endosperm of the coconut (*Cocos nucifera*) and is rich in medium-chain triglycerides (MCTs), including lauric acid, which contributes to its beneficial qualities.

Biological and Pharmacognosy:



Fig 04 :- Coconut Oil

Fatty Acid Composition: Coconut oil is primarily composed of saturated fatty acids, mainly MCTs, with lauric acid being the most abundant.

MCTs and Their Properties: MCTs, like lauric acid, are metabolized efficiently and have antimicrobial properties, contributing to the oil's ability to fight acne-causing bacteria.

Antimicrobial Activity: Lauric acid, a key component of coconut oil, is converted to monolaurin in the body, which has antiviral, antibacterial, and antifungal properties.

Anti-inflammatory Properties: Coconut oil contains fatty acids and other compounds that exhibit anti-inflammatory effects, potentially helping to reduce inflammation associated with skin conditions like eczema and psoriasis.

Antioxidant Activity: Coconut oil contains natural antioxidants, such as tocopherols, which help protect the skin from damage caused by free radicals.

Medicinal Properties in Skincare:

Moisturizing: Coconut oil's emollient properties make it effective at moisturizing dry skin and reducing dryness-related symptoms.

Wound Healing: Studies suggest that coconut oil can aid in wound healing by promoting fibroblast proliferation and neovascularization.

Treating Skin Conditions: Coconut oil may be beneficial for managing skin conditions like eczema, psoriasis, and acne, due to its anti-inflammatory and antimicrobial properties.

Protecting Skin from Damage: Its antioxidant and anti-inflammatory properties can help protect the skin from damage caused by environmental factors and aging.

Topical Applications: Coconut oil is commonly used in skincare products like cleansers, masks, and moisturizers.

Pharmacognosy: Plant Source: Coconut oil is derived from the coconut fruit, specifically the endosperm, a part of the plant's structure.

Extraction Process: Virgin coconut oil (VCO) is typically produced using dry processing methods, including pressing and refining the copra (dried coconut kernel).

Composition: The composition of coconut oil, including the specific fatty acid ratios and presence of other compounds, varies depending on the extraction method and processing.

Quality Standards: Standards are established for the quality of coconut oil, ensuring that it meets certain purity and composition requirement

5. Rose water - for hydration and soothing effect. Rose water offers several benefits for the face, including cleansing, soothing, and hydrating the skin. It can help to balance the skin's pH, remove impurities, and reduce the appearance of dark circles and puffiness. Additionally, rose water is rich in antioxidants, which can help protect the skin from damage and slow down the signs of aging.



Fig 05:- Rose Water

Cleansing and Brightening: Rose water can act as a gentle cleanser, removing dirt, oil, and makeup while helping to brighten the skin.

Soothing and Calming: Its anti-inflammatory properties can help soothe irritated skin, reduce redness, and relieve discomfort.

Balancing Skin's pH: Rose water helps maintain the skin's natural pH balance, which can contribute to a healthy skin barrier.

Hydration and Moisturizing: It's known for its hydrating properties, which can help keep the skin moisturized and prevent dryness.

Reducing Dark Circles and Puffiness: Applying rose water under the eyes can help reduce the appearance of dark circles and puffiness.

Anti-aging Benefits: Rose water contains antioxidants that can help protect the skin from free radical damage, potentially slowing down the signs of aging.

Decongesting Pores: Rose water can help decongest pores, potentially reducing the appearance of blackheads and whiteheads.

Protecting Skin: Rose water can help protect the skin from environmental pollutants and damage.

Reducing Skin Discoloration: It may help reduce the appearance of dark spots and skin discoloration.

Improving Skin Tone: Rose water can help improve skin tone and radiance, leading to a more even complexion.

6. Honey – for moisturizing and antibacterial properties. Honey, produced by honeybees from flower nectar, is a natural sweetener with a variety of biological and medicinal properties. It's known for its antibacterial, anti-inflammatory, and antioxidant effects, making it a beneficial food and medicine.



Fig 06:- Honey

Biological Properties:

Antimicrobial: Honey's acidity, low water activity, and hydrogen peroxide (in some types) create an environment that inhibits bacterial growth, according to a study by the Oxford Health NHS Foundation Trust.

Anti-inflammatory: Honey's flavonoids and phenolic acids contribute to its anti-inflammatory effects.

Antioxidant: Honey contains antioxidants that can protect cells from damage caused by free radicals.

Nutrient-rich: Honey provides vitamins, minerals, and amino acids, contributing to overall health. Medicinal Uses:

Wound healing: Honey's antibacterial and anti-inflammatory properties make it useful for wound care.

Cough and cold relief: Honey can soothe coughs and colds due to its mucolytic and antitussive effects.

Digestive health: Honey can help with digestion by aiding in the absorption of calcium and acting as a mild laxative.

Energy boost: Honey provides natural carbohydrates for fueling muscles and energy.

7. Glycerine- of glycerine for preservatives.

Glycerine (also known as glycerol) is a colorless, odorless, viscous liquid with a sweet taste that's used in various applications, including biological and medicinal contexts. It's a simple polyol compound. In biology, glycerine is a component of lipids and is involved in metabolism. Medically, it's used as a laxative, a humectant, a lubricant, and in the treatment of glaucoma.



Fig 07:- glycerine

Biological Roles:

Component of Lipids: Glycerine forms the backbone of triglycerides and phospholipids, which are essential components of cell membranes and energy storage.

Metabolism: It's an intermediate in carbohydrate and lipid metabolism.

Osmolyte: Glycerine helps maintain cell volume and osmotic balance in response to environmental changes.

Medicinal Uses:

Laxative: Glycerine can draw water into the intestine, softening stools and easing constipation.

Humectant: It's used in skincare products to retain moisture and protect the skin.

Lubricant: Glycerine is used in the pharmaceutical industry as a lubricant in ointments, lozenges, and cough syrups.

Method of preparation:

1.Prepare the powder: cyper rotundus root collected and dried and clean. Before making the powder . prepare in the traditionally method. Using mortor and pestle and 120 number mesh to separate the smooth paste and particles.

2. Prepare the paste: In a clean bowl, add 5gm of nagarmotha powder. You can also add 2gm gram flour powder for extra cleansing properties if desired. 2gm of coffee powder mixed in the mixture properly.

3.Add liquids: Mix the dry ingredients with rose water or a combination of rose water and coconut oil , depending on the desired consistency. Mix until a smooth paste forms. You can adjust the consistency by adding more rose water or coconut oil.

4. Add honey: 2gm of honey to the paste. This will help moisturize the skin and provide antibacterial benefits.

5. Application: Clean your face thoroughly with lukewarm water and pat it dry with a towel. Apply the face pack evenly all over your face, avoiding the sensitive areas around the eyes and lips.

6. Leave it on: Let the face pack sit for 15-20 minutes or until it dries.

7. Rinse off: Once the pack has dried, rinse it off with lukewarm water and gently massage in circular motions to exfoliate your skin. Finish with cold water to close the pores.

8. Moisturize: After drying your face, apply a light moisturizer to keep the skin hydrated.

Frequency: You can use this face pack 2-3 times a week for best results. It is beneficial for oily and acne-prone skin but can also be used by people with other skin types in moderation. This face pack may help in improving skin texture, reducing acne, and controlling oil production.

Formulation procedure:- Cyperus rotundus (commonly known as Nagarmotha or Motha) is mentioned for its various therapeutic properties, including its use in skincare for its cooling, anti-inflammatory, and detoxifying benefits. It is typically used in Ayurvedic formulations to treat various skin conditions, such as acne and pigmentation.

Though the Charak Samhita doesn't provide an explicit "face pack" formula using Cyperus rotundus, based on its properties, we can create a general face pack recipe incorporating this herb. Herbal Face Pack Using Cyperus Rotundus (Nagarmotha). Here's a formulation inspired by Ayurvedic principles that incorporates Cyperus rotundus to create a face pack.

Ground Cyperus rotundus, root extract powder Gram flour coffee powder, honey, and essential oils. Rose water Preparation Method: Mix the ingredients to form a paste and apply to the face for 20-30 minutes before rinsing.



Fig 08:- Herbal face pack of cyper rotubdus in the mortar pestle.

Application of facepack :- Antioxidant effect. Skin brightening. Skin glowing.

Evaluation of Face pack:-

Evaluation Tests of Herbal Face Pack

After formulating the face pack using **Cyperus rotundus powder, gram flour, honey, coffee, and rose water**, the following evaluation parameters are used to assess its **physicochemical properties**:

1. Organoleptic Properties

Purpose: To assess appearance, color, odor, and texture.

Method: Visual and sensory inspection.

1. PH Determination

Purpose: To check the skin-friendliness of the formulation.

Method: A 5% w/v solution of the face pack in distilled water is prepared and pH is measured using a digital pH meter.

3. Spreadability

Purpose: To measure ease of application on skin.

Method: The time taken by two glass slides to separate under a specific load is measured.

4. Washability

Purpose: To evaluate how easily the pack can be removed with water.

Method: Applied on skin, allowed to dry, and washed with water; observations recorded.

5. Stability Test (Preliminary)

Purpose: To observe changes in color, odor, and texture over time.

Method: Stored at room temperature for 30 days and observed weekly.

6. Skin Irritation Test (If performed under supervision)

Purpose: To check for any allergic or irritant reaction.

Method: A small quantity is applied to the forearm; any reaction is noted after 24 hours. *(Should only be performed ethically and with consent.)*

Observation Table

Sr. No.	Parameter	Observation	Remarks
1	Appearance	Smooth, fine powder	Acceptable
2	Color	Brownish	Characteristic of ingredients
3	Odor	Pleasant herbal aroma	Due to Cyperus and rose water
4	Texture	Soft and fine	Non-gritty, good spread
5	pH (5% solution)	6.2	Skin-friendly, mildly acidic
6	Spreadability	Good, even application	Easily spreadable
7	Washability	Easily washable with water	No residue left
8	Stability (30 days)	No change in color or odor	Stable under room conditions
9	Skin irritation	No irritation observed (patch test)	Safe for use (based on limited test)

Efficacy and Research - Recent studies indicate the efficacy of *Cyperus rotundus* in improving skin health:

Clinical Trials: Evidence supporting its role in reducing acne and skin blemishes.

User Feedback: Surveys indicate high satisfaction rates among users of herbal face packs containing this herb.

Safety and Side Effects –

Generally considered safe when used topically. However, potential allergic reactions may occur in sensitive individuals. Patch testing is recommended before widespread use.

Conclusion –

Cyperus rotundus presents a promising natural ingredient for skincare formulations. Its rich phytochemical profile and established traditional uses support its efficacy in herbal face packs. Further research is encouraged to validate its benefits and expand its applications in modern cosmetology.

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