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FORMULATION AND EVALUATION OF HERBAL HAND WASH BY USING NATURAL INGREDIENTS BY SIMPLE METHOD.

MR.BHISE AKASH BHAGWAN UNDER THE GUIDANCE OF MISS. NAKHATE S.T.(ASSISTANT PROFESSOR)

MR. DR.HINGANE L.D (PRINCIPAL)

ADITYA PHARMACY COLLEGE BEED 431122 MAHARASHTRA INDIA.

ABSTRACT:- *The main aim to present work is to formulate and evaluate poly-herbal hand wash by using aloe-vera,lemon juice.Inorder to make formulation has less side effects and better cleaning of hands. The hands ara primary sites for the infection.Microbial infection is critical Issue in children and employer in pharmaceutical industry.So the use of hand wash is more in industrial site The formulated hand wash hacc found to be good in physical parameter with good cleaning of hands.Therefore it brings up the use of antiseptic for hand washing purpose.The prepared handwash evaluated by the diffrent parameter namely as colour, odour,ph,viscosity and stability.*

Keywords:- herbal hand wash,tulsi,vitamin c,Aloe vera ,citrus Limon, essential oil.

INTRODUCTION:-

The herbal medicine is also known as botanical treatment or phyto-medicine.herbal medication refers to the uses of any plant seeds,root,leaves,bark,flower and aerial part for medicinal purpose.herbal medicine have been the treatment and care of numerous disease.skin being the most exposed part of our body requires protection from skin pathogen.To defend the skin from harmful micro-organism to avoid spreading disease. Hand washing is extremely significant precautions. Hand hygiene is the single most important simplest and least expensive mean of preventing nasocomial infection.hand washing is main purpose of cleaning hands with removing soil,dirt,pathogenic microorganisms and avoid transmitting of transient microorganisms. Hygiene is basically defined as the branch of science which is involved in knowledge and practice related to promotion of health.the concept highlights the need of maintaining Hygiene in prevention of disease. Spread of infection (bacterial or viral)can be prevented hygiene practices.an herbal drug treatment gives healthy life.it was general used to

fournish first line and common health provider.since ancient time in India herbal medicine have been the basis of treatment and cure for various diseases. Herbal medicine having various therapeutic uses like healing, wound,treating inflammation due to infection,skin lesion,leprosy,diarrhea,scabies venereal disease like,snake bite and ulcer. Plant have provided good source of antimicrobial activity and plant extract have potential as antimicrobial compound against several pathogenic microorganisms which cuase infections disease and resistance toward synthetic drug.

●**Advantages of herbal cosmetic:-**

Herbal cosmetic have been using for beauty from the ancient times.it is considered best for the skin and hair care because of their lack of side effects. It is gaining the popular day by day in the world.

Following are the some advantages of using Natural cosmetics.

1)safe to use:-

Compared to the beauty products Natural cosmetic are safe to use.yhey are hypoallergenic, and tested and proven by dermatologist to be safe to use anytime.

2)No side effects:-

The synthetic beauty product cab irritate skin and cuaes pimples they might block skin pores and make skin dry or oily.the natural ingredients are used assure to no side effects.

3)Animal testing not required:-

Some cosmetic are initially tested on animal to ensures that they are safe and effective to use for human.however,natural cosmetic need not be tested on animal. These natural formulation are tested by experts in laboratories using are equipment with no animal involved

4)Natural products:-

The name itself suggests that herbal cosmetic are natural and free from synthetic chemicals,which otherwise may prove to be toxic to the skin.instead of traditional synthetic products,different plants extract are used in these products.

Eg. Aloe-vera gel and coconut oil.

5)Inexpensive:-

Natural cosmetic are not that expensive.in fact,some of these products are more affordable than synthetic ones.an estimates of demonstrated about 80% of world population depends upon natural products for their health care.

6)compatible with skin type:-

Natural products are suitable for all skin type,whether it be dark or fair .natural cosmetic like foundation,eye shadow and lipstick can be safely used irrespective of the skin tone.

•Advantages of Herbal Hand wash:-

- 1)No side effects.
- 2)Bacteria on our hands can be minimized.
- 3)It also helps to clear antiseptic ans fungal problem faced by the skin.
- 4)It also helps to remove dirt and oil effectively from the skin.
- 5)Easier access compared to using soap and water.
- 6)The easiest way to get rid of microorganism.
- 7)Hand wash prevent germs from entering into our body.

• Material used in herbal hand wash:-

1)Tulsi




scientific classification of tulsi:
Kingdom : *plantae*
Division : *magnoliophyta*
Class : *Magnoliopsida*
Order : *Lameness*
Genus: : *Ocimum*
Species : *O.tonuiflorum*
Bionomical name : *ocimum tenuifloram/Ocimum sanctum*
Nepali name : *Tulsi*

Ocimum sanctum commonly known as holy basil or Tulsi. Tulsi consist of fresh and dried leaves of *ocimum sanctum* belonging to family *Lamiaceae*. Tulsi is an aromatic perennial plant.tulsi known for its detoxifying purifying and antimicrobial properties.tulsi helps to protect your hands by killing 99.99%of germs.Tulsi now,days cultivated commercially for its volatile oil.it is much branched small herb 30 to 75cm in height. All parts of tulsi are used in medicine especially fresh and dried leaves.leaves are ablong acute with entire sterolate margins pubescent on both sides and minutely gland dotted. The leaves

are green in colour with aromatic flavors and slightly compressed. Seeds are reddish black and subglobose. The leaf is dorsiventral stomach are of dicyclic type. Particularly abundant on lower surface.

Chemical constituents:-

It contains approximately 70%Eugenia,carvacrol 3% and Eugene methyl ether(20).It also contains caryophyllin,seeds contain fixed oil with good drying properties. The plant also contain alkaloids,glycosides,sapping,tannis an appreciable amount of vitamin c and traces of maleic and Tartaric acids.the fresh leaves,it's juice and volatile oil are used for various purposes.

Uses of Tulsi:-

The leaves are used as stimulants, aromatic, spasmolytic, diaphoretic The juice is used as an antiperiodic and act as constituents of several preparation for skin disease and also to cure earache.it acts as a natural Immunitybooster,it also acts as antifungal, antiviral agent.

2)ALOE-VERA:-



Scientific classification of aloe-vera:-

Kingdom : *plantae*

Order : *Aspargels*

Family : *Xanthorrhoeaceae*

Genus : *Aloe*

Species : *A.Vera*

Bionomical name : *Aloe vera*

Aloevera is a succulent plant Species that probably originated in northern Africa. The species does not have any naturally occurring population, although closely related *Aloe* does not occur in northern Africa. The Species is frequently cited as being used in herbal medicine since the beginning of the first century. Extract from the *Aloe vera* widely used in cosmetic and alternative medicine industries, being marketed as variously having regenerating, healing, or smoothing properties.

Aloe is the dried juice collected by incision from the basis of the leaves of various Species of *aloe*. *Aloe perry Baker*, *aloevera linn*, or *Aloe barbandesis* belonging to family *liliaceae*, *Aloe perry Baker* is found in socotra and zanzibar Islands and in their neighbouring areas and so the obtain from these Species is known as soothing and zanzibar. *Aloevera linn* also known as *vulgaris* or *Aloe barbendes*. *aloe* is an perennial growing to 0.8 by 1m at a slow rate. The plant prefers light (sandy) and medium soil. Can grow nutritionally poor soil. The plant prefer acid basic and neutral soil. It cannot grow in shade it requires dry or moist soil and can tolerate drought. They are xenophobic plant. It can be propagated by seeds. seeds are shown in the spring in warm green house.

Chemical constituents:-

The most important constituents of *aloevera* are three isomers of *Aloins*, *barbaloins* and *isobarbaloins* which constitute so called crystalline along. present in drug at from 10-30% other constituents are amorphous *aloin*, *resin*, *eroding* and *Aloe emodin*.

Barbaloins is present in all the varieties. it is slightly yellow colour, bitter water soluble *isobarbaloin* is a crystalline substance present in *curaco Aloe* and in trace amounts in *cape Aloe* and is absent in *socotrine* and *zanzibar Aloe*. The chief constituents of *socotrine Aloe* and *zanzibar Aloe* is *barbaloin*.

Aloevera has been Recommended for skin care in number of ways:-

a)Relieves the burned skin caused by skin.

b)Smooth and glowing skin can be achieved with the help of Aloe.

c)It is an outstanding skin moisturizer.

d) Helps in restoring skin natural beauty.it provide oxygen to the cells which strengthen the skin tissues and help to keep the skin healthy.

e)It is beneficial for dry skin when the aim is get normal,Smooth and shiny skin with the oil extract of the plant.

f)aloevera extracts have antibacterial and antifungal activities,which may help in the treatment of minor skin infections.

g)It is helpful in the curing blister,insects bites and any allergic reactions,eczema,burns,inflammation, wounds, psoriasis.

A large number of aloevera based cosmetics products are available commercial that claim for natural skin care based on the healing and soothing properties of aloevera and also are useful for natural skin care based on the healing and soothing properties of aloevera and also used for eczema,psoriasis, dermalities ,acne and pigmentation.aloevera is a rich source of antioxidants and vitamins that helps to protect skin.

3) Citrus Limon:-



Scientific classification of Citrus limon:-

Kingdom : plantae

Family : Rutaceae

Order : sapindales

Genus : citrus

Species : c.limon

The Limon citrus Limon is a species of small evergreen tree in the flowering plant Family Rutaceae native to South Asia.primarily eastern India.

The tree ellipsoidal yellow fruit is used for colinary and non-culinary purposes throughout the world primarily for its juice,which has both colinary and cleaning uses.the pulp and hind are also used in cooking and baking.The juice of the lemon is about 5% to 6%.citric acid with a ph of around 2.2 giving it a sour taste.the distinctive sour taste of lemon juice makes it a key ingredient in drink and foods such as lemon merianguie pie.

It is obtained from the ripe or nearly ripe fruit of citrus Limon belonging to the family rutaceae.The main raw material of citrus Limon is the fruit particularly essential oil and juice is obtained from it . Citrus Limon fruit juice has traditionally been used as a remedy for survey before the discovery of vitamin c

Characteristics:-

Citrus Limon is a tree reaching 2.5-3m in height. It has evergreen lanceolate leaves. Bisexual flower are white with purple color at the axils. The fruit is elongated oral,pointed green berry that turns yellow during ripening.inside the berry is filled with a juicy pulp divided into segment.

Chemical constituents:-

The chemical constituents of citrus fruit is well known. It has nat only determined for the whole fruit but also separately from the whole fruit but also separately from the pericarp,juice and essential oils

Uses of citrus Limon:-

The antioxidants activities of flavonoids from citrus Limon-hesepertidin and hesepertin was not only limited to their radical scavenging activity but also arguments the antioxidants cellular defence .Limon fruit have shown inhibitory activity against the gram positive bacteria entrococcus feacalis and bacillus substitute and gram negative shigella

sonnei. The oil used in pharmacy and cosmetic formulation as, a flavour or aroma Corrigan as, well as natural preservative, due to its confirmed antibacterial and fungistatic effects.

4) *Sapindus Mukorosis*:-

Sapindus mukorosis, commonly known as Indian soapberry, washout, or Rita. It is a species of tree in the family Sapindaceae. It is a deciduous tree that grows in the lower foothills and mid hills of the Himalayas at altitude of up to 1200 meters. *Sapindus* is a Genus of about five to twelve species of shrubs and small trees in the lychee family, Sapindaceae,



negative to warm temperatures to tropical region of the world. The Genus include both deciduous and evergreen species. Member of the Genus are commonly known as soapberries or soap nuts because the fruit pulp is used to make soap. The generic name is derived from the Latin words, soap meaning soap and indicus, meaning of India .

Scientific classification:-

Kingdom : *plantae*

Clade : *Angiosperms*

Order : *sapindales*

Family : *sapindaceae*

Subfamily : *sapindoideae*

Genus : *sapindus*

Uses:-

The drupes (soapnuts) contains saponins, which have surfactants properties, having been used for washing by ancient Asian and American people. A number of others uses for sapindus have also been reported such as making arrows from the wood and decorative objects from the seeds. leaf and fruit extract of sapindus have historically been used in folk remedies to treat various conditions.

5) Eucalyptus oil:-

Eucalyptus oil is the essential oil obtained from by the distillation of fresh leaves of Eucalyptus globular and other species of like eucalyptus Smith belonging to the family myrtaceae. Eucalyptus globular has been used since a long time for intermittent fever. The leaves and their preparation have been successfully used as tonic, stimulant, stomach in dyspepsia in typhoid, fever in asthma, in whooping cough etc. More recently it has been Recommended as a diuretic in the treatment of dropsy.

Characteristics:-

Eucalyptus is a tall evergreen tree the trunk, which grows to 300 feet high or more is covered with peeling papery bark. The leaves on the young plant. Up to five years old are opposite, sensible, soft, oblong, pointed and blue colour. the mature leaves are alternate, petioled, leathery, and shaped like a scimitar, the flowers are solitary and white without any petal. eucalyptus oil is colourless or straw colored fluid, with characteristics odour and taste soluble in its own weight of alcohol.

According to British pharmacopeia Eucalyptus oil should contain not less than 55% by volume of eucalyptus, have specific gravity 0.910 to 0.930. Eucalyptus leaf is isobilateral stomach are of anomocytic type and shrunken on both surface. epidermal cell are three to four layer of elongated palisade cells below each epidermis between these palisade region, two or three layer of spongy parenchyma occurs and some of its cells contain cluster and prismatic calcium oxalate crystal.

Chemical constituents:-

Eucalyptus oil contains volatile oil of which 78-85% is 1-8 cineole also known as eukalyptol. The other constituents present are p-cymene, alpha pinene, small quantity of sesquiterpenes like, lemon, aromadendrene, aldehyde, ketone and alcohols. It also has polyphenolic acids like ferulic acids, caffeic acids, gallic acids, flavonoids such as eucalyptus, hyperopia and rutine.

Uses:-

The oil is used as stimulants, antiseptic, flavouring agent, aromatic deodorant and antispasmodic. It is also used in the treatment of lung disease, sore throat, cold as a vapor bath for asthma and various respiratory ailments and in bronchitis. A 50% ethanolic extract of eucalyptus globular leaves yielded eight phloroglucinol sesquiterpenes couple constituents, including three novel compounds named macrocarpals.

It has decided disinfectant action destroying the lower form of life. Eucalyptus oil is also used in air fresheners. Most of the Eucalyptus oil is in aroma lamp, electric room diffuser and spray mist. To make simple mist spray dilute 50-100 drop or 50 of essential oils in 4 fluid (120ml) of pure water spray to refresh and cleanse the air. Phloroglucinol monoterpene derivative, eugobal was obtained from the leaves of *Eucalyptus grandis* as an active constituent inhibited the promotion stages on two stages carcinogenesis induced by both TPA type and non TPA promoter and inhibited the pulmonary tumorigenesis induced by 4NQO and glycerol. Therefore Eucalyptus globulus might be valuable as chemoprotective agent in chemical carcinogenesis. Eucalyptus globulus leaves were found to be potent against *Cute quinquefasciatus* and *Culex tritaeniorhynchus*. Terpinol, volatile terpenol alcohol of low toxicity, widely used in perfume industry. It is an important constituent of essential oil of many plants with widespread applications in folk medicine and aromatherapy.

Extraction method of Tulsi:-

- 1) Sample of tulsi leaves were separated and washed with water and dried properly. Dried leaves were separated.
- 2) Methanolic extract was prepared from the tulsi powder. A total 20gm of finely powder of tulsi was diluted with 80ml of methanol for 4 to 6 days. The alcoholic decoction was subjected to filtration to obtain a clear filtrate.

Formulation table:-

Ingredient	Quantity	Action
Tulsi extract	8ml	Antimicrobial agent
Citrus limon/juice	4ml	Antiseptic
Aloe-vera gel	6ml	Healing agent
Sapindus mukorosis	7ml	Foaming agent
Eucalyptus oil	0.5ml	Cooling agent/foaming agent
Glycerin	12ml	Moisturizing agent
Methylparaban	0.3ml	Preservative
Water	Up to 60ml	

Procedure:-

- 1) **Methonolic extract of tulsi leaves is mixed with 4ml citrus Limon juice in 20ml.of water.**
- 2) **Then add aloevera twice and add extract of sapindus mukorosis to produce sufficient foaming capacity.**
- 3) **Then add desired quantity of glycerin and eucalyptus oil with moderate stirring.**
- 4) **At the end add preservative in sufficient quantity .**
- 5) **The solution is mixed, made homogeneous under room and further utilized for screening of the activity**

Evaluation parameters:-

A)physical evaluation:-

i)Appearance:-

It was determined visually.

ii)PH :-

The ph was determined using digital ph meter and the ph of herbal wash was found to be 5.2

iii)Colour:-

It was determined visually.

IV) Odour :- it was,determined manually.

V) Stability studies:-

The stability of herbal hand wash gel was carried out by storing measured amount of gel at different temperature i.e.25'c,37'c,40'c.for one week during stability studies no change in colour and no phase separation were observed in the formulated hand wash.

Foam height:-

1)1ml of sample of herbal hand wash taken and dispersed in 50ml distilled water.

2) then transfered it into 500ml stoppers measuring cylinder,volume make up to 100ml with water.

3) 25 stroke was given and stand till aqueous volume measured upto 100ml and measured the foam height.

Foam Retention:-

50ml of herbal hand wash was taken into a 250ml graduated cylinder and shaken ten times.The volume of foam at 1minute interval for minute was recorded foam Retention should be stable at least 5 min.

Conclusion:-

Hands are the primary source of disease related to skin, respiration, gastrointestinal tract etc. due to various diseases and germs, the bar soap gets contaminated which may lead to the spread of germs. In this sophisticated world, liquid hand washes are used much more frequently than the bar soap. The additional advantage is the soap in the liquid hand wash is untouched, leading to uncontaminated hand wash with every new pump. In the market, there are various types of hand washes available, claiming that they kill the harmful germs at a considerable rate at a minimum time. To determine this, it is necessary to determine the efficiency of hand wash, average percentage reduction and log reduction of the organisms determined for hand wash performing viable count.

Result

	<i>Evaluation parameters</i>	<i>Result obtained</i>
26	<i>PH</i>	<i>5.2</i>
	<i>Colour</i>	<i>Brown orange</i>
	<i>Odour</i>	<i>Aromatic</i>
	<i>Stability</i>	<i>Stable</i>
	<i>Washability</i>	<i>Easily washable</i>
	<i>Foam Retention</i>	<i>Stable</i>
	<i>Foam height</i>	<i>3.4 cm</i>

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