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FORMULATION AND EVALUATION OF MYROBALAN FACE PACK

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ABSTRACT :

The objective this work is to formulate and evaluate a polyherbal face pack for cosmetic purpose from herbal ingredients. Myrobalan drug, chickpea powder, coco butter, glycerine, honey, coconut oil, lemon, papermint oil were procured from the local market and were dried, powdered, then passed through sieve no 100, mixed geometrically and evaluated for its organoleptic and physico-chemical, general powder, microscopical characters and chemical evaluation.. The dried powder of combined form had passable flow property which is suitable for a face pack. Particle size of the powder was found to be 20 -25µ m. The microscopical characters of dried powder of combined form were noted Herbal face packs or masks are used to stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. The advantage of herbal cosmetics is their non toxic nature, reduce the allergic reactions and time tested usefulness of many ingredients. Thus in the present work, we found good properties for the face packs and further optimization studies are required on this study to find the useful benefits of face packs on human use as cosmetic product.

Key words : Terminalia chebula ; Phytoconstituents ; Biological and Pharmacological activities ; Clinical studies; Medicinal

INTRODUCTION:

Everybody wants to get fair and Charming skin. Now a day, Acne, black head, pimples, dark circle are common among youngster and person who suffer from it .[1,2,3] According to Ayurveda, Skin problem are normally due to impurities in blood. Since the ancient era, people are aware of the use of plants for the essential needs of a healthy and beautiful skin.[4] Cosmetics are products used to clean, beautify and promote attractive appearance Benefits of Applying Face Pack (Chanchal and Saraf, 2009). [5,6]

1.Nourishes the skin. Fruit face packs supply essential nutrients to skin.

2.Helps to reduce, acne, pimple, scars and marks depending on its herbal ingredients.

3.Face packs usually remove dead cells of skin.

4.These face masks provide a soothing and relaxing effect on skin.

5.They help to restore the lost shine and glow of skin in short span of time.

6.Regular use of natural face masks bring glow to skin, improve skin texture and complexion.

7.The harmful effects of pollution and harsh climates can be effectively combated with judicial use of face packs.

8.They help to prevent premature aging of skin.

9.Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using natural face packs.

10.Natural face packs make the skin look young and healthy.

Face packs which are recommended for acne, pimple, black heads usually control the over discharge of sebum from sebaceous glands and remove the harmful bacteria inside acne lesion. The scars and marks of skin can be reduced by adding fine powder of sandal, rose petals and orange lentils with acne face pack.[7,8,9,10]

Precautions to be Taken While Applying Face Pack-

1.Select the face pack according to your skin type. Take opinion of natural therapist or concerned skin expert before applying face pack.

2 .The face pack should not be left on face more than 15 to 20 minutes. Keeping for very long time may result in formation of wrinkles, sagging of skin and enlargement of open pores.

3 .Apply face pack once in a week. Don't try to peel or scratch the dried face pack. This may harm underlying skin.

4. Spray water (which is at room temperature) on face before removing dried face pack. After removing the Mask, roll an ice cube on facial skin. This helps to close open pores and tightens skin. It also tones and Sooths the skin.

5. Do not scrub face vigorously. This may result in eruption of pimples and dark spots. Stay away from heat when you have applied face pack.

6 .Avoid applying face pack near "eye zone". The skin around eye is very delicate. The process of removing face pack may damage skin around eyes. [11,12]

Advantages:

1. They help recover the skin's missing shine and glow in a short period of time.

2. Daily use of the natural face masks gives skin shine, enhances skin texture and taint.

3. Facial masks achieve cleaner skin and more refined pores.

4. Regular use of face masks can reduce signs of aging, such as fine lines, wrinkles and brown spots, among others.

5. They provide an even skin tone.

6. They provide Moisturize to skin.

7. They provide Oily skin control.

Disadvantages:

1. The One Face pack should not be Apply All Over the Face.

2. As every part of our face doesn't have the same type of skin.

3. Sometimes it takes longer duration of time for drying of face pack.

4. It may cause the irritation. Sometimes face pack cause redness.to skin.

5. There is difficulty of application of face pack for dry skin person.[13,14,15]

TAXONOMICAL CLASSIFICATION-

Kingdom: Plantae

Division: Magnoliophyta

Class : Magnoliopsida

Order : Myrtales

Family : Combretaceae

Genus : Terminalia

Species : Chebula

BOTANICAL DESCRIPTION- Terminalia Chebula is a medium to large sized deciduous tree[16] which grows up to 20m tall and 1 – 1.5m in grith. Leaves are subopposite, ovate with two glands near base. Flowers dull white in simple spikes and fragrant [17]. Fruit ovoid drupe yellowish-green. It is 2 – 2.5cm long and 1.3 to 1.5cm broad. The fruit has 5-6 ribs [18]. The plant is a native of Asia and grows inNepal, Sri Lanka, Myanmar, Bangladesh, Egypt, Iran and Turkey1 and also in Pakistan and Yunnan, Tibet, Guangdong, Guangxi province of China [19] . In India it grows in deciduous forests of Himachal Pradesh, Tamil Nadu, Kerala, Karnataka, Uttar Pradesh, Andhra Pradesh and West Bengal . It is capable of growing in differ- ent range of soils. The plant thrive well in areas with an annual rainfall between 100 – 150 cm. It requires a temperature range from 0 – 1 7° C. The plant is propagated by seeds or vegetatively by shoot cutting. Seeds takes about 10 – 30 days to germinate and about 60%

seeds germinate. The seedlings are transplanted to poly bags when it reaches 3 to 5 cm tall. Transplanting is done from June to July. Fruits are collected from the month of december to march[17] . **SYNONYMS:** Terminalia chebula has several trade and vernacular names. **TRADE NAMES:** Chebulic myrobalan, Ink tree, Black myrobalan.

PARTS USED - The powder of the dried fruits of Terminalia chebula is used for the therapeutic purpose [20]. In triphala also the dried fruit powders are used for treatment of various diseases [17].Many of the research studies have been done only on the dried fruits of the above plant. TRADITIONAL USES: Fruits of Terminalia are astringent and used as laxative, cardiac tones, dentrifiers for strengthening of gums. The paste of the dried fruit is used for chroniculcers, wounds and scalds. The powder is used to treat various conditions like jaundice, colic, asthma, hoarse voice, hiccup, vomiting, diarrhea, and abdominal distention. It is used for several infectious diseases like cough, fever, pneumonia and tuberculosis. It is also used for treating parasitic infection. It is used for gas, spleen and liver disorders . It is used as a blood purifier, gargle for sore throat, ulcerated gums, muscular rheumatism. With sugar water it is used to treat opthalmia, skin itching and edema[17]. It is used as an antioxidant and neuroprotective drug[21]. It is also found to reduce the risk of getting affected with typhoid fever [20]. The pulp of the fruits or decoction of the fruits or 4grams of fruit with cinnamon or cloves should be taken to reduce constipation[17]. This plant is also used for treating piles, dropsy, diarrhoea, biliousness,headaches, dyspepsia and ascites[21] . The diluted decoction of the fruit is used as a gargle for treating gum inflammation. The powder is used to relieve tooth ache. Along with castor oil the herb is used to treat burns and scalds. With tamarind water it is used as an astringent. A decoction of this plant is used for vaginal infection and for normal physiological activities of testis.It should be avoided during pregnancy as it may cause abortion of the fetus[17]. It is also used for treating candidiasis, parasites, malabsorption syndrome, hepatomegaly,vesicular and renal calculi, urinary discharges, tumors, skin diseases, leprosy, intermittent fever, rheumatism, arthritis, gout, neuro pathy, paralysis, memory loss, epilepsy, depression, diabetes, cardiovascular diseases, anorexia, wounds. TC is reported to be antimicrobial hepatoprotective , anti-inflammatory immunomudulatory ,antioxidant and adaptogenic [20]. It is also used for heart disease, inflammation, brain dysfunction [22] Triphala is used in the treatment of enlarged liver, stomach disorders and pain in eyes[17]. The herbal formulation is used for tuberculosis, pneumonia, AIDS, detoxification, digestive problems, obesity, anemia, increasing apetite, for treating cancer and as a rejuvenator of the body . It is also used against candida infection, poor digestion and assimilation and as a cytotoxic agent. It is used for treating chronic ulcers, leucorrhoea, pyorrhea and also assists in the weight loss. It is used as an anti-aging agent and it is found to improve the mental faculties. The plant also has adrenergic function and helps to recover from stress [23].

PHYTOCHEMICAL CONSTITUENTS: Terminalia plant was studied and found to contain several constituents like tannins, flavonoids, sterols, amino acids, fructose, resin, and fixed oils. It is also found to contain compounds like anthraquinones, gallic acid, chebulinic and chebulagic acid, ellagic and ethaedioic acid, 4,2,4 chebulyl-d-glucopyra-nose, terpinenes and terpinenols [24]. In a recent study, Terminalia was confirmed to have more phenolics than the other plant extracts. Gallic acid which is an important constituent of Terminalia is used as a hepatoprotective and also as an antioxidant[18]. The compounds of Terminalia like gallic acid (GA), ellagic acid (EA), and corilagin (CG) were reported to have anticancer, antimicrobial, and anti-inflammatory activities [25]. Studies revealed that the plant contains chebulinc acid, tannic acid, gallic acid,resin, anthroquinone and sennoside [17]. It also contains glycosides, sugar,triterpenoids ,steroids and small quantity of phosphoric acid these compounds were proven to exhibit antibacterial, anti fungal, anti viral, anti carcinogenic,antioxidant, adaptogenic and anti-anaphylactic, hypolipidemic, hepato protective, cardio protective, antidiabetic, wound healing, immuno- modulatory and chemo preventive [19]. The plant has also been found to contain several constituents like 1,2,3,4,6-penta-O-galloyl- b-D-gulcopyranose , chebulagic acid and chebulinc acid and was found to have cytotoxic activity. These compounds showed moderate in vitro cytotoxicity against cultured human tumor cell lines including A-549, SK-OV-3, SK-MEL-2, XF 389, and HCT-15[25]. Chebulagic acid isolated from Terminalia chebula is found to act as a dual inhibitor of COX-LOX, anti-oxidant and anti-cancerous agent. The plant was found to have cytotoxic effect on the cell lines used in the study namely MDA-MB-231, COLO-205 .The fruit of Terminalia was found to have 30 – 32% of tannin and other constituents. Nine oleananetype triterpenoids were isolated from the methanol extract of T. chebula [8] A study on the plant proved that tannins play a major role in wound healing by many of the mechanisms like chelation of free radicals, contracting wounds and increasing formation of capilliary blood vessels and fibroblasts[18].A ellagitanninterchebulin along with punicalagin, terflavin-A, shikimic, gallic, tricontanoic and palmitic acids, beta-sitosterol, daucosterol, triethyl ester of chebulic acid and ethyl ester of gallic acid, a triterpene –chebupentol were isolated in fruits. The compounds phloroglucinol and pyrogallol, isolated along with ferulic, vanillic, p-coumaric and caffeic acids constitutes for the antioxidant activity of the plant. The carbohydrates, glucose and sorbitol, fructose and sucrose, a smaller amount of gentiobiose, and traces of arabinose, maltose, rhamnose and xylose are also found to be present in myrobalan[26]. Preliminary studies also revealed that the plant has no toxicity.

PHARMACOLOGICAL ACTION –

1. Antioxidant: Myrobalan's antioxidant properties help protect against oxidative stress and cell damage .

2. Anti-inflammatory: It exhibits anti-inflammatory activity, which may help reduce inflammation and alleviate symptoms .

3. Antimicrobial: Myrobalan has shown antimicrobial activity against various bacteria, fungi, and viruses .

4. Anticancer: Some studies suggest that Myrobalan may have anticancer properties, although more research is needed .

5. Cardioprotective: Myrobalan may help protect the heart and prevent cardiovascular disease Antispasmodic activity: One of the numerous studies of Terminalia chebula demonstrated its 'anti-vata' or 'anti-spasmodic' properties by the reduction of abnormal blood pressure as well as intestinal spasms. This confirm its traditional usefulness for spastic colon and other intestinal disorders83.

6. Anticaries activity: The aqueous extract of Terminalia chebula strongly inhibited the growth, sucrose induced adherence and glucan induced aggregation of Streptococcus mutans. Mouth rinsing with a 10% solution of the extract inhibited the salivary bacterial count and glycolysis of salivary bacteria for upto 90 min post rinsing53, 84.

7. Wound healing activity: Topical administration of an alcoholic extract of Terminalia chebula leaves on the healing of rat dermal wounds showed that Terminalia chebula treated wounds healed faster as indicated by improved rates of contraction and decreased period of epithelialization85.

8 .Purgative property: Purgative action of an oil fraction from Terminalia chebula has been documented86 [27,28,29]

Plant materials:

Fruit Of Myrobalan were collected from the residential area of Gujarani Ayurvedic Medical Store, Kopergaon .

Preparation of Plant Extract:

Shade drying was done for almost a month as to avoid chemical degradation due to sunlight. Grinding of the dried material was done, with the aid of a grinder and converted into coarse powder. The powder was sieved. 50 gm defatted powdered; material was extracted in methanol 100 ml by maceration process .

CHEMICALS - Myrobalan drug, chickpea powder, coco butter, glycerine, honey, coconut oil, lemon, papermint oil.

PROCEDURE:

Exraction:

1.Take dry drug wash and dry them properly and grind them and form a powder

2. This power is heat and boiled at a minimum temperature then filter it and collect the Extra.

Steps for performing TLC:

The readymade precoated aluminium thin layer plates were used for identification of compounds in extract and isolated compounds from column chromatography. Application of sample was done by sealed capillary tube on TLC plate at a point about 2 cm from bottom. Spot was air dried. Chamber saturation was done by pouring mobile phase into chamber and capped it with lid and allowed to saturate for 30 min. After saturation of chamber then spot of samples was given on plate, it was kept in chamber. The solvent level in bottom of chamber must not be above as spotted material, may dissolve in pool of solvent instead of undergoing chromatography. Then solvent was allowed to run for 10-15 cm on silica plate. Visualization was done by suitable visualizing agent i.e. vanillin: H2S04 was used, and then Rf was calculated by following formula,

RF Value = Distance Travelled by Solute / Distance Travelled by Solvent

Petroleum extract was allowed for TLC. This gives idea about number of compounds, chemical character of compound, number of separable compound present in extract. One compound was used for GC-MS analysis. [30,31,32]

METHOD:

1)This extra is then boil at a heating mental and make it soak the water than add this dry powder in a beaker after drying.

2) Dry powder is added in a beaker and make the formulation.

3) Weight amount of drug you need and put in a mortal pistal .

4)Let all the drug mix well and form the formulation.

5) Take base ingredients starch in a given amount .

6) Then take active ingredient than add this in a beaker than add this formulation .

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7) Ph adjuster, moisturizing agent, thickness adjustment and other ingredients to and mix it well and form the formulation.[33,34,35]

RESULT :

Myrobalan, also known as Terminalia chebula, is a medicinal plant with numerous benefits, including anti-aging, antioxidant, and skin-protective properties. When used in face packs, myrobalan can potentially.Provide Antioxidant Benefits: Protect the skin from damage caused by free radicals, promoting healthier and more youthful-looking skin.Exhibit Anti-Aging Properties Help reduce fine lines, wrinkles, and age spots, giving the skin a smoother appearance.Support Skin Health: Myrobalan's antibacterial, antifungal, and antiviral properties may help combat acne, pimples, and other skin issues. [36,37]

Evaluation of face pack:

Following evaluation parameters were performed to ensure superiority of prepared face pack

1. Morphological Evaluation-

Herbal face pack was evaluated for morphological parameters showed in the Table .The colour of formulation was pale yellow. The odour of prepared formulations was pleasant and good acceptable which is desirable to cosmetic formulations. Texture and smoothness was

Sr no.	Parameter	Observation
1.	Color	Pale yellow
2.	Odour	Pleasant
3.	Apperance	Smooth
4.	Texture	Fine
5.	Smoothness	Smooth

acceptable as per requirement of cosmetic formulations.

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2 .Phytochemical Evaluation

Herbal face pack was evaluated for phytochemical parameters showed in the Table .It was found to be a presence of phytoconstituents such as carbohydrates, alkaloids, glycosides, tannins and volatile oil which act as good nourisher for the skin.

Sr.no	Test	Observation	inference
1.	Dragendroff's test	Red color	Positive
2.	Wagner test	Red color	Positive
3.	Hangers test	Yellow color	Positive
4.	Mayers test	Yellow color	Positive
5.	Tannin test	Bluish black color	Positive
6.	Flavonoid test	Yellow color	positive

3 . Irritancy Test-

The results of irritancy test were shown in Table.The formulation showed absence of irritation, redness and swelling during irritancy studies. This formulation have safe to use on skin.

Sr.no	Parameter	Observation
1.	Irritation	No

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2.	Redness	No
3.	Swelling	No

4. Stability testing –

Sr no.	Parameter	Room temperature	40 degree C
1.	Color	No change	No change
2.	Odour	No change	No change
3.	Ph	3.0-3.4	3.2-3.6
4.	Texture	Fine	Fine
5.	Smoothness	Smooth	Smooth

TLC RESULT-

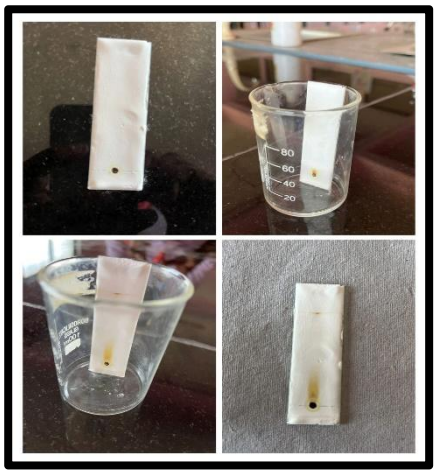
Thin Layer Chromatography (TLC) is a technique used to separate, identify, and analyze mixtures of compounds. Here's what TLC results can indicate:

TLC Result Interpretation

1. Separation of components: TLC can separate mixture components based on their interactions with the stationary phase (plate) and mobile phase (solvent).

2. Retention factor (Rf) : The Rf value indicates how far a compound travels up the plate, helping identify compounds based on their properties.

3. Spot shape and size : The shape and size of spots can indicate the purity and amount of each



DISCUSSION:

The use of Myrobalan (Terminalia chebula) in skincare, particularly in face packs, has gained popularity due to its traditional Ayurvedic benefits and scientifically proven properties. The phytochemical constituents of Myrobalan, such as tannins, flavonoids, and gallic acid, are known for their antioxidant, antibacterial, and anti-inflammatory properties, making it an ideal candidate for treating acne, hyperpigmentation, and skin aging .Studies have demonstrated that Terminalia chebula extracts help in reducing oxidative stress by neutralizing free radicals, which contributes to preventing premature aging of the skin (Jagtap et al., 2010). In addition, its antibacterial activity helps reduce Propionibacterium acnes, the bacteria responsible for acne Moreover, its astringent nature tightens the skin and minimizes pores, leading to an overall improved skin texture.When incorporated into face packs, Myrobalan shows a synergistic effect with other natural ingredients such as Multani Mitti (Fuller's Earth), turmeric, or sandalwood powder. This combination enhances skin brightness, detoxifies the skin, and helps in reducing blemishes. The inclusion of Myrobalan also aids in improving the shelf-life and stability of herbal formulations due to its antimicrobial properties.

CONCLUSION -

The present research and preliminary evidence highlight the potential of Myrobalan (Terminalia chebula) as an effective natural ingredient in herbal face pack formulations. Its rich composition of bioactive compounds such as alkaloids, tannins, gallic acid, chebulinic acid, and flavonoids contributes significantly to its antioxidant, antimicrobial, anti-inflammatory, and skin-rejuvenating properties. These qualities make it especially suitable for managing common skin issues like acne, dullness, uneven tone, and signs of aging .Myrobalan-based face packs offer a promising, low-cost, and eco-friendly alternative to synthetic skincare products, particularly for individuals seeking holistic and Ayurvedic treatment. The Myrobalan drug face pack demonstrates promising potential as a natural skincare remedy due to its antioxidant, anti-inflammatory, and antibacterial properties. Regular application can help cleanse the skin, reduce acne, and improve overall complexion. As a traditional Ayurvedic ingredient, Myrobalan offers a holistic approach to skin health, promoting rejuvenation without the side effects commonly associated with synthetic skincare products. However, further clinical studies and user-based evaluations are recommended to fully establish its efficacy and safety for all skin types.

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