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Formulation and Evaluation of Herbal Body Scrub Using Areca Nuts

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A B S T R A C T

In the present work we have prepared scrub from betel leaves extract and betel nuts. Firstly, betal leaves extract were prepared by using betel leaves and water. This extract then incorporated into scrub formulation. Scrub were evaluated for various physiochemical properties. Scrub was gritty semi-solid formulation, which has Rose fragrance. pH of scrub were found to be 07 (neutral). Spreadability were found to be 3.3 cm\sec. Viscosity were found to be 10424 mPa.s at10 rpm by using spindle number 3. Foamability were found to be foam volume 4 ml after 5 minuets.

Scrub was found to be non-irritant hence, it can be applied externally for cleansing purpose as well as whichever uses mentioned in literature.

Keywords: Areca Nuts, Sandal wood, Camphor, Haldi, Honey, Beatal leef

1. INTRODUCTION

Skin is the one of the largest organ of body. It serves as a major protective organ for other body parts. Skin functions as a protective wrapper, keeping everything beneath it and keep safe from daily threats such as the harsh effects of sun, wind and pollution germ filled grime. The skin supports its own ecosystem of microorganism, including yeast and bacteria, which cannot be removes by any amount of cleaning. Skin is also a sensory organ, which indicates the health of individual. It is consists of material such as amino acid, lipid and carbohydrate etc. so that a balanced nutrition is required for skin to keep it glossy, clean and clear and healthy. Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating the appearance. From the ancient time, different herbs are used for cleaning, beautifying and to manage them(1).

The skin or cutaneous membrane is the outermost layer which covers and protects the surface of the body from external environment. It is the complex and largest organ of the body in terms of both surface area and weight which unites with the mucosal lining of the respiratory, digestive and urogenital tract to form a capsule which separate internal body structure from external environment. This plays an imperative role by allocating abundant useful physiological functions. In adults, the skin covers an area of about 2 sq. meters (22 sq. feet) and weighs about 4.5-5 kg and almost 16% of body weight. Its thickness ranges from 0.5 mm (0.02 inch) on the eyelids to 4.0 mm (0.16 inch) on the heels. However, the overall thickness of the body is about 12 mm (0.04-0.08 inch). A typical sq. cm. of skin covers 10 hair follicles, 12 nerves, 15 sebaceous glands, 100 sweat glands, 3 blood vessels within 92cm of nerves and 3 x 106 cells(2).

1.1 STRUCTURE OF SKIN

The skin (cutis, integument) and its derivatives comprise the integumentary system. The skin is broadly segregated into three basic layers such as:

1) **Epidermis:** Superficial, thinner portion of epithelial tissues.

It is the uppermost multi-layer of the skin, composed of stratified keratinised squamous epithelium. It contains four principle types of cells, such as keratinocytes (90%), melanocytes, Langerhans cells and Merkel cells. The thickness of epidermis varies depending on the cell size and the number of cell layers ranging from about 0.8 mm on the palms and soles down to 0.6 mm on the eyelids. The epidermis is divided into 5 sub-layers namely:

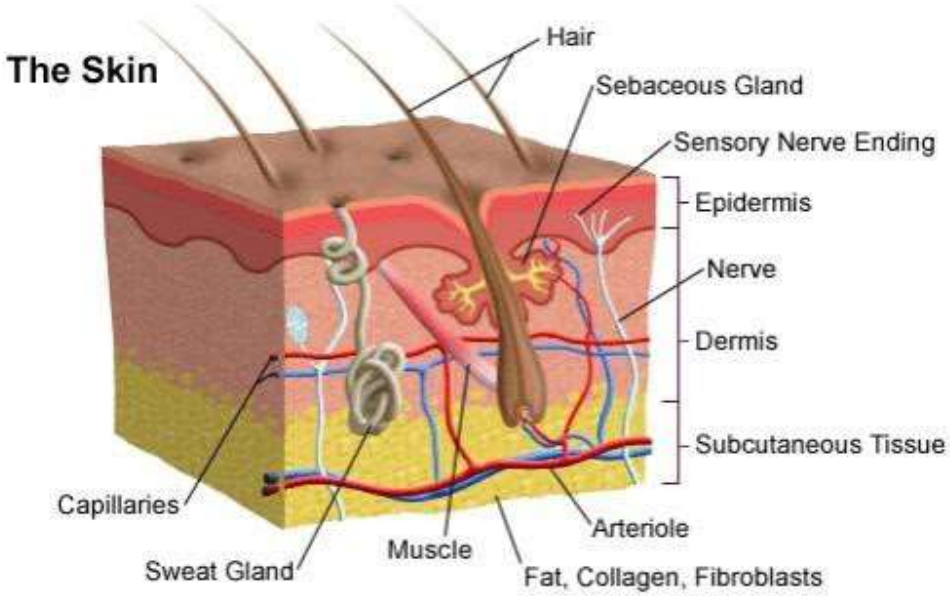
a) Stratum Corneum (horny layer)

b) Stratum lucidum

c) Stratum granulosum (granular layer)

d) Stratum spinosum (prickly cell layer)

e) Stratum germinativum (basal layer and dermoepidermal junction)



2) Dermis:

Deeper, thicker connective tissue.Dermis is the second deeper region lying in between the epidermis and subcutaneous fatty region. It is formed from connective tissues containing collagen and elastin fibre including few cells as fibroblasts, macrophages and adipocytes. Blood vessels, nerve glands and hair follicles are embedded in dermal tissues. The superficial portion of dermis called papillary layer which consists of areolar connective tissues containing fine elastin fibres. The surface area is greatly increased by small finger like projection called dermal papillae which contains papillary loops project into the epidermis. These dermal papillae contain tactile receptors called corpuscles of touch or Meissner corpuscles, nerve endings that are sensitive to touch.

3) Hypodermis (Hypo = below):

Deep to the dermis, but not exactly the part of skin, is the subcutaneous layer comprising areolar and adipose tissue.

It is a subcutaneous layer which lies deep to the dermis, but not the part of skin. This layer consists of areolar and adipose tissues known as superficial fascia attaching the dermis to the underlying structures. This region also contains nerve endings called lamellate (pacinian) corpuscles that are sensitive to pressure. It serves as the storage depot for fat and contains large blood vessels that supply the skin.

4) Skin Appendages:

These are also known as skin derivatives which include hair follicles, associ ted sebaceous glands (pilosebaceous glands), sweat glands (eccrine and apocrine glands) and nails.

1) **Hair follicle:** It is the product of synthesized protein following cell division at the root of hair pressure. The number of hair per unit area varies at different parts of the body.

2) **Sebaceous glands:** These are responsible for sebum secretion and constitute fatty layer over the skin and hair. These are present on face, shoulders, upper chest and scalp but not palms and soles. The abundance of sebaceous glands is 500-1000 per square centimetre.

3) **Eccrine sweat glands:** These are salty sweat glands distributed over the surface of the body in order to regulate the body temperature by secreting dilute aqueous solution of salt and some other minor components called salt. These glands are simple coiled tubes with density from 100-200 glands per centimetre square of the body surface depending on the region.

4) **Apocrine glands:** These are present only on the selected region of the body such as axillae (armpits) in anogenital region and around the nipples. Due to emotional stress and sexual stimulation, they secrete milky substance containing protein, lipoprotein, lipids and diverse proteins. These are ten folds larger than the eccrine sweat gland.

5) **Nails:** Nails are plates of tightly packed, hard, dead, keratinized epidermal cells that form a clear, solid covering over dorsal surface of distal portion of digits.

Skin appendages include eccrine sweat glands, apocrine glands, sebaceous glands and hair(2).

Scrubs can be directly applied on to the skin or can be applied with small cosmetic pad. Gentle message is recommended on application of the scrub gel which helps to improve blood circulation and increases oxygen supply to all surface of the skin(3).

From the ancient time, different herbs are used for cleaning, beautifying and to manage them. Face skin is the major part of the body, which indicates the health of an individual Cosmetics are available as various forms and each has its own role to play on the skin. Skin becomes dull, non glowing due to various causes and these can effectively be overcome with the application of scrubs. There are two types of scrub being used on the skin such as facial scrub and body scrub. These two differ only with the ratios of oil and sugar added in each. Usage of oil is high in facial scrub due to which it is less abrasive. It removes the dead skin cell and exfoliates the skin. Scrub can be used on any type of skin. Only the essential oil used in scrub as ingredient will vary with the type of skin. Skin is classified into three types such as dry skin, oily skin, sensitive skin.On regular use of scrubs, skin becomes glowing and smoother because dead skin cells are remove thereby exposing new skin cells. Mild abrasive agent is one of the key ingredients in facial scrub formulation(3).

From ancient period, plants have been the basis for medical treatment and such traditional medicine is practiced even today. It is estimated that 80% of the people worldwide rely on herbal medicines derived from natural source. This is because it is cheap and consumers also believe that herbal medicines are safe and are derived from nature. Apart from curing ailments, it can also be used for beautifying purpose, and thus, the usage of natural cosmetics has been increased and is high in demand. The word cosmetics is derived from Greek word “kosmos” defined as articles intended to be rubbed, poured, sprinkled or sprayed, or introduced into or otherwise applied to human body or any part for cleansing, beautifying, promoting attractiveness, or altering appearances. Skin is the body’s largest organ, the first line of defense, and accounts for more than 10% of body mass. It provides protection, water preservation, lubrication, and regulates temperature. Exposure of skin to chemical agents, radiation, mechanical trauma, and biological agent such as parasites and microorganism provides dull and lifeless skin and also reduces glossiness but sometimes leads to itching, pain, redness, swelling, etc. Exposure of skin to external agent can be prevented by applying topical agents directly on the skin. Formulations such as face pack, face cream, suntan cream, and face exfoliant are prepared by incorporating suitable base (4).

2. AIM AND OBJECTIVES

Need for the studdy

Every day, dead skin cells, dirt and oil build up on the surface of your skin, which can leave it feeling and looking dull and dry. A gentle exfoliator removes this buildup, revealing newer, fresher, smoother and healthier-looking skin.

Our pores can get clogged from a buildup of sebum (naturally occurring oil in our skin), as well as dirt and grime from pollution, sweat and general everyday life – which can lead to the appearance of spots.

Exfoliants break down dry and dead skin while smoothing texture, which means the skin appears to look more uniform over time. Any appearance of acne scars, dark spots or hyperpigmentation will soon be reduced.

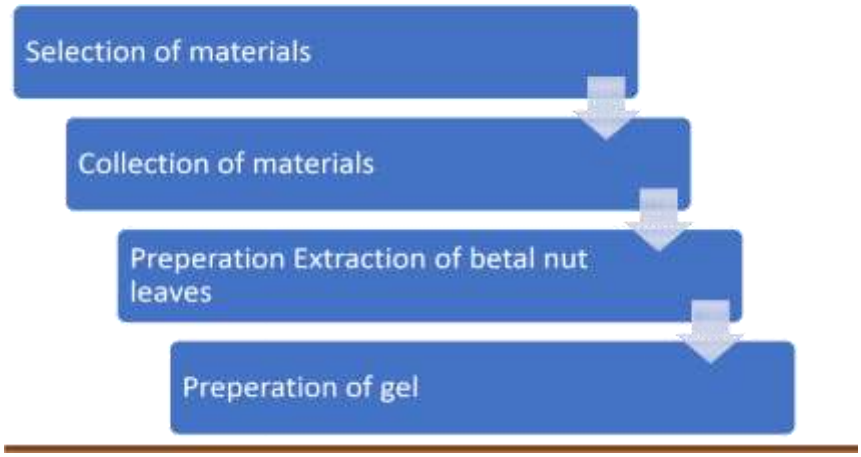
If your skin has a thick layer of dead skin cells, your serum and moisturizer will have to work harder to penetrate the layers of the skin they’re trying to reach. By removing these dead skin cells, you’re helping these products work to their best abilities.

2.1 AIM: -

The aim of the present research was to study and evaluate the herbal body scrub by using areca nuts.

2.2 OBJECTIVES OF THE STUDY:-

The purpose of the present study is:



2.3 Evaluation parameters

1) Colour
2) Odour
3) pH
4) Consistency
5) Spredability
6) Washability
7) Grittiness
8) Foamability
9) Viscosity
10) Skin irritation

3.DRUG PROFILE

3.1 Honey

Synonyms

Honey, Madhu, Honey Purified, Mel

Biological Source

Honey is a sugar secretion deposited in honey comb by the bees, Apismellifera, Apisdorsata, and other species of Apis, belonging to family Apidae, order Hymenoptera.

Geographical Source

Honey is produced in Africa, Australia, New Zealand; California and India. For the Market the nectar of the flowers is a watery solution containing 25 per cent sucrose and 75 per cent water. The worker bee sucks this nectar through its hollow tube of mouth (proboscis) and deposits in honey sac located in the abdomen. The enzyme invertase present in saliva of the bee converts nectar into invert sugar, which is partially utilised by the bee and the remaining is deposited into honeycomb. Honeycomb is smoked to remove the bees and honey is obtained by applying the pressure to it or allowing it to drain naturally. The honey of commerce is heated to 80°C and allowed to stand. The impurities which float over the surface are skimmed off and liquid diluted with water to produce honey of 1.35 densities. Natural honey has the density of 1.47 kg/l. Many a time, honey is extracted from the comb by centrifugation. It must be free from foreign substances. Honey is liable to fermentation, unless it is suitably processed. Honey is heated to

80°C before it is sent to the market, so as to avoid fermentation. It should be cooled rapidly or else it darkens in colour on keeping. If necessary (and if not prepared by centrifugation method), honey is required to be filtered through wet cloth or flannel.

Description

Colour- Pale yellow to yellowish-brown

Odour- characteristic, pleasant

Taste - Sweet and faintly acid

Standards

Weight per ml. - Per ml weight of honey is 1.35 – 1.35 g.

Specific rotation - +3° -10°

Total ash - 0.1-0.8 per cent

It has to pass limit tests for chloride and sulphate

It is syrupy thick liquid, translucent when fresh and on keeping it becomes opaque and granular due to the crystallisation of glucose.

It is soluble in water, but insoluble in alcohol.

Chemical Constituents

Honey is an aqueous solution of glucose 35 per cent (± 3 per cent), fructose 45 per cent (± 5 per cent) and sucrose about 2 per cent. The proportion of sugar may vary depending upon the source of nectar and the enzymatic activity responsible for converting nectar into the honey. The other constituents of honey are maltose, gum, traces of succinic acid, acetic acid, dextrin, formic acid, colouring matters, enzymes (invertase, diastase, and inulase) and traces of vitamins. Proteins and pollen grains from various flowers are also found in honey.

Since, honey is a saturated solution of sugar, on keeping, it starts crystallizing. A product which contains crystallized dextrose is called as Granulated honey. Heating of honey serves the minimizing the granulation.

Artificial invert sugar, an adulterant of honey contains furfural which is detected by Fiehe's test. It gives instant red colour with resorcinol in hydrochloric acid.

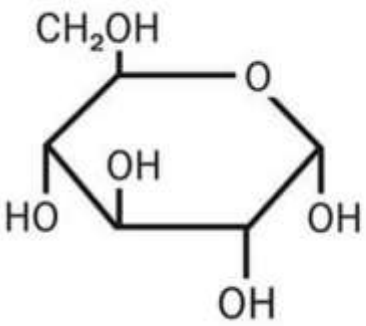
Uses

Honey is used as a antiseptic, antioxidant, demulcent and sweetening agent. It is readily assimilated and hence is a good nutrient to infants and patients. It is antiseptic and applied to burns and wounds. It is a common ingredient of several cough mixture, cough drops and vehicle for ayurvedic formulations. Currently, it is used in preparation of creams, lotions, soft drinks and candies also.

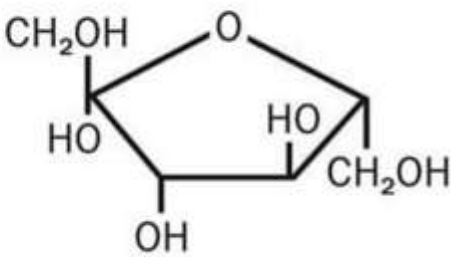
India has only exploited 10 per cent of its honey potential. India is producing 11000 tones of honey per annum. Per capital consumption of honey in India is only 8.0 gms while in Germany is 1800 gms.

According to Khadi and Village Industries Commission, absence of modern technology inadequate marketing and infrastructure for manufacture of honey are the reasons for poor development.

GLUCOSE



FRUCTOSE



3.2 ARECA NUT

Synonym

Betel nut

Biological Source

These are the dried ripe seeds of Areca catechu, belonging to family Palmae. It should contain not less than 0.25 per cent of alkaloids, calculated as arecoline.

Geographical Source

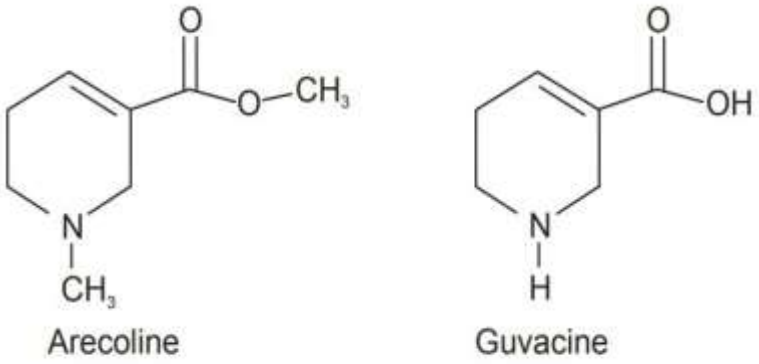
Areca is cultivated in different parts of world such as India, Sri Lanka, South Eastern Asia, Philippines, East Africa, etc.

Macroscopic Characters

The plant of Areca is a tall palm which bears the fruits of nut type, each containing a single seed, thin seed coat and a large ruminant endosperm. The testais deep-brown coloured and colourless exhibits a network of depressed, fawn coloured lines. The astringent seed is very hard and towards the flattened end, a small embryo is present.

Chemical Constituents

Areca contains a number of alkaloids, belonging to pyridine piperidine group and derived from amino acid lysine. These alkaloids are reduced pyridine derivatives. The various alkaloids are arecoline, arecaidine, guvacine (tetrahydronicotinic acid) and guvacoline. Arecoline is methyl ester of arecaidine, while the latter is N-methylated derivative of guvacine. The drug also contains lipids, volatile oil, tannins and gum. Only arecoline possesses physiological activity.



Uses

Betal nuts powder use as a exfoliant agent to remove dead cells from skin surface. Arecoline is parasympathomimetic. Areca has sialogogue properties and is consumed as masticatory in India and other eastern countries. But, the habit of chewing areca may cause oral leukoplakia. Areca is an anthelmentic drug and used as vermicide and taenifuge in veterinary practice. It is not used in human medicine.

3.3 HARIDRA

Synonyms

Indian saffron, Curcuma, Turmeric, Haldi

Biological Source

Turmeric consists of dried, as well as, fresh rhizomes of the plant known as Curcuma longa Linn. (C. domestica), belonging to family Zingiberaceae. It contains not less than 1.5 per cent of curcumin.

Geographical Source

India accounts for as much as, 90 per cent of the total output of the world. Tamil Nadu and Andhra Pradesh together contribute about 70 per cent of the Indian production. Kerala also produces large quantity of turmeric. It is very superior in quality and is exported on large scale. At present, about 1,07,800 hectares of land is under cultivation of turmeric with 2,94,900 tones of production. In the year 1996-97, India exported 155 tones of turmeric-oleo resin of the value of * 868 lakhs.

Curcuma is a genus of about 70 species of rhizomatous herbs distributed in South East Asia and especially India, China, Thailand, Italy, Malaysia, Archipelago and N. Australia. Commercially, C. amada, C. angustifolia, C. aromatica, C. caesia, C. zedoaria and c. longa are important. Out of these, C. longa (turmeric) is more important due to its uses like spice, condiment, antiseptic in bruises, anti-inflammatory and in sprains. It has long been known traditionally as a natural dyestuff for dyeing wool and silk. Most of the species are perennial herbs which grow 2 – 3 ft. high with a short stem and tufted leaves. Rhizome is the product of commerce.

Cultivation and Collection

C. longa (turmeric) is the main species of commerce and is cultivated for its rhizomes in India, China and also in Sri lanka, Indonesia, Jamaica, Peru. India is the major grower with almost

80,000 hectares under this crop producing 1,44,000 tones per annum. In 1994 – 95, it exported 289,200 tones of turmeric worth Indian 44.59 crores. The plants are grown for 7 – 9 months after which the rhizomes (both mother and finger) are harvested, cooked, dried and then processed for powder, oleo resin and curcumin. The extraction of powder is carried out by using solvents, water or both. Diseases and insects are known for which proper methods of control are available. Genetic improvements have been attempted and five high yielding varieties have been developed. High yielding curcumin varieties have been evolved through tissue culture techniques; clonal propagation has been successfully developed in case of C. longa.

Macroscopic Characters

Externally, the drug is yellowish-brown in colour with characteristic odour and slightly bitter taste. Round turmeric rhizome are oblong, while long variety is cylindrical and short branched. Root scars and annulations are present. The fracture is horny and internal surface is orange. Rhizomes are 5 to 10 x 2 to 4 cm. in size.

Microscopic Characters

The transverse section of turmeric rhizome shows the outermost 4 to 6 layers of brick shaped parenchymatous cork, followed by cork cambium. The cortex consists of thin walled rounded parenchymatous cells containing scattered vascular bundles. Oleo resin cells with brownish contents are also observed throughout the ground tissue. Oil cells have suberised cell-walls. Vascular bundles are present in cortex and are collateral. Vascular bundles in pith region are scattered forming discontinuous ring under endodermis. Endodermis is well marked and starch grains (5 to 15 in diameter) are abundant.

Chemical Constituents

Turmeric contains about 5 per cent of volatile oil, resin, abundant zingiberaceous starch grains and yellow colouring substances known as curcuminoids. The chief component of curcuminoids is known as curcumin (50 – 60 per cent). Chemically, Curcuma species contain volatile oil, starch and curcumin. Curcumin and other related curcuminoids such as Demethoxycurcumin and BisDemethoxycurcumin are reported to be responsible for the yellow colour in some species. Volatile oil content ranges from 1-6.5 per cent and is composed of mono and sesquiterpene such as a and B pinene, a-phellandrene, camphor, camphene, DL-ar-termeronezingiberene and a, ß curcumenes. Species like C. angustifolia and C. caulina have high starch content and are used as a substitute for arrow root.

Standards

Foreign organic matter - not more than 2.0 per cent

Ash - not more than 8.0 per cent

Water soluble extractive - not less than 9.0 per cent

Alcohol-soluble extractive - not less than 10.0 per cent

Moisture - not more than 10.0 per cent

Chemical Tests

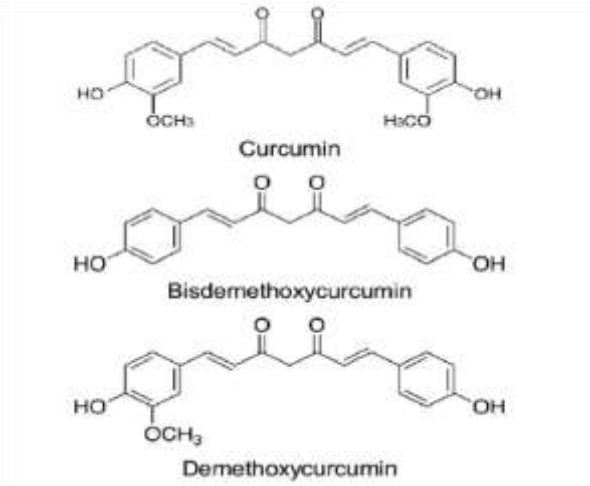
1. Powdered drug with sulphuric acid gives crimson colour.
2. The aqueous solution of turmeric with boric acid gives reddish-brown colour which on addition of alkali changes to greenish-blue.
3. With acetic anhydride and concentrated sulphuric acid, it gives violet colour. When this test is observed under ultraviolet light, red fluorescence is seen.

Uses

Turmeric is use in cosmatics as antiseptic and improves fairness. Turmeric is used as a condiment or spice, and colouring agent, especially for ointments and creams. Chemically, it is used for the detection of boric acid. It is antiseptic and anti inflammatory too. Curcumin is also powerful antioxident.

Turmeric/curcumin are official in various pharmacopoeias. Apart from traditional uses, curcumin has been proved as antiinflammatory drug. Antiarthritic agent has been isolated from C. aromatica. In China C. wenyjuin (C. aromatica) has been used in cervical cancer. Curcumin has been defined by International Standards Organisation (ISO 5562-1983) and British Standards (BS 6147: 1983). It is estimated both by colorimetry and HPLC. G.L.C. and T.L.C. methods are also reported for various constituents. 30th report of WHO/FAO expert committee on food additives has included curcumin.

Curcuminoids isolated from ethyl acetate extract of turmeric have shown modest HIV-1 and HIV-2 protease inhibitory activity.



Substitute

Curcuma amada roxbby is a common substitute for turmeric. It is found wild in Andhra Pradesh, Orissa and West Bengal.

3.4 CAMPHOR

Synonyms

Formosa oil of camphor, Rectified oil of camphor.

Biological Source

Camphor oil is obtained from the wood by steam distillation of Cinnamomumcamphora (Nees and Eberm), belonging to family Lauraceae.

Geographical Source

Camphor trees are large, evergreen and indigenous to Eastern Asia and are abundant in Taiwan, Formosa, Japan and China.

Method of Preparation

The wood is reduced into small pieces of chips and subjected to steam destillation, Distillation is performed at 80 – 100 pounds psi pressure. Crude natural camphor oil, thus obtained contains a variable quantity of camphor which is then purified by sublimation. About 1 kg of crude camphor is obtained from 40 to 50 kg chips of the crude drug.

Description

It is colourless or yellowish liquid with camphoraceous odour. It is soluble in 3 volumes of alcohol, chloroform and ether.

Specific gravity is 0.875 -0.90,

Refractive index 1.465 to 1.470

And optical rotation +9° to +27

Chemical Constituents

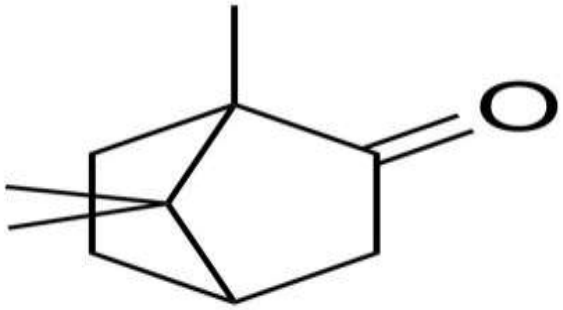
It mainly contains safrole, acetaldehyde, dipentene, camphor eugenol, d-pinene, eucalyptol, Phellandrene and cineole.

Camphor is isolated from camphor oil by chilling or synthesised from pinene.

Camphor is colourless, crystalline solid granular mass known as flower of camphor. It has penetrating characteristic odour and aromatic pungent taste followed by sensation of cold. It is translucent and readily pulverisable in presence of alcohol or chloroform, Camphor gets readily liquefied if triturated with phenol, menthol, thymol, chloral hydrate and resorcinol. It slowly vaporises at room temperature. It burns with a bright smoky flame. Natural camphor is dextrorotatory whereas synthetic camphor is raceme sp. Gr. 0.990; m.p. 178-179°C.

Chemical Test for Camphor

A drop of solution of vanillin (1: 100) and sulphuric acid when added to powdered natural camphor, produces immediately a yellow colour, changing to red, violet, and finally blue. Synthetic camphor does not respond to this chemical test.



Camphor(**C**10**H**16**O**)

Uses

Camphor use as humectants and antiaging agent in pharmaceutical industries and also other industries.Camphor oil and camphor are used as a rubefacient, counter irritant, antifungal and as flavour in soaps and tooth powder and cosmetic products. It is used for isolation of camphor. The oil should be stored in well closed container away from light and in cool conditions.

3.5 SANDAL WOOD

Synonym

East Indian sandal wood oil.

Biological Source

It is obtained by distillation from the heart-wood of Santalum album Linn, family Santalaceae.

Geographical Source

The plants are found in India and Malaysia. Sandalwood tree is an evergreen plant of 10-12 m height found widely distributed in India.

Cultivation and Collection of Sandal wood

The systematic cultivation of these plants is undertaken mainly in South Indian states of Karnataka and Tamil Nadu. The leaves and other parts of the tree are free of volatile oil. The plant bears very beautiful flowers and fruits. Trees more than 25 years of age are normally selected for the collection of the oil. All parts of the wood contain volatile oil.

Forest department of Karnataka, TN, AP have undertaken commercial cultivation of sandal on Government of lands, since it has high export potential.

Description

Colour - Pale yellow to colourless viscid liquid

Odour - Characteristic, persistant

Taste - Unpleasant

Solubility - It is very slightly soluble in water and soluble in alcohol and chloroform.

Chemical Constituents

Oil of sandal contains about 95 per cent of two isomeric sesquiterpene alcohols, a – santalol(bp.

300-301°C) and ß-santalol (b.p. 170 171°C). Additionally, the oil contains an aldehyde Santalol $C_1H_2$2O, santene, santenone, teresantol, santalone and santalene. The oil is present in elements of wood. It is not present in or creted by any special types of cells or glands.

Standards

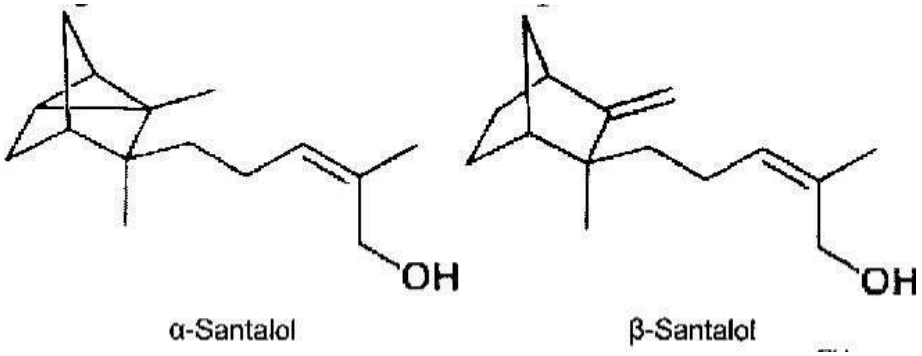
Specific gravity – 0.973 0.985

Optical rotations - 15° - -20°

Refractive index - 1.500 1.510

Esters - Not less than 2 per cent w/w as santolyl acetate

Alcohols - Not less than 90 per cent w/w as santalol



α-Santalol β-Santalol

Uses

Sandal wood used for smoothing cooling effect and improves fairness in cosmatics. Sandal wood oil is used for symptomatic treatment of dysurea and in diminishing the frequency of micturition marked in the tuberculosis of the bladder. It is mainly used as a perfume in preparation of cosmetics and incense sticks.

Substitutes

The volatile oil obtained from wood of plant Eucaryaspicata, found in Western Australia known as Australian sandal wood oil is a substitute for the oil. It contains sesquiterpene alcohols known as fusanols.

Being very costly, the volatile oil is very often adulterated with fixed oils.

West Indian Sandalwood oil is obtained from Amyrisbalsamifera (Rutaceae) and used as substitute. Its specific gravity is 0.900 to 0.967 and optical rotation + 24 to +29°. It contains 50 per cent amyrol.

Storage

It should be stored in well-filled, well-closed containers, away from light and in cool place.

4. EXPERIMENTAL

4.1 Selection of Materials

Firstly collect all data of scrub formulation in market as well as find a research paper on the topic on scrub. Carefully read all the information of scrub and finally selected the following ingredient

Table 01: List of ingredients used in formulation

Sr.no.	Name of ingredients	Uses
1	Betal nuts	Exfoliant
2	Betal leaves	Anti-inflammatory, acne
3	Honey	Antioxidant
4	Sandalwood	Smoothing cooling effect and improves fairness
5	Turmeric	Antiseptic and improves Fairness
6	Carbapol 934	Thickening agent, Gelling agent
7	Sodium lauryl sulphate	Foaming agent
8	Methyl paraben	Preservative
9	Camphor	Humectant, anti-aging agent
10	Rose essence	Perfume
11	Water	Solvent

4.2 Collection of Ingredients

Betal nuts purchased from market. The leaves of betal nut were collected from local areas and college campus of Maharashtra institute of pharmacy, betala (Bramhapuri), Maharastra, India. The collected betal leaves were transported to the laboratory for identification and stored for further studies. It was shade dried for 5 days and powdered using a mixer grinder. The leaf powder was used for the extraction of photochemicals and other chemicals and ingredients provided by college.

4.3 Methodology

Materials Used

All the chemicals and reagents used were of analytical grade provide by collage purchase from Samar chemicals includes ethanol, bees wax, camphor, carbapol, methyl paraben, sodium lauryl sulphate, rose water, turmeric, sandalwood.

All the ingredients like sandalwood, turmeric, betal nuts etc. were powdered and sieved through sieve no. 22. But betal nuts powder partical size is greter than other grinding materials for scrubbing agent. Then they were packed in moisture resistant, well closed containers.

Instruments Used

Soxhlet apparatus, mixer grinder, beaker, stirrer, Electric water bath, funnel, tripods stand, test tubes, petri plates, heating mental, Brookfield Viscometer,mortal-pistal.

Preparation of Extract

Following methods are used for Preparation of extract of betal leaves.

Assembled the apparatus.

Filled the round bottom flask with solvent (water) 150 ml.

Put accurately weight 8.11 gm of the phytochemicals containing sample of betalleavesinto extraction tube.

Attach the extraction tube with flask containing solvent.

Attached a condenser unit with the extraction tube and run the water.

Fix the soxhlet apparatus on heating mental and heat the flask containing solvent at 80 to 100* C The solvent starts to evaporate and falls in the extraction tube after condensing.

Continued this process till for 24 hours.

Discontinue the process and take out the extract.

Again this extract put on electronic water bath for evaporation.

Discontinued the process after solvent evaporated and collect sample.

That sample weight accurately is 0.76 gm on weighing balance.

Table 2: Formulation of Scrub

Sr.no.	Name of ingredients	Quantity
1	Betal nuts powder	4-6%
2	Betal leaves extract	0.5%
3	Honey	1%
4	Sandalwood powder	2%
5	Turmeric powder	0.5%
6	Carbapol 934	6-8%
7	Sodium lauryl sulphate	1%
8	Methyl paraben	1%
9	Camphor	1%
10	Rose essence	1.5%
11	Water	Q.S.

Prepation of active ingredients mixture

Mixed active ingredients like sandalwood powder, turmeric powder, honey, betal leaves extract, camphorbetal nuts powder etc. Weight appropriate quantity as per the formulation (table 02). in mortal-pistal by using water as a solvent.

Preparation of gel

Methyl paraben was weighed and dissolved in a beaker containing water. To this carbopol 934 was added and stirred continuously for few minutes until it forms a gel. Sodium lauryl sulfate was weighed, dissolved separately with water and was added into the above gel. Followed by this rose essence was added. The active ingredients mixture will be added into the prepared gel and stir continuously for 5 minutes.

4.4 Evaluation Parameters

The prepared formulation evaluated for visual appearance Colour, Odour, pH, Consistency, Spredability, Washability, Grittiness, Foamability, Viscosity, irritation study etc.

Colour

The color of formulation werecheck manually and observed visually.

Odour

The smell of formulation will check by applying preparation on hand and feels the fragrance of perfume for observation.

pH

1. 5 gm of prepared scrub gel taken in beaker
2. Add 25 ml distilled water by measuring cylinder
3. Sonicate for 10 min
4. pH measure by using digital pH meter

Consistency

It will be test by visual observing of formulation.

Spredability

Spreadability of the formulations was determined by measuring the spreading diameter by keeping 1 g of sample between two horizontal glass plates (10 cm x 20 cm). The standard weight 100 gm applied on the upper glass plate. The spreading quality checked by visual inspection. The diameter of spread area was measured by scale. There is four readings take and calculated it's mean by following formula-

Mean= sum of all readings/number of readings

Washability

The prepaired Formulation applied on the skin and cheak by washing hands with water were tested manually. After washing note the smell of perfume remaining on hands or it completely rinse.

Grittiness

The product physically check for the presence of gritty particles by applying it on the skin.

Foamability

25 ml of the one percent formulation solution was taken into a 100 ml graduated measuring cylinder. The cylinder was covered with hand and shaken 10 times. the volume of foam at every interval of 1 minute up to 5 minute was recorded. That vaue is final value of foam. Note the initial volume before the shake and final volume after 5 minutes of shaking. Calculate the foam value by using formula are as follows:

Foam value = final volume - Initial volume

Viscosity

The viscosity of formulation of srub determine by using Brookfield viscometer. Viscosity of formulation note in mPa.s (millipascal second) at 10 rpm by using spindle no. 3.

Skin irritation

Small quantity of the preparation was applied on the dorsal part of hand and kept for few minutes and found to be non-irritant, No redness and edema or any other adverse effect.

5. RESULTS AND DISCUSSION

The formulated scrub was evaluated at different parameters. All the organoleptic properties were checked visually such as colour, odour, consistency, Grittiness and others. As a result, colour observed as yellow, no bad smell occurred from formulation. The consistency of the formulation found suitable as required to apply on skin. Particles were used to check for the texture and homogeneity of preparation on skin found good and satisfactorily as the preparation show grittiness, greasiness properties on skin. Washability properties found good, as it is easily removed by washing with normal water.but there is little bit smell of perfume remaining after washed. pH of the formulation checked and found 7 means suitable for skin.Spreadabilty quality also tested with the help of glasstlc plates and found that preparation having good consistency and easily spreadable. No irritation, redness, edema and any dermatological effects observed on skin. Viscosity checked and result found as 10424 mPa.s by using spindle no.3 at 10 rpm.

Table 3: Evaluation of Scrub

Sr.no.	Parameters	Observation
1	Colour	Yellow
2	Odour	Characteristic as Rose and sandalwood
3	pH	Neutral (7.0)
4	Consistency	Semi-solid
5	Spredability	3.375 cm per sec.

6	Washability	Easily washable
7	Grittiness	Small gritty particles
8	Foamability	Foam volume 4ml at 5 minutes
9	Viscosity	10424 mPa.s at 10 rpm
10	Skin irritation	Non irritant

6. SUMMARY AND CONCLUSION

In the present work we have prepared scrub from betel leaves extract and betel nuts. Firstly, betal leaves extract were prepared by using betel leaves and water. This extract then incorporated into scrub formulation. Scrub were evaluated for various physiochemical properties. Scrub was gritty semi-solid formulation, which has Rose fragrance. pH of scrub were found to be 07 (neutral). Spreadability were found to be 3.3 cm\sec. Viscosity were found to be 10424 mPa.s at10 rpm by using spindle number 3. Foamability were found to be foam volume 4 ml after 5 minuts.

Scrub was found to be non-irritant hence, it can be applied externally for cleansing purpose as well as whichever uses mentioned in literature.

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