Formulation and Evaluation of Herbal Hand Wash

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Abstract*—The main aim to present work is to formulate and evaluate poly-herbal hand wash by using aloe-vera, Sandal wood. In order to make formulation has less side effects and better cleaning of hands. The hands are 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 hence 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 different parameter namely as colour, Odour, ph, viscosity and stability. The numerous of antiseptic hand wash available in the market are alcohol based sanitizers which have some adverse effects. To avoid these adverse effects like itching, drying, irritation, dermatitis etc., of the synthetic Handwash formulations an attempt has been made to formulate a Polyherbal hand wash using extracts of ginger rhizomes extracts. The anti-microbial activity of prepared poly-herbal hand wash was tested against skin pathogens collected from volunteers, and its efficiency was verified using Cup Plate Method. The results from Cup Plate Method showed that hand wash prepared from alcoholic extract of ginger rhizomes and aqueous extract of ginger rhizomes have effective activity due to combined activity of phytoconstituents present in extracts. The results from the present work support the incorporation and utilization of herbs in formulations to give a better effect. Herbal hand wash evaluated by tested parameters like physical parameters like colour, fragrance and chemical parameters like pH, Viscosity, Foam height, Foam retention, Anti-Microbial Activity, Skin irritation test etc. and obtained results were in the acceptable limits with less or no side effects. Two formulations of Handwash were prepared and the formulations were evaluated for physical properties like appearance, pH and viscosity. The antimicrobial activity of prepared formulations of hand wash was checked against skin pathogens Bacillus subtilus, Staphylococcus, Pseudomonas aeruginosa and Escherichia coli by agar diffusion method. The aim of present work was to prepare formulations of poyherbal handwash from the ethanolic extracts of ginger rhizomes.

***Index Terms*—Herbal hand wash, Formulation, Evaluation, Chamomile Extracts, Skin pathogens, essential oil, tulsi.**

I. INTRODUCTION

♦ Herbal and Hygiene Hand Wash

The aim of Magic hand washing is to remove microorganisms from the hands, preventing their potential transfer. It is known that organisms survive and multiply on human hands, creating the opportunity to infect others or the host. 6 Hand washing reduces the number of transient organisms on the skin surface. Although hands cannot be sterilized, most transient organisms can be removed by 30 seconds of proper scrubbing with soap and water.

♦ Definition of Herbal and Hygiene Hand Wash

Magic Hand washing or hand hygiene is the act of dealing one's hands with or without the use of water or another liquid, or with the use of soap for the purpose of removing soil, dirt, and/or microorganisms. Skin being the most exposed part of our body requires protection from skin pathogens. The hands of Health Care workers (HCWs) are the primary routes of transmission of multidrug resistant pathogens and infection to the patients. Hence, it brings up the use of antiseptic for Handwash purpose. Many of the chemical antiseptics are now available in market as alcohol based sanitizers, chlorhexidine products etc. These soaps or solutions help to reduce health care associated transmission of contagious diseases more effectively but they have some shortcomings or adverse effects. Their frequent use can lead to skin irritation and also resistant among pathogens. Organisms such as Staphylococcus aureus, Pseudomonas spp., Klebsiella pneumonia & Proteus vulgaris are some of the skin pathogens1. Hand washing is an important way to help fight the spread of disease. Hand washing removes visible dirt from hands and reduce the number of harmful microorganisms. Harmful bacteria and viruses such as, E. coli and Salmonella can be carried by people, animals or equipment and transmitted to food[3]. Antimicrobial properties of certain Indian medicinal plants were reported based on folklore information and only few reports are available on inhibitory activity against certain pathogenic bacteria and fungi. Use of plants as source of medicine has been inherited and is an important component of the health care system in India. In these systems of Indian medicine, most practitioners formulate and dispense their own recipes; hence this requires proper documentation and research**.** The herbal medicine is also known as botanical treatment or phyto- medicine. herbal medicationrefers to the uses of any plant seeds, root, leaves, bark, flower and aerial part for medicinal purpose. herbal medicine has 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 nosocomial 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 furnish 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 cause infections disease and resistance toward synthetic drug. Herbal cosmetic has 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 dayby day in the world**.**

II. LIETRATURE SURVEY

1) Rina maskare et al (2019)

formulation and evaluation of poly herbal hand wash. The objective of this project was to prepare herbal hand Wash and to investigate whether the formulation show an antimicrobial activity against the common organisms which cause nosocomial infections

2) Handwashing and health outcomes

In Kenyan primary schools, improvements in WASH reduced reinfection of some soil transmitted helminths in primary school children after deworming though the magnitude of effect may be sex specific. A review of published evidence from schools worldwide showed that incorporating a WASH educational component in interventions was very effective in improving absenteeism. The benefits of handwashing appeared more pronounced in female students who had the highest absences rates and socioeconomic status (SES) was an important barrier to access of handwashing materials (Joshi and Amadi). Furthermore, providing sanitizer to Kenyan primary schools with limited access to water improved hand cleansing after using the toilet among students and reduced rhinorrhea but had no effect on diarrhea or respiratory prevalence

3) Mounika et al(2017)

Formulation and evaluation of polyherbal hand wash gel containing essential oils. The objective seen in this research project was to evaluate the antibacterial efficiency of various herbal oils such as eucalyptus oil, cinnamon oil, geranium oil, pappermint oil, rosemary oil, clove oil and orange oil.

4) Zeeshan Afsaret et al (2016)

formulation and evaluation of poly herbal Hand wash The objective seen in this research project was to prepare.

5) Rudra prasd giri et al] (2019)
antioxidant Activity of natural product neem is used in many hindu rituals Neem is known for its antidiabetic anti-inflammatory anticancer effect.

III. AIM AND OBJECTIVES

- Hand washing is a simple act that saves lives
- From many life-threatening diseases. Hand wash prevent germs from entering
- Into our body. It prevents us from diseases like diarrhea
- and influenza. It also prevents from communicable
- diseases and bacterial infections. It has reduced infant mortalityrate by up to
- 50% in developing countries. It is very helpful in preventing people from
- a weakened immune system from getting
- infected. It keeps the children stayout of diseases and concentrate on their studies. It saves a lot of money and resources onbeing spent over health concerns**.**
- To clean contaminated hands.
- To remove dirt.
- minimize number of microorganism.

♦ Following Are the Some Advantages of Using Natural Cosmetics:

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

a) No side effects: -
The synthetic beauty product cab irritates skin and cause pimples they might block skin pores and make skin dry or oily. The natural ingredients are used assure to no side effects.

2} Animal testing not required: -
Some cosmetic is 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 formulations are tested by experts in laboratories using are equipment with no animal involved

a) Natural products:
The name itself suggests that herbal cosmetic is natural and free from synthetic chemicals, which otherwise may prove to be toxic to the skin. instead of traditional synthetic products, different plant sex tract is used in these products. Eg. Aloe-vera gel and coconut oil.

b) Inexpensive:
Natural cosmetic is 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.

3} 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.

Bacteria on our hands can be minimized. It also helps to clear antiseptic and fungal problem faced by the skin. It also helps to remove dirt and oil effectively from the skin.

IV. MATERIAL USED IN HERBAL HAND WASH

4.1. TULSI

Fig. 1 – Tulsi

Biological name:

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 along acute with entire sterol ate marginspubescent on both sides and minutely gland dotted. The leaves are green in colour with aromatic flavors and slightly compressed. Seeds are reddish black and sub globose. The leaf is dorsoventrally 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 caryophylline, seeds contain fixed oil with good drying properties. The plant also contains alkaloids, glycosides, sapping, tennis 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:

The leaves are used as stimulants, aromatic, spasmolytic, diaphoretic The juice is used as an antiperiodic and act as constituents of several preparations for skin disease and also to cur

earache.it acts as a natural Immunity booster, it also acts as antifungal, antiviral age

4.2. ALOE VERA

Fig. 2 – Aloe vera

Biological source:

Aloe Vera 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, aloe Vera linn, or Aloe barbadensis belonging **to family Liliaceae**, Aloe Perry Baker is found in Socotra and Zanzibar Islands and in their neighboring areas and so the obtain from these Species is known as soothing and Zanzibar. Aloevera linn also known as vulgaris or Aloe barbadensis. aloe is a perennial growing to 0.8by 1ml ate slow rate. The plant prefers light (sandy)and medium soil. Can grow nutritionally poor soil. The plant prefers 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 aloe-vera are three isomers of Aloins, barbaloin and iso-barbaloin which constitute so called crystalline along. present in drug at from 10-30% other constituents are amorphous Aloins, resin, eroding and Aloe emodin.

Barbaloin is present in all the varieties.it is slightly yellow colour, bitter water soluble iso-barbaloinis a crystalline substance present in curacao Aloe and in trace amounts in cape Aloe and in absent in Socotrine and Zanzibar Aloe. The chief constituents of Socotrine Aloe and Zanzibar Aloe is Barbaloin.

Uses:

- Relive the burned skin caused byskin.
- Smooth and glowing skin can be achieved with the help of Aloe.
- It is an outstanding skin moisturizer.
- Helps in restoring skin natural beauty.it provide oxygen to the cells which strengthen theskin tissues and help to keep the skin healthy.
- It is beneficial for dry skin when the aim is get normal, Smooth and shiny skin with the oil extract of the plant.
- Aloe vera extracts have antibacterial and antifungal activities, which may help in thetreatment of minor skin infections.
- It is helpful in the curing blister, insect's bites and any allergic reactions, eczema, burns, inflammation, wounds, psoriasis.

4.3. NAGAR MOTHA

Fig. 3 – Nagar Motha

Biological source:

Nagarmotha (Cyperus rotundus) commonly known as Nagarmotha is found throughout India. It belongs to the family Cyperacea. The genus name Cyperus is derived from Cypeiros, which was the ancient Greek name for the genus, rotundus is Latin word for round and refers to the tuber.

Morphological features:

A systematic examination of the shape, size, surface, texture, taste and Odour of the rhizomes of Cyperus rotundus Linn. was carried out. The external features of rhizome were observed under dissecting microscope.

Chemical constituents:

The major compounds present in essential oil of Nagarmotha rhizomes were identified as cyperene,longifolin, caryophylline oxide and longiverbenone.

Uses:

Nagarmotha powder is useful to manage various health issues like obesity, indigestion and worm infestation. The Deepen (appetizer) and Pachan (digestive) properties of Nagarmotha helps to reduce Ama (toxic remains in the body due to improper digestion) which is a prime cause of obesity and other digestive disorder.

4.4. MENTHA POWDER

Fig. 4 – Mentha powder

Biological source:

- It is also known as garden mint, common mint, mackerel mint and lamb mint.
- It belongs to the Lamiaceae family.
- The biological source of spearmint is its fresh or dried leaves.

Morphological features:

- The botanical name of spearmint is Mentha spicata
- It is a perennial herbaceous plant.
- It is upto 30-100 cm tall.
- The stems and foliage are variably hairless to hairy.
- Rhizomes are wide-spreading and fleshy underground.
- Leaves are 5-9 cm long and 1.5-3 cm broad.
- Leaves have a serrated margin.
- The shape of stem is square shaped.
- It produces flowers in slender spikes.
- The color of flowers are pink or white

Chemical constituents:

- The chemical constituents of spearmint are essential oil which is present upto 1 to 3%.
- It also contains menthol, flavonoids.
- It contains caffeic acid derivatives including some amount of romarico acid.
- The most active ingredient of this mint is L- carvonewhich is responsible for it odor.

- It also contains limonene.
- It also has some amount of betaburboneno and cis and trans form of carvil acetate.
- Other chemical constituents of spearmint are caryophyllene and 1- 8 cineole.

Uses:

- It shows antispasmodic and carminative activity.
- It is used as antiseptic and anti-inflammatory.
- It also has antimicrobial effect.
- This plant has neuro depressive effects.
- It also has insecticide property.
- It is used as an ingredient in toothpastes, mouthwashes and cosmetics.
- it is used to get relieve from nausea and indigestion.
- It also helps to treat gas problem and headache.

4.5. SANDAL WOOD

Fig. 5 – Sandal Wood

Biological source:

Sandalwood oil is obtained by distillation of sandalwood, Santalum album Linn., belonging to family Santalaceae.

Morphological features:

Transverse section of wood shows alternating lighter and darker zones. The xylem consists of vessels and fibers. Vessels are large and usually occur single extending from one medullary ray to the next. Fibers are densely packed with interspersed air space termed as lacunae and constitute bulk of wood. Medullary rays are very fine, usually two cells wide and closed together.

Chemical constituents:

The main odorous and medicinal constituent of Sandal-wood is santalol. This primary sesquiterpenealcohol forms more than 90% of the oil and is present as a mixture of two isomers, α-

santalol and β-santalol, the former predominating. The other constituents reported are hydrocarbons santene, nortricycloekasantalene, α-, and β- santalenes.

Uses:
Sandalwood oil is highly used in perfumery creations and finds an important place in soaps, face creams, and toilet powders. A chemo-protective action on liver carcinogenesis in mice has been demonstrated.

4.6. GUAR GUM

Fig. 6 – Guar gum

Biological Source:
Guar gum is a seed gum produced from the powdered endosperm of the seeds of *Cyamopsistetragonolobus* Linn belonging to family Leguminosae.
Morphological feature:
Garm Guard Endosperm (Gum) Morphology: Guar Bean Unrefined Guar Splits Endosperm(Gum) Hull Guar Bean Morphology: Guar beans grow in pods which are one to two inches long. Typically, there are 6 to 9 Beans per pod. Quar Protein Endosperm (Gum) 4 The seeds are di-cotyledons which indicates that there are two endosperm halves per seed. The endosperm accounts for about one third of the bean weight and contains the majority of the galactomannan. The remaining two thirds are hull and germ which are very high in protein and fiber.

Chemical Constituents:
The water-soluble part of guar gum contains mainly of a high molecular weight hydrocolloidal polysaccharide, that is, galactomannan, which is commonly known as guaran. Guaran consists of linear chains of (1→4)—β—D— mannopyranosyl units with α—D—galactopyranosyl units attached by (1→6) linkages. However, the ratio of D— galactose to D—mannose is 1: 2. The gum also contains about 5–7% of proteins.
Uses:
Guar gum is used as a protective colloid, a binding and disintegrating agent, emulsifying agent, bulk laxative, appetite depressant and in peptic ulcer therapy. Industrially, it is used in paper manufacturing, printing, polishing, textiles and also in food and cosmetic industries. Guar gum is extensively used as flocculent in ore-dressing and treatment of water.

4.7. RITHA POWDER

Fig. 7 – Ritha powder

Biological Source:

Acacia concinnities climbing shrub belonging to Minmosaceae.

Morphological features:

It is a deciduous tree, growing to 25 m tall. Reetha leaves are long stalked odd pinnate. The leaf spine is nearly 30-50 cm long and bears 5 to 10 pairs of leaflets. An individual leaflet is about 7-15 cm long and 2-5 cm wide. It has a tapering tip, and is lance-shaped. The size of leaflets towards the tip of the rachis is smaller. Reetha flowers during summer. The flowers are small and greenish white, polygamous and mostly bisexual in panicles at the end of branches. These are nearly stalk less and numerous in number. The fruit appears in July-August and ripens by November- December. These are solitary, round nuts 2-2.5 cm diameter, fleshy, yellowish brown in color. The seed is enclosed in a black, smooth and hard globose covering. The fruit is collected during wintermonths for seed and or sale in the market as soap nut. The dried fruit of Ritha is most valuable partof the plant.

Chemical Constituents:

The major constituents present in Reetha are saponins, sugars and mucilage. The seed kernels of Reetha are a rich source of proteins and show a balanced amino acid composition as per the World Health Organization.

Uses:

The value of the tree mostly comes from its fruit, which can be used for many pharmacologicaland cleansing purposes.

Cleanser/insecticide:

The soapsuds contain the compound of saponin, which has natural cleansing properties, and therefore the soapsuds can be used as a cleanser for hair, skin, and clothing. These saponins are also useful as insecticides, for purposes such as removing head lice offthe scalp

Surfactant:

Methods of extracting the maximum amount of oil from existing oil reserves has become a

scientific focus in a world that has become dependent on fossil fuels. Researchers have found that the Ritha fruit can be used in an enhanced oil recovery technique. More specifically, Chhetri, Watts, Rahman, and Islam (2009) found that extracts from the soapnut can be used as an organic surfactant to increase the mobilityof oil from the fields. In addition, researchers have demonstratedthe potential for the soapnut to be used as a natural surfactant for washing arsenic from soils that are rich in iron

4.8. NEEM POWDER

Fig. 8 – Neem powder

Biological Source:

Neem consists of almost all the part of the plant which are used as drug of Azadirachta indica. It is belonging to family Meliacea It is also known as margosa, Indian Lilac and Azadirachta indica.

Morphology:

Neem is a medium-sized tree, reaching 15 to 30 m in height, with a large rounded crown up to 10-20 m in diameter. It is mainly evergreen but sometimes shed its leaves during the dry season (Orwaet al., 2009; Puri, 1999). Neem has a deep taproot and is a mycorrhiza-dependent species. Neem leaves are medium to large in size and elongated to oblong in shape, averaging 20-40 centimetersin length. The vibrant green leaves are smooth and glossy with sharp, serrated edges. Neem leaves grow on the branches of neem trees in groups of two, and each branch produces around eight groupings.

Chemical constituents:

Various parts of the plant are used for various therapeutic and commercial purposes due topresence of different type of chemical in different parts of this plant. Some of them being:
Leaf: quercetin, nimbosterol, nimbin
Flower: nimbosterol, kaempferol
Bark: nimbin, nimbidin, nimbosterol
Seeds: Azadirachta, Azadiradione, nimbin, vepinin

Uses:

- Nourishes Skin
- Neem is a rich source of Vitamin E which help repair damaged skin cells.
- Treats Fungal Infections Neem has scientifically proven antifungal property which helps treat fungalinfections.
- Useful in Detoxification
- Neem can prove useful in detoxification both internally and externally. Consumption of neem leaves or powder stimulates kidneys and liver increasing the metabolism and eliminating the toxins out of the body. Externally, neem scrubs or paste can be used to remove germs, bacteria, dirt, etc. from yourskin preventing rashes and skin diseases.
- Insect & Mosquito Repellent:
- You can burn a few neem leaves to ward off the insects. This is also effective against different typesof mosquitoes. From all the home remedies for malaria, neem is the best for treating the early symptoms of malaria
- Exfoliates skin:
- Neem is an excellent exfoliant. It helps remove dead cells from the surface of the skin which willhelp prevent the growth of blemishes.

4.9. ACACIA

Fig. 9 – Acacia

BIOLOGICAL SOURCE:

Indian gum is the dried gummy exudation obtained from the steam and branches of Acacia Arabic wild,belonging to the family Leguminosae.

Morphological features
Colour: Tears are usually white, pale-yellow and sometimes creamish-brown to red in colour. The powder has off- white, pale-yellow or light-brown in appearance.
Odour: Odourless
Shape and Size: Bland and mucilaginous
Tears are mostly spheroidal or ovoid in shape and having a diameter of about 2.5-3.0 cm
Appearance: Tears are invariably opaque either due to the presence of cracks or fissures produced on the outer surface during the process or ripening. The fracture is usually very brittle in nature and the exposed surface appears to be glossy.

Uses:
It is used as demulcent, intravenously in hemolysis; suspending agent; emulsifying agent for fixed oil; volatile oil; liquid paraffin and binding agent in the preparation lozenges. Pastilles, compressed tablets. In combination with gelatin, it is used to form coacervates for microencapsulation of drugs. as astringent and styptic.

V. EXPERIMENTAL METHOD

Material are used in this formulation:

- Tulsi powder (Antibacterial & antiviral)
- Ritha shikaki powder (Foaming Agent)
- Neem powder (Antibacterial & antiviral)
- Aloe vera powder (Smoothing, Cooling properties & Antiinflammatory)
- Sandal wood powder (Perfume Agent)
- Mentha Powder (Antioxidant)
- Nagarmutha powder (anti-bacterial and anti-inflammatory
- Sodium lauryl sulphate powder (Foaming agent, emulsifying agent)
- Acacia (Thickening agent)

Equipment:

- Mortal pestle
- Measuring cylinder
- Crucible Dish
- Tap density Apparatus
- Glass Beaker
- PH Meter
- Conical flask

VI. PROCEDURE OF HERBAL HAND WASH

15gm Magic Powder Dissolved in 220ml of Water.

Material	F1	F2	F3
Sodium Lauryl sulphate	3gm	5gm	8gm
Neem Powder	1.5gm	2gm	1gm
Aloe Vera Powder	2gm	1.5gm	2gm
Ritha Shikakai	3gm	2gm	1gm
Nagar Motha Powder	1gm	0.5gm	0.5gm
Sandal Wood Powder	2gm	1gm	1gm
Tulsi Powder	0.5gm	2.5gm	1gm
Acacia	2gm	1.5gm	1gm

VII. EVALUTION TEST:

Evaluation of Magic hand wash powder Organoleptic evaluation/visual appearance:
Organoleptic evaluation for parameters like colour, Odour, taste and texture was carried out. Colour and texture was evaluated by vision and touch sensation respectively. For taste and Odour evaluation a team of five taste and Odour sensitive persons were selected

General powder characteristics:

General powder characteristics includes evaluation of those parameters which are going to affect the external properties (like flow properties, appearance, packaging criteria etc.) of the preparation, Characteristics evaluated under this section are particle size, angle of repose, bulk density and tapped density. All the three shampoo powders were taken at three different level i.e. From top, middle and lower level for the evaluation.

Particle size is a parameter, which could affect various properties like spreadability, grittiness etc. Particle size was determined by sieving method by using I.P. Standard sieves by mechanical shaking for 10 min.

Angle of repose:

affects the flow properties of a powder. It was determined by fix glass funnel method, a distance of 2 cm is maintained between the graph paper and the bottom of a powder. Flowing was continued till the top of the heap touches the bottom tip of funnel.

fig no. 10

Bulk density:

It is an important property for the packaging and uniformity in the bulk of product. Bulk density depends on particle size, particle size distribution and cohesiveness of particle. For measuring bulk density, a weighted amount of powder was introduced in 100ml graduated cylinder. The cylinder is fixed on bulk density apparatus and bulk density was calculated. It is expressed in grams per cubic contester (g/cm3)

Tapped density:

The tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed in grams per cubic centimeter(g/cm3).

- Physicochemical evaluations Extractive values Determination of Alcohol Soluble Extractive:

5 g of each air dried herbal powder was weighed and macerated with 100 ml of Alcohol of the specified strength in a closed flask for twenty-four hours, shake frequently during six hours and allowed to stand for eighteen hours. Filtered, by taking precautions against loss of solvent, 25 ml of the filtrate was evaporated to dryness in a tare flat bottomed shallow dish, anddry at 105^0C, to constant weight and weighed. The percentage of alcohol-soluble extractive withreference to the air-dried drug was calculated. Determination of Water Soluble ExtractiveProceeded as directed for the determination of Alcohol-soluble extractive, using chloroform water instead of ethanol. The percentage of water-soluble extractive was calculatedfor each sample.

Ash Value Determination of Total Ash:

5 g of each air dried Herbal Hand wash powder was weighed and taken in a tare silica crucible and incinerated in muffle furnace at the temperature not exceeding 450^0C until free from carbon, cooled. Percentage of total ash was calculated.

Determination of Acid Insoluble Ash:

Total ash obtained was boiled for 5 minutes with 25 ml of dilute hydrochloric acid and filtered

theinsoluble matter in a Gooch crucible, or on an ash less filter paper, washed with hot water and ignited to constant weight. The percentage of acid-insoluble ash was calculated for each sample.

Moisture content determination:

10 g of each Herbal Handwash powder was weighed in a tare evaporating dish and kept in hot air oven at 105^0C. Repeated the drying until the constant weight loss was observed after the intervalof 30 minutes. The moisture content was calculated for each sample.

Determination of pH:

The pH of 10% hand wash solution in distilled water was determined at room temperature 25°C. The pH was measured by using pH paper.

fig no. 11

Foaming capacity:

Although foam generation has little to do with the cleansing ability of Herbal Handwash, it is of paramount importance to the consumer and is therefore an important criterion in evaluating Handwash. Cylinder shake method was used for determining foaming ability. 50ml of the 1% Handwash solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times. The total volumes of the foam contents after 1-minute shaking were recorded. The foam volume was calculated only.

Immediately after

shaking the volume of foam at 1 minute intervals for 4 minutes was recorded for all the three Herbal Handwash.

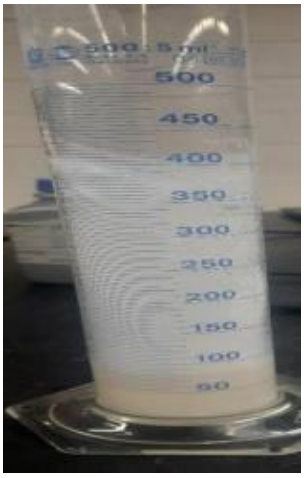

fig no. 12

Dirt dispersion:
Two drops of 1% each Herbal Handwash powders were added in a large test tube contain 10 ml of distilled water. 1 drop of India ink was added; the test tube was stoppered and shaken for 10 times. The amount of ink in the foam of was estimated as None, Light, Moderate, or Heavy.

Detergency ability:
The Thompson method was used to evaluate the detergency ability of the samples. Briefly, a crumple of hair was washed with a 5% sodium lauryl sulfate (SLS) solution, then dried and divided into 3g weight groups. The samples were suspended in an n-hexane solution containing 10% artificial sebum and the mixture was shaken for 15 minutes at room temperature. Then samples were removed, the solvent was evaporated at room temperature and their sebum content determined. In the next step, each sample was divided into two equal parts, one washed with 0.1 ml of the 10% test Herbal Handwash powder and the other considered as the negative control. After drying, the resided sebum on samples was extracted with 20 ml n-hexane and re-weighed. Finally, the percentage of detergency power of all the three shampoo powder was calculated using the following equation:

DP= 100(1-T/C)
In which, DP is the percentage of detergency power, C is the weight of grease in the control sample and T is the weight of sebum in the test sample.

There Are Only a Few Simple Steps to Take to Give Your Hands a Thorough Cleaning and Prevent the Spread of Illness. The Steps Are:

- Wet your hands with clean running water (warm or cold).
- Lather up your hands with soap. Rub your hands together for at least 20 seconds. Silently
- Singing the birthday song twice is an easy-to-remember 20-second timer tool. Don’t forgetto wash your wrists, the back of your hands, between your fingers and under your fingernails.
- Rinse your hands well under running water.
- Turn offthe 1with your elbow.
- Dry your hands with a clean towel or air drythem.
- If you used a towel to dry your hands, use the same towel to open the bathroom door to leavethe room. Discard the towel in a wastebasket.

Sr.No.	Evaluation Parameter		PHS 1	PHS 2	PHS 3
1	Organoleptic evalution	Color	Green	Green	Green
		Odour	Slight	Slight	Slight
		Taste	Characteristic	Characteristic	Characteristic
		Texture	Fine and smooth	Fine and smooth	Fine and smooth
2	General powder characters	Particle Size	20- 25 um	20- 25 um	20- 25 um
		Angle of repose	27±27.33	27±27.7	27±27.8
		Bulk density	0.35 g/cm^3	0.31 g/cm^3	0.34 g/cm^3
		Tapped density	0.095 g/cm^3	0.091 g/cm^3	0.095 g/cm^3
3	Physicochemica levaluation	Extractive values			
		Alcohol soluble	15.45 % w/w	17.60% w/w	16.54% w/w
		Water soluble	12.15% w/w	12.78% w/w	13.08% w/w
		Total Ash	4.23% w/w	4.17% w/w	4.57% w/w
		Acid Insoluble Ash	1.08 % w/w	1.38% w/w	1.20% w/w
		Moisture content	3.02%	3.61%	3.38%
		pH	5.47± 0.24	5.79± 1.17	5.52± 1.02
	Cleaning action		28.51± 0.03	33.14± 0.12	30.11± 1.07
4	Foaming capacity		Mild foaming	Good foaming	Good foaming

5	Dirt Dispersion	Moderate	Light	Moderate
6	Detergency ability	65.12± 0.02	69.69±1.16	62.81±1.02

VIII. RESULT AND DISCUSSION

In the present study, natural active ingredient manifested superior inhibition against skin pathogens than synthetic antimicrobials present in the commercially available antiseptic hand wash. Therefore, these compounds were in corporate in hand wash bases in order to prepare superior antiseptic hand wash with less or no side effects. Hence, a new way can be found to combat antibiotic resistance of pathogenic organisms and provide safe and healthier living through germfree hands, although the removal is not 100%, but a major number can be reduced with natural economic and safe Magic hand wash

fig no. 13

IX. CONCLUSION

Magic hand wash is germs fighter hogwash is good option if you are looking multiple purpose hand wash, magic hand wash is liquid medicament. Its magic to bottle with powder. This preliminaryin-vitro study demonstrated that —Magic herbal hand wash" was as effective against pathogenic bacteria. It is an attempt made to establish the herbal gel based hand wash containing Sacred basil extract. From the result we can say that the gel formulation is good in appearance, stable and acceptable. Finally, it is concluded that this herbal hand wash provides an effective

and safe alternative to existing marketed hand wash

fig no.-14

X. ACKNOWLEDGEMENT

It is both an elevating and humbling experience to have the opportunity to acknowledge numerous people involved in this dissertation work. I would like to have some space here to thank some of them who gave concrete space to this work.

It is my great pleasure to acknowledge my dissertation guide Prof.Poonam M.Yadav **Mangaldeep Institute of Pharmacy,Chh.Sambhajinagar**.who has helped me lot during my dissertation work. I would like to sincerely thank, for her valuable guidance, constant supervision, motivation, support, useful suggestion as well as for providing the excellence facilities and the necessary information for the successful completion of the project.

I would also like to extend my gratitude to **Dr.K.G.Rathod,Principal, Mangaldeep Institute of Pharmacy,Chh.Sambhajinagar**. and all other faculty members of our college for their kind co-operation, encouragement and guidance.

I express my heartfully thanks and gratitude to my dearest friends.I extend my thanks to library and laboratory staff and other non-teaching staff of college for their help and cooperation throughout my work.

Acknowledgement will be incomplete if ignore to thanks to my parents for the irinitiation, constant source of inspiration. I am very thankful for their huge efforts toward my education right from my kinder garden.

It is indeed a difficult task to acknowledge the service of all those gentle people who have

extended their valuable suggestion and support. Directly or indirectly whose names have been unable to mention as they are like the countless stars in numerous galaxies.
Above all again last but not least; I am indebted to the Almighty. It is the faith and trust on God to give me strength to overcome all difficulties. It is his blessings that where I am today.

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