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FACE SCRUB USING TAMARIND

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ABSTRACT

Skin disorders can be caused by pollution and harmful elements in the air, leading to a high demand for cosmetics that can cleanse and brighten the skin. Regular washing of the skin is necessary to remove oil, sebum, dead cells, makeup, and other impurities to maintain its health and beauty. The motive of this project is to formulate an natural material based facial scrub that is free from harmful chemicals that can be damaging to facial health. All the ingredients used are natural and have no side effects. The main exfoliating ingredients used are tamarind shell powder and tamarind powder, which help cleanse the skin, lighten pigmentation, and improve skin appearance. These ingredients also have anti-aging andantiwrinkle properties. Regular use of this scrub can help remove dirt, pollutants, and providehydration to the skin, with minimal side effects due to the use of herbal ingredients.

KEYWORDS: Exfoliator, Scrub, Tamarind, Herbal.

❖ INTRODUCTION

The word cosmetic was derived from the Greek word “kosmetikos” meaning having the power, arrange, skill in decorating. The origin of cosmetics forms a continuous narrative throughout the history of man as they developed. The man in prehistoric times 3000 BC used colors for decoration to attract the animals that he wished to hunt and also the man survived attack from the enemy by coloring his skin and adorned his body for protection to provoke fear in an enemy. The origin of cosmetics were associated with hunting, fighting, religion and superstition and later associated with medicine. The term Cosmeceuticals was first used by Raymond Reed, founding member of US Society of Cosmetics Chemist in 1961. He actually usedthe word to brief the active and science based cosmetics. The above term was further

used by Dr. Albert Kligman in 1984 to refer the substances that have both cosmetic and therapeutic benefits 3. Cosmeceuticals are cosmetic pharmaceutical hybrids intended to enhance health and beauty through ingredients that influence the skin's biological texture and function.[6]

The cosmetics, according to the Drugs and Cosmetics Act is defined as articles intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or any part for cleansing, beautifying, promoting attractiveness or altering the appearance. The cosmetic does not come under the preview of a drug license.[6] Cosmetics are widely used to improve one's appearance and are available in a variety of forms. Skincare products are formulated to address various skin issues, such as skin protection, sun protection, anti-aging, and anti-wrinkle treatments. Since ancient times, people have used herbs or herbal cosmetics to cleanse, beautify, and combat oil, acne, discoloration, and pimples, as well as dark circles.[17] Skin care products are an important factor in improving people's self- confidence. Women used to be the biggest consumers of skin care products, but in today's situation, men are just as concerned about their appearance. The blessings of natural beauty and cosmetics help to bring out and enhance one's beauty and personality.[20] The skin surface needs frequent washing to remove oil, sebum, and other secretions, dead cells, crusts, and applied make-ups in order to maintain its health and beauty.[1]

People today prefer natural foods, herbal medicines and natural treatments for healthy living. Herbal cosmetics are compounds with various plant-derived phytochemicals that regulate skin function and provide healthy skin with important nutrients. Herbal cosmetics are natural plants and products made from them that are used in cosmetics for their aromatic value. Since chemical-based cosmetics are generally believed to be harmful, herbal products have created a desire to use natural products and natural extracts in cosmetics. Today, herbal cosmetics are in high demand due to their ability to act as cosmetics and medicine.[20] Herbal cosmetics are also known as "natural cosmetics". The demand for herbal medicines is increasing rapidly due to their lack of side effects.[1] With the beginning of civilization; humankind had the attractive plunge towards impressing others with their looks. At the time, there were no fancy fairness creams or any cosmetic surgeries. To begin with, the only thing they had was the information of nature, aggregated in the Ayurveda. With the art of Ayurveda, a few herbs and flowers were used to make Ayurvedic cosmetics that truly worked.

Ayurvedic cosmetics not only beautified the skin but acted as the shield against any kind of external effects for the body. Ayurvedic cosmetics also known as herbal cosmetics have the same admirable resources in the present day period too. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. There is an extensive variety of the herbal cosmetics that are produced and commonly used for daily purposes.[3] The history of the herbal cosmetics industry includes very dark chapters in European and Western countries from about six centuries back. Mixtures and pastes were then used to whiten the face, a practice which remained popular till over four hundred years later. The early mixtures that were used in Europe for this purpose were so potent that they often led to paralysis, strokes or death. In that era, the history of herbal cosmetics in the 1940s shows how the fashion or trend with respect to lipstick colors was changed annually, getting darker and closer to red every passing year. It was around this time that eyebrow shaping also became popular. Some of the pure herbs are extracted from the terrains of great Himalayas where numerous herbs are yet to be identified. With their unending health benefits, it is expected that Herbal extracts will soon revive the era of healthy mind and body.[5]

According to the World Health Organization, herbalism is the use of crude plant material such as leaves, flowers, fruit, seed, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered. The term herbalism refers to the long historical use of these medicines to support the healing function of the body. Because of the long tradition of using botanicals to promote health, the use of herbs is well established and widely acknowledged to be safe and effective. WHO also recognizes that Traditional Medicine encompasses health practices, approaches, knowledge and beliefs that rely on plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularlyor in combination to treat, diagnose and prevent illnesses or maintain well-being.

There are various formulations used to treat the skin such as face wash, face pack, face scrub, face mask and many other formulations. Skin is the body’s largest organ. It provides protection, water preservation, lubricates and regulates temperature.

Skin becomes dull, non-glowing due to various causes and these can effectively that overcome with the application of scrub. There are two types of scrub being used on the skin such as facial scrub and body scrub.[21] Facial scrub is an excellent deep cleansing, exfoliating applications for all skin types and especially beneficial for oily skin. Facial scrub is very

easy to use, choose a neutral or chemical scrub suited for skin, massaged on damp skin for one minute, and then rinsedskin. Repeated once or twice a week.[2]

There is an extensive variety of the herbal cosmetics that are produced and commonly used for daily purposes. Herbal cosmetics like herbal conditioner, herbal soaps, herbal face wash, herbal shampoo, and many more are exceptionally acclaimed by the masses. The best thing of theherbal cosmetics is that it is purely made by the herbs and shrubs. The natural content in the herbs does not have any reactions on the human body; rather enhance the body with supplements and other helpful minerals.

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Plant extracts have been generally recognized as active ingredients in a variety of dermatological products.[15] Tamarind has a number of pharmacological activities because of antimicrobial and antioxidant effects and laxative properties. It is used to treat abdominal pains, deep wounds, intense fever, severe malaria, blood related diseases, dysentery, diarrhea and cardiovascular disorders. 12 It contains invert sugar, citric acid, oleic acid, linoleic acid, volatile oils , pipecolic acid, lupeol, orientin, vitamin B3, vitamin C, vitexin, phenylalanine, leucine, potassium, Campesterol, β-amyrin, β-sitosterol, Tannins, saponins, glycosides. It has various pharmacological activities like hypolipidemic, weight reducing, antimicrobial, hepatoprotective, anthelmintic, antioxidant, analgesic & anti-inflammatory etc. This will be helpful to create interest towards Tamarind and in developing new formulations with more therapeutic and economical value.[11] antimicrobial, anti-inflammatory and anti-oxidizing traits, tamarind is the absolute remedy for brightening skin complexion, scourging facial pores, exfoliating dead skin cells, reverting the signs of aging, diminishing under-eye puffiness, treating acne, healing wounds and even diminishing. in that we use tamarind shell powder and tamarind fruit powder as multipurpose in cosmetic.

❖ **LITERATURE REVIEW**

1] Ghadge. P. K (2020): A research on "FORMULATION AND EVALUATION OF HERBAL SCRUB USING TAMARIND PEEL" The main objective of research study was to formulate an herbal scrub using natural ingredients incorporated into gel. In today's life for both women and men cosmetics play an important role in beautifying and altering the appearance of skin. The use of natural ingredients to remain healthy and of good appearance, the skin surface requires frequent cleansing to remove oil, sebum and other secretions, dead cells, crusts and applied make-ups. Herbal cosmetics have less or no side effects hence use of herbal cosmetics get increased.

2] Harshal kishor patil (2023): "REVIEW ON HERBAL SCRUB USING TAMARIND PEEL" The major goal of the research project was to create a herbal scrub employing organic materials mixed into gel. Cosmetics have a significant part in today's society for both men and women in beautifying and changing the appearance of skin. The skin surface needs frequent washing to remove oil, sebum, and other secretions, dead cells, crusts, and applied make-ups in order to maintain its health and beauty. The usage of herbal cosmetics is growing since they havelittle or no adverse effect.

3] Roshni vikhey(2023): A research on **"**Formulation and Evaluation of Polyherbal Facial Scrub"Creating a Polyherbal scrub was the major goal of the current Investigation. To live a happy and confident life, cosmetics have today become an integral aspect of daily life for both men and women. Many commercially available skin care products, when used over time, lead to skin dryness, which shortens the lifespan of skin conditions including acne and redness. Scrubs made entirely of herbal elements that promote skin's cleansing, softening, moisturizing and fairness are the best solution for this issue. Cosmetics are the safest thing to use on a regular basis because they have no side effects, and they affect how the skin functions biologically. The prepared scrub was evaluated for various parameters such as appearance, pH, viscosity, spreadability, washability, irritability and found to be satisfied with all required characterization thus the developed formulation can be used as an effective scrub for using it to a healthy and glowing skin.

4] Pawan chaudhari(2023): A research on **"**Formulation and Evaluation of Herbal Face Scrub using Tamarind Peel" Cosmetics are defined as the products used for the purpose of beautifying, cleansing, promoting attractiveness or alternating the appearance. The aim of study is to formulate and evaluate a face scrub with incorporation of the sapodilla as

an active ingredient.

For the purpose of enhancing skin beauty, several skin conditions are developed, such as skin protection, sunscreen, anti-acne, and anti-wrinkle products. Despite the enormous health benefits of synthetic substances, which once more cause environmental destruction, demand for herbal items and cosmetics is rising daily.

5] Shweta ghode(2023): A research on "Exotic Rejuvenation: Unveiling the benefits of Dragon Fruit in polyherbal scrub" Facial scrubs contain coarse particles which help to exfoliate the skin. When you apply a face scrub, the particles rub against your skin and remove all the dirt from your skin pores. It also removes dead skin cells, making your skin smoother and softer. In this project we have prepared a polyherbal scrub which consists of plant-based ingredients to improve skin cleansing, softening, moisture and evenness. In-house prepared polyherbal scrub mainly contains the dragon fruit seeds which act as antioxidants with its rich content of vitamin C. We also used tamarind outer cover to remove dead scales on the skin, papaya seeds as acne control, rice starch as a protecting agent and soothe sun damage, Vitamin E as anti-aging ingredient, liquorice to diminish dark circles. The scrub was prepared with the polyherbal ingredients with glycerine and carbopol gel. The scrub was evaluated for appearance, pH, consistency, spreadability, extrudability, viscosity, irritability, washability, grittiness, foamability and it was concluded that the scrub was found to be satisfactory to improve the appearance of skin without any side effects and after application of scrub, skin becomes softer, cleaner and refreshed.

6] Sana fathima V (2020: A research on "FORMULATION AND EVALUATION OF HERBAL EXFOLIATOR". The primary goal of the exploration study was to formulate a herbal exfoliator utilizing natural ingredients incorporated into a gel. The utilization of natural ingredients utilized in the formulation to stay healthy skin and of good appearance, to battle against skin break out, wrinkles and furthermore to control secretion of oil. Natural cosmeceuticals normally contain the plant parts which utilize antimicrobial, antioxidant and anti aging properties. Herbal beauty care products have less or no side effects consequently utilization of herbal beauty care products get expanded.

❖ PLAN OF WORK

1] Selection of topic

2] Literature review

3] Selection of material

4] Study about material

5] Study about drug characteristics

6] Formulation of face scrub

7] Evaluation of face scrub

8] Result and discussion

9] Conclusion.

❖ ANATOMY OF SKIN

● SKIN

The skin is the body's largest organ, made of water, protein, fats and minerals. Your skin protects your body from germs and regulates body temperature. Nerves in the skin help you feel sensations like hot and cold. Your skin, along with your hair, nails, oil glands and sweat glands, is part of the integumentary (in-TEG-you-MEINT-a-ree) system. "Integumentary" means a body's outer covering. As the body's largest organ, skin protects against germs, regulates body temperature and enables touch (tactile) sensations. The skin's main layers include the epidermis, dermis and hypodermis and is prone to many problems, including skin cancer, acne, wrinkles and rashes.

Three layers of tissue make up the skin.

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

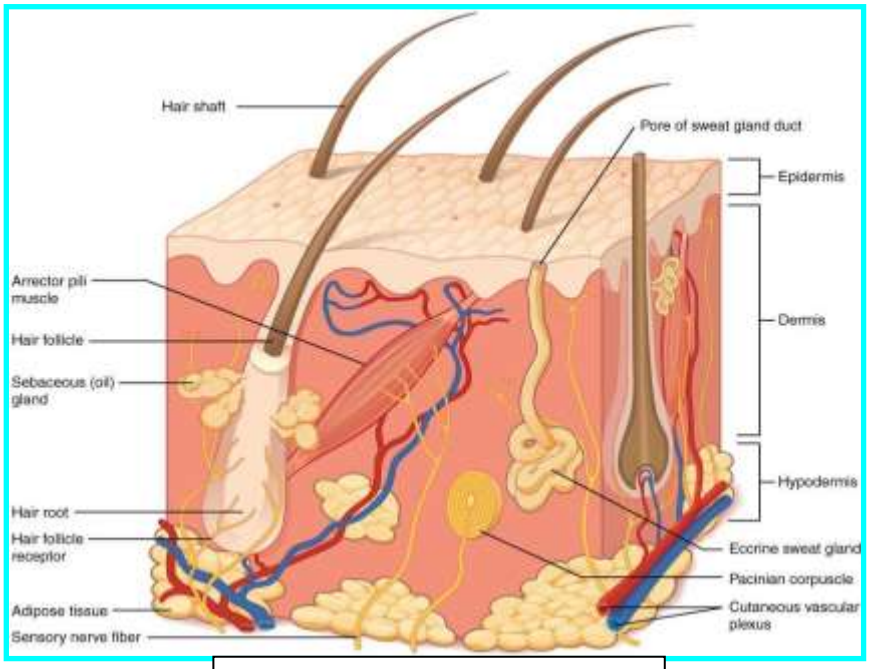

FIG. 1: ANATOMY OF SKIN

- **EPIDERMIS:** The epidermis have Keratinocytes, Corneocytes, Melanocytes.
- **Acts as a protective barrier**: The epidermis keeps bacteria and germs from entering your body and bloodstream and causing infections.
- **Makes new skin**: The epidermis continually makes new skin cells. These new cells replace the approximately 40,000 old skin cells that your body sheds every day. You have new skin every 30 days.
- **Protects your body**: Langerhans cells in the epidermis are part of the body's immune system. They help fight off germs and infections.
- **Provides skin color**: The epidermis contains melanin, the pigment that gives skin its color. The amount of melanin you have determines the color of your skin, hair and eyes. People who make more melanin have darker skin and may tan more quickly.

- **DERMIS:** The dermis have Sweat glands, Hair follicles, Sebaceous glands.
- **Has collagen and elastin**: Collagen is a protein that makes skin cells strong and resilient. Another protein found in the dermis, elastin, keeps skin flexible. It also helps stretched skin regain its shape.
- **Grows hair**: The roots of hair follicles attach to the dermis.
- **Keeps you in touch**: Nerves in the dermis tell you when something is too hot to touch, itchy or super soft. These nerve receptors also help you feel pain.
- **Makes oil**: Oil glands in the dermis help keep the skin soft and smooth. Oil also prevents

your skin from absorbing too much water when you swim or get caught in a rainstorm.

- **Produces sweat**: Sweat glands in the dermis release sweat through skin pores. Sweat helps regulate your body temperature.
- **Supplies blood**: Blood vessels in the dermis provide nutrients to the epidermis, keeping the skin layers healthy.

- **HYPODERMIS:** The bottom layer of skin, or hypodermis, is the fatty layer. The hypodermis.
- **Cushions muscles and bones**: Fat in the hypodermis protects muscles and bones from injuries when you fall or are in an accident.
- **Has connective tissue**: This tissue connects layers of skin to muscles and bones.
- **Helps the nerves and blood vessels**: Nerves and blood vessels in the dermis (middle layer) get larger in the hypodermis. These nerves and blood vessels branch out to connect the hypodermis to the rest of the body.
- **Regulates body temperature**: Fat in the hypodermis keeps you from getting too cold or hot.

- **FUNCTION OF SKIN**
  - Provides a protective barrier against mechanical, thermal and physical injury and hazardous substances.
  - Prevents loss of moisture.
  - Reduces harmful effects of UV radiation.
  - Helps regulate temperature.
  - An immune organ to detect infections etc.
  - Production of vitamin D.

- **SKIN PROBLEMS:** As the body's external protection system, your skin is at risk for various problems. These include.

- Blisters
- Skin infections like cellulitis.
- Skin rashes and dry skin.
- Skin disorders like acne, eczema, psoriasis and vitiligo.
- Wounds, burns (including sunburns) and scars.
- Allergies like contact dermatitis and poison ivy rashes.

- Bug bites, such as spider bites, tick bites and mosquito bites.
- Skin lesions, such as moles, freckles and skin tags.

❖ **FACE SCRUB**

A facial scrub is usually a cream-based product that contains little exfoliation pieces that when massaged across the skin help smooth the skin by physically lifting off dry, dead skin cells. Facial scrubs also work very well to keep the skin on the neck smooth to make exfoliation easier. When exfoliating, make sure to look upwards so the skin on the neck is nice and taut, which will make for easier use. Facial scrub is an excellent deep cleansing, exfoliating application for all skin types and especially beneficial for oily skin. This all neutral facial scrub aids in removing impurities, dirt, contaminants and excess oil. This versatile combination can be used as a facial scrub or a facial mask. Mix with water or a herbal infusion, apply to the face and gently rinse off. Your skin is sure to feel softer, cleaner and refreshed. (Banchhor M, 2009) Using a facial scrub can make your skin feel beautiful, youthful, and soft and like it's glowing. Unlike regular soap or cleanser, a facial scrub uses small particles, beads or chemicals to get rid of the old skin cells and make way for new once in a process known as exfoliation. Facial scrub was very easy to use, choose a neutral or chemical scrub suited for skin, massaged on damp skin for one minute, and then rinsed skin. Repeated once or twice a week. With all of its benefits, making a facial scrub a part of a weak skin care routine. Exfoliation involves the removal of the oldest dead skin cells on the skin's outermost surface. Exfoliation is involved in all facials, during microdermabrasion or chemical peels. Exfoliation can be achieved by mechanical or chemical means. (Shivanand P, 2010).[21]

- **Advantages Scrubbing Your Skin[2]**

1. **For A Squeaky Clean Skin:** Scrubbing gives you clean skin, free from dirt, oil, and sweat. Actually, the bottles of cleansing milk, face wash and facial cleansers cannot pull out all the dust that accumulates in the pores of your skin. Scrubbing does this job successfully.
2. **Frees Your Skin From Flakes:** Flaky skin gives rise to dry patches. It allows dead cells to accumulate over time. Scrubbing your skin can help you deal with flaky skin effectively.
3. **Helps In Removing Dead Cells:** Dead cells make your skin look dull and tired. Scrub them off with a gentle scrub.

4. **Adds Glow To Skin:** Exfoliation can actually make your skin glow.
5. **Removes Dark Patches:** Use of scrub twice a week to get results. It is especially effective on knuckles, elbows and knees.
6. **Removes Acne Scars:** Exfoliation helps in doing away with acne scars.
7. **Prevents Ingrown Hair:** Ingrown hair is a perennial problem and scrubbing is the solution to prevent this problem.
8. **For Smooth Skin:** Smooth skin is the key to a more beautiful you. The scrub will not only make your skin look flawlessly smooth, but will also make it soft and well-nourished.
9. **Improves The Texture Of Your Skin:** Scrubbing your skin gives you clean and smooth skinwith an improved texture.
10. **Promotes Clear Complexion:** As soon as the flakes, dead cells, blemishes and accumulated impurities are done away. The scrub has natural skin whitening ingredient, the effect is even better.

❖ **TAMARIND**

Human beings and plants share an age-old relationship. The use of plants as medicine goes back to the period of early man. India has an ancient heritage of traditional medicine and a rich tradition of plant-based knowledge in healthcare. Plants have formed the basis of sophisticated traditional medicinal practices that have been used for thousands of years by people in China, India, and the rest of the other countries 2–4. The earliest record of the use of plants for the treatment of various ailments can be found in the oldest Hindu scripture, the Rig Veda which dates back from 3500 B.C to 1800 B.C5. Practices of traditional medicine vary greatly from country to country, and from region to region, as they are influenced by factors like culture, history, personal attitudes, and philosophy. In many cases, their theories and applications are quite different from those of conventional medicine.[19] In recent times, antimicrobial, anti- inflammatory and anti-oxidative properties having biological molecules extracted from plant sources are gaining much attention.[7]

Fig. 2: Tamarind Tree.

A, Rai, 2018; Gupta, Prakash, Gupta, 2014; Nwodo et al., 2011). The crude extracts of tamarind fruit pulps contain several organic acids, namely tartaric acid, acetic acid, formic acid, and malic acid.[15] Tamarind preparations are universally recognized as refrigerants for fevers, and as laxatives and carminatives. Alone, or in combination with lime juice, honey, milk, dates, spices or camphor, the pulp is considered to be effective as a digestive as a remedy for biliousness and bile disorders, and as an antiscorbutic. The laxative properties of the pulp and the diuretic properties of the leaf sap have been confirmed by modern medical science. In traditional practice, the pulp is applied on inflammations, is used in a gargle for sore throat and, mixed with salt, as a cream for rheumatism. It is, further, administered to alleviate sunstroke, Datura poisoning, and alcoholic intoxication. In southeast Asia, the fruit is prescribed to counteract the ill effects of overdoses of false chaulmoogra, Hydnocarpus anthelmintica Pierre, given in leprosy. The pulp is said to aid the restoration of sensation in cases of paralysis. In Colombia, an ointment made of tamarind pulp, butter, and other ingredients is used to rid domestic animals of vermin. The fruits are reported to have antifungal and antibacterial properties. When the bitter principle is extracted with benzene and subsequently digested with petrol, it yields 0. 67% of a brown, odorless liquid named ‘tamarindienal’, identified as 5- hydroxy 2-oxo-hexa3,5-dienal book.

- **SCIENTIFIC CLASSIFICATION:**

Kingdom : Plantae

Subkingdom : Tracheobionta

Superdivision : Spermatophyta

Division : Magnoliophyta

Class : Magnoliopsida

Subclass : Rosidae

Superorder : Rosanae

Order : Fabales

Family : Fabaceae

Subfamily : Caesalpiniaceae

Tribe : Detarieae

Genus : Tamarindus

Species : Tamarindus Indica

- **HABITAT**

It grows well in both semi-arid and humid monsoon climates and can grow on a wide range of soil types. It is a tree of the tropics; it can tolerate temperatures up to 47°C but is very sensitive to frost. It is mainly grown in areas with 500-1500 mm rain/ year but tolerates down to 350 mmif irrigated at the time of establishment. In the wet tropics with over 4000 mm rain, flowering and fruit setting is significantly reduced and in India it is not grown in areas receiving more than 1900 mm rain/year. Regardless of total annual rainfall, it produces more fruit when subjected toa fairly long dry period.[11]

- **CHEMICAL COMPOSITION**

The tamarind fruit contains seeds and pulp. Both dry and ripened forms of its fruit mainly contain tartaric acid, pectin, tannin, reducing sugars, cellulose and fiber. The seeds also contain fat, protein, carbohydrates and sugars. Both pulp and seeds are good sources of calcium, potassium, phosphorus and contain other minerals like zinc, iron and sodium. The other components of tamarind are also described in detail in this review. The fruit of tamarind is the most common and valuable part of the tamarind tree that is used. The pulp constitutes 30 to 50% of the ripened fruit. while the shell and fiber accounts for 11 to 30% and the seed about 25 to 40%. The dried tamarind pulp of commerce contains 8 to 18% tartaric acid (2, 3-dihydroxy butanedioic acid–$C_4H_6O_6$, a dihydroxy carboxylic acid) and 25 to 45% reducing sugars, of which 70% is glucose and 30% fructose.[10] Tamarind pulp is rich in minerals such as potassium 62 to 570 mg per 100 g; calcium 81 to 466 mg per 100 g, phosphorus 86 to 190 mg per 100 g and iron 1.3 to 10.9 mg per 100 g. According to some scientists, magnesium content is high 25.6 to 30.2 mg per 100 g, as is sodium 23.8 to 28.9 mg per 100 g, whereas copper (0.8 to 1.2 mg per 100 g) and zinc (0.8 to 0.9 mg per 100 g) are low. It is

also excellent in riboflavin and a good source of niacin and thiamin while it contains low amounts of vitamin C and vitamin A.[12]

- **PHYTOCHEMISTRY**

Phytochemical studies of Tamarindus indica showed the existence of many active components, like phenolic compounds, L-(-) malic acid, cardiac glycosides, mucilage, tartaric acid and arabinose, pectin, xylose, glucose, galactose and uronic acid. The ethanolic extract of Tamarindus indica exhibits the presence of fatty acids and many essential elements like calcium, arsenic, cadmium, iron, copper, manganese, magnesium, sodium, phosphorus, potassium, zinc and lead.[8] The leaf oil has thirteen components. The benzyl benzoate and limonene are the most important components. Phytochemical studies of Tamarindus indica root bark exhibited presence of βsitosterol, eicosanoic acid, n-hexacosane, 21-oxobehenic acid, octacosanyl ferulate and (+)- pinitol. The (+)-pinitol bioactive compound in this plant is investigated for the first time. The volatile components of fruit pulp were furan derivatives which are about 44.4% and carboxylic acid are 33.3% of total volatiles. The main fatty acids of seeds were oleic acid, palmitic acid, eicosanoic acid and linoleic acid. Unsaponifiable matter of Tamarindus indica seed oil showed presence of β-sitosterol, β-amyrin, campesterol and seven hydrocarbons. The aerial parts of the plant have shown the presence of acetic acid, tartaric acid and succinic acid, pectin, gum, tannins, sugar, flavonoids, alkaloid, sesquiterpenes and glycosides.[18] Tamarindus indica pericarp and seeds contain phenolic antioxidants such as procyanidin trimer, procyanidin dimer, procyanidin B2, epicatechin, apigenin and catechin along with naringenin, taxifolin and eriodictyol. The seeds of Tamarindus indica only constitute procyanidins, procyanidin hexamer, oligomeric procyanidin tetramer and procyanidin pentamer with relatively lower contents of procyanidin B2 epicatechin.[4] The pulp comprises of organic acids like acetic acid, tartaric acid, citric acid, malic acid, formic acid and succinic acid; also including amino acids; invert sugar are 25 to 30% proteins, pectin, fats, pyrazines (trans-2-hexenal) and thiazoles (2-methylthiazole, 2-ethylthiazole) as fragrant and seed polysaccharides are present with main chaincontaining of β-1,4-connected glucose molecules together with galactose and xylose (α-1,6); lipids with fatty oils; total protein and some keto acids. In the plant leaves, two triterpenes, lupeol and lupanone has been found.[12]

- **ORIGIN**[26]

Several authors have proposed various geographical areas as the origin of the tamarind tree. Tamarind fruit was at fi rst thought to be produced by an Indian palm, as the name tamarind comes from a Persian word ‘tamar-i-hind’, meaning ‘date of India’. Its name ‘amlika’ in Sanskritindicates its ancient presence in the country (Mishra, 1997). As reported by El-Siddig et al. (2006), it was mentioned in the IndianBrahmasamhita scriptures between 1200 and 200 BC. Morton (1987) placed its origin in India, but others considered it indigenous to the drier savannahs of tropical Africa, from Sudan, Ethiopia, Kenya and Tanzania, westward through sub- Sahelian Africa to Senegal (Brandis, 1921; Ridley, 1922; Dalziel, 1937; Dale and Greenway, 1961; Irvine, 1961; NAS, 1979). The tamarind tree is now considered to have originated in Madagascar (Von Maydell, 1986; Hockin, 1993). It is thought to have been introduced to South and Southeast Asia and to have become naturalized in many areas to which it was introduced (Simmonds, 1984; Purseglove, 1987; Coronel, 1991). It is now cultivated throughout semi-arid Africa and South Asia and has been planted extensively in Bangladesh, India, Myanmar, Malaysia, Sri Lanka, Thailand and several African, Australian, Central American and South American countries (Troup, 1921; Sharma and Bhardwaj, 1997).

❖ MATERIAL AND METHODS

- **TAMARIND PULP POWDER**

The Antioxidant activity of tamarind pulp extract is suitable for food, pharmaceutical and cosmetic applications, especially anti-aging products. To some extent, the use of antioxidants will alleviate or prevent the signs of aging such as wrinkled skin and age spots.[15] A powerhouse of antioxidants, flavonoids and vitamin C and A, tamarind prevents formation of free radicals. Reduced skin irritation and inflammation with tamarind face packs. It also is a great ingredient to lighten skin tone and reduce dark spots and pigmentation naturally.[21]

Fig. 3: Tamarind Pulp Powder.

- **CHEMICAL COMPOSITION**

The major volatile constituents of tamarind pulp include furan derivatives (44.4%) and carboxylic acids (38.2%), the components of which are furfural (38.2%), palmitic acid (14.8%),oleic acid (8.1%) and phenylacetaldehyde (7.5%) (Wong et al., 1998). According to Lee et al. (1975), the most abundant volatile constituent of tamarind is 2-acetyl-furan, coupled with tracesof furfural and 5-methylfurfural, which form the total aroma of tamarind. The total content of volatile compounds in fruit pulps can be around 3 mg/kg. Apart from the major volatile components listed above there may be up to 81 different volatile substances. In general, the dried tamarind pulp of commerce contains 8-18% tartaric acid and 25-45% reducing sugars of which 70% is glucose and 30% fructose.book1

- **SCIENTIFIC CLASSIFICATION**

Kingdom: plantae

Order: Fabales

Family: Fabaceae

Subfamily: Detarioideae

Tribe: Amherstieae

species: T. indica.

ADVANTAGES

1] Smoothnes and evens skin tones

2] Soothes evened the most stressed and irritated skin.

3] Help treat dry and oily skin tone.

4] Fantastic way to remove dead skin cells.

5] Rich in vitamin and minerals

6] Has vast anti-aging benefits

2] TAMARIND SHELL POWDER

Tamarind shell is the outer layer of the tamarind fruit. It is a rich source of antioxidants, alpha- hydroxy acids (AHAs), and anti-inflammatory compounds. It is used in skincare products for its exfoliating, brightening, and anti-aging properties. Tamarind shell helps to remove dead skin cells, unclog pores, and improve skin texture. It also helps to reduce the appearance of fine lines and wrinkles, and brighten the complexion. tamarind shell is known for its potential antioxidant, anti-inflammatory, and antimicrobial properties, making it a

valuable ingredient in the cosmetic and skincare industry. It is commonly used in skincare products such as face masks, scrubs, and creams due to its ability to exfoliate the skin, improve skin texture, and provide anti-aging benefits.[6]

Fig.4: Tamarind Shell.

- **SCIENTIFIC CLASSIFICATION**

Synonyms: Tamarindus Indica peel, Imlikachhilka, Tintiri.

Biological Source: Tamarind peel is derived from the fruit of the Tamarind tree (Tamarindusindica), a leguminous tree native to tropical Africa.

Family: Fabaceae.

- **CHEMICAL COMPOSITION:** Its major constituents are carbohydrates (celluloses), calcium carbonate (CaCO3), proteins, tannins, moisture, etc. Due to its carbon-rich composition, tamarind shell has been utilized as a biomass material in many countries. As the tamarind shell is made up of calcium carbonate (CaCO3) ca.

ADVANTAGES

- **Exfoliation:** Tamarind shell contains alpha hydroxy acids (AHAs), which help to gently exfoliate the skin, removing dead skin cells and revealing smoother, brighter skin. Brightening: The AHAs in tamarind peel also help to brighten the skin, reducing the appearance of dark spots and hyperpigmentation.
- **Anti-aging:** Tamarind shell is rich in antioxidants, which can help to protect the skin from damage caused by free radicals, and may also help to reduce the appearance of fine lines and wrinkles.
- **Acne prevention:** The antibacterial properties of tamarind peel may help to prevent acne

breakouts and reduce inflammation in the skin.

- **Hydration:** Tamarind shell is also rich in vitamins and minerals that can help to hydrate the skin, leaving it feeling soft and smooth. Overall, tamarind peel face scrub can help to improve the texture and appearance of the skin, while also providing hydration and protection against environmental damage.

3] CITRIC ACID: Citric acid is reported to function in cosmetics as a chelating agent, pH adjuster, or fragrance ingredient. Some of the inorganic salts of citric acid are reported to function as a pH adjuster or chelating agent; these salts also have many other reported functions, including skin-conditioning agent, buffering agent, cosmetic astringent, oral care agent, cosmetic biocide, or pesticide.[25] Citric acid increases the shelf life of cosmetic and skin care products by acting as preservative.

Fig. 5: Citric Acid.

4] TURMERIC: A common condiment and coloring ingredient is turmeric. The major purpose of turmeric is to revitalize the skin. It has additional qualities like antibacterial, antimicrobial, and anti-inflammatory effects in addition to delaying aging symptoms like wrinkles. The best source of a blood purifier. 11 Is there. On skin that is afflicted by conditions, turmeric can do miracles. It can soothe skin conditions like eczema and rosacea and lessen the redness caused by pimples.[20]

FIG. 6: Turmuric Powder.

5] MULTANI MITTI: The oil-absorbing properties of multani mitti make it effective against acne and help speed up the healing process. Used as a scrub, multani mitti can slough away dead skin cells and remove blackheads and whiteheads, giving skin a natural and healthy glow. Boosts circulation and improves skin health and tone.[22]

FIG. 7: Multani Mitti.

6] ALOE VERA GEL: Aloe vera is used to soften and moisturize skin. It gives the skin a layer of protection and aids in moisture retention. Aloe is abundant in nutrients and antioxidants that might hasten the healing process. On the skin, aloe vera has a cooling effect. It aids in the renewal of ageing skin.[22]

FIG. 8: Aloe Vera.

7] ROSE WATER: Rose water uses for different purposes like helps soothe skin irritation, Soothes sore throats, reduces skin redness, helps prevent and treats infections, contains antioxidants, heals cuts, scars, and burns, enhances mood, relieves headaches, it has anti-aging properties, soothes digestion problems.[22]

FIG.9: Rose Water.

- **ROLE OF INGREDIENTS.**

SR. NO	INGREDIENTS	ROLE
1]	Tamarind Pulp Powder	Reduce dark spots

2]	Tamarind Shell Powder	Exfoliator
3]	Citric Acid	Preservative and pH adjuster
4]	Turmeric	Antibacterial
5]	Multani mitti	Cleansing of oil
6]	Aloe vera gel	Moisturizer
7]	Glycerin	Humectant
8]	Guar gum	Gelling agent
9]	Rose water	Vehicle

- **FORMULATION TABLE**

SR. NO	INGREDIENTS	F1(20g)	F2(50g)	F3(50g)
1]	Tamarind pulp powder	4g	10g	10g
2]	Tamarind Shell powder	2g	5g	5g
3]	Citric Acid	0. 5g	1g	1g
4]	Turmeric	2g	5g	5g
5]	Multani Mitti	3g	7g	7g
6]	Aloe Vera Gel	3ml	7ml	7ml
7]	Glycerin	2. 5ml	6. 5ml	6. 5ml
8]	Guar gum	0. 5g	1. 5g	1. 5g
9]	Rose water	q. s	q. s	q. s
10]	Water	q. s	q. s	q. s

- **METHOD OF PREPARATION**

The tamarind shell powder was used as exfoliant. The tamarind peel was taken into the mortar and triturate by using a pestle. Weigh all ingredients properly using weighing balance. Citric acid was weighed and dissolved in a beaker containing water. Guar gum was added and stirred constantly for a few minutes to form a gel. Sodium Lauryl Sulphate was weighed and dissolved separately with water and was added into the above gel, then aloe vera gel is added. Take mortar and pestle and add Tamarind shell powder, tamarind powder, turmeric and multani mitti and add given quantity of glycerin. Triturate given ingredients and add sufficient needed quantity of rose water for proper consistency. Then the prepared gel was added into the active ingredient mixture in mortar and pestle and stirred properly. then preparation was placed in a suitable container.

❖ **EVALUATION PARAMETER**

1] Organoleptic Properties

- COLOR
- ODOUR
- APPEARANCE

2] PH: It is measured by using digital pH meter.

3] Consistency: The formulation and particles were evaluated for consistency to assess the texture and uniformity of the skin preparation, looking for qualities like stiffness, grittiness, and greasiness.

4] Homogeneity and texture: It was tested by pressing a small quantity of the formulated scrub between thumb and index scrub.

5] Washability: The test was conducted on the skin itself, with the preparation being applied and then washed off with regular water before observing any change.

6] VISCOSITY: Brookfield Viscometer was used to measure the viscosity of the gel.

7] Spreadability: The spreadability is very important in the behavior of gel that comes outfrom the tube. It is used to identify the extent of spreadability by the gel on the skin.

8] Foamability: The first step was to apply a small amount of scrub to the skin and then add aminimal amount of water to determine whether foam was present.

9] Irritability: A small amount of the gel was applied on the skin and kept for a few minutes, irritation, redness and inflammation are observed.

❖ RESULT AND DISCUSSION

● ORGANOLEPTIC PROPERTIES

SR. NO	PARAMETERS	OBSERVATIONS		
		F1	F2	F3
1]	Color	Yellow	Yellow	Yellow
2]	Odour	Characteristic	Decay	Aromatic
3]	Appearance	Semi-solidpaste	Semi-solidpaste	Semi-solidpaste

● OTHER PARAMETER

SR. NO	PARAMETERS	OBSERVATIONS		
		F1	F2	F3
1]	pH	6. 5	5. 5	5. 8
2]	Consistency	Semi-solid	Semi-solid	Semi-solid
3]	Homogeneity and texture	Smooth and small gritty particles	Smooth and small gritty particles	Smooth and small gritty particles
4]	Washability	Easily Washable	Easily Washable	Easily washable
5]	Viscocity	12640poise	14630 poise	14610poise
6]	Spreadability	Not Spreadable	Easily spreadable	Easily spreadable
7]	Foamability	Foam absent	Foam present	Foam is present
8]	Irritability	No irritation	No irritation	No irritation

❖ FUTURE PERSPECTIVE

There are various type of cosmetic preparation used for the skin protecting, hydrating, moisturizing, whitening. In that facial scrub is used to exfoliate the skin from factors such as dirt, oily skin, sweat, acne prone skin, dead skin cells such as blackheads and whiteheads, anti aging. It is used to reduce pigmentation, dark spots, wrinkles, acne. Sometimes chemical based cosmetics are believed to harmful for skin so instead of using chemical based scrubs, herbal face scrub is excellent alternative for usage. The tamarind shell is used to exfoliate skin hydration and removing dead skin cells, pigmentation, dark spots and tamarind powder show anti wrinkle, anti aging properties. It is used to reduce itching, redness, swelling, inflammationdue to harmful chemicals and giving cooling effect after using.

❖ CONCLUSION

The above study is conducted to Create a herbal face scrub using natural components in which we found that herbal face scrub contains Exfoliant that exfoliate the skin, remove dirt, and give the skin an immediate glow, in that we take 3 formulations F1, F2, and F3. In that formulations F3 are effective because it is pass to all evaluation and it give great glow to the skin and we get the conclusion that it helps to reduce the pigmentation, white heads, black heads and dark spots. so rather than using the chemical face scrub for the facial treatment herbal face scrub good alternative and having less toxic effects on the skin.

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