Systematic Review on Evalution of Ployherbal Hand Wash Gel

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Abstract: This study aimed to create a new polyherbal hand wash gel that uses Neem and Tulsi extracts, along with other herbal drugs, to promote hand hygiene and prevent the growth of bacteria while minimizing skin irritation. Various parameters, including colour, fragrance, pH, viscosity, foam height, antimicrobial activity, and skin irritation test, were evaluated to assess the hand wash's efficacy. The results were compared to those of commercially available hand wash, and the polyherbal hand wash was found to be a better alternative to plain soap and synthetic hand wash due to its effectiveness and suitability for all skin types. The study highlights the potential of herbal medicine in developing safe and effective hygiene products, which can help improve public health and reduce the use of harmful chemicals in personal care products. In summary, the development of a polyherbal hand wash gel that is both safe and effective demonstrates the potential of natural remedies in addressing public health challenges

Keywords: Polyherbal hand wash, Neem extract (Azadirachta indica) Tulsi extract. Mimosa Pudina Antimicrobial activity.

INTRODUCTION

Hand washing with soap and water has been taken part of personal hygiene for hundreds of years and has been usually embedded in spiritual and cultural behaviour Although, the link among Hand washing and the spread of disease changed into set up simplest two centuries in the past, despite the fact that this can be considered as extraordinarily early with admire to the discoveries of Pasteur and Lister that passed off decades later

In 1847, compliances of Semmelweis concluded that after performing necropsies by croaker on their hands had a disagreeable odour despite hand washing with cleaner and water before entering the clinic. In 1980s remarkable elaboration made in generalities of hand hygiene in healthcare. It's important to wash your hands at specific times, similar as after using the restroom, ahead, during, and after preparing food, and between handling raw and braised or ready to- eat food. also, washing your hands before eating and after blowing your nose, coughing, or sneezing can help help the transmission of origins. It's also important to wash your hands ahead and after attending to sick children or other family members, after smoking, after handling rubbish or working in the theater, and after handling creatures. Eventually, washing your hands when you arrive at home, other people's homes, venues, or work, and after changing nappies is also pivotal for maintaining good hand hygiene

Ocimum tenuliforem, commonly known as holy basil, Tulsi or Tulasi, is an aromatic perennial plant in the family Lemnaceae. It is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics Tulsi is cultivated for religious and traditional medicine purposes, and also for its essential oil. It is widely used as herbal tea, commonly used in Ayurveda, and has a place within the Vaishnava tradition of Hinduism, in which devotees perform worship involving holy basil plants or leaves. • The variety of Ocimum tenuiflorum used in Thai cuisine is referred to as Thai holy basil (Thai: กะเพรา kaph Rao) and is the key herb in phat kaph Rao, a stir-fry dish it is not the same as Thai basil, which is a variety of Ocimum basilicum.

Azadirachta indica, commonly known as neem, nimtree or Indian lilac, is a tree in the mahogany family Meliaceous. It is one of two species in the genus Azadirachta, and is native to the Indian subcontinent and most of the countries in Africa. It is typically grown in tropical and semi-tropical regions. Neem trees also grow on islands in southern Iran. Its fruits and seeds are the s So Source of neem oil.

FIG: TULSI EXTRACT

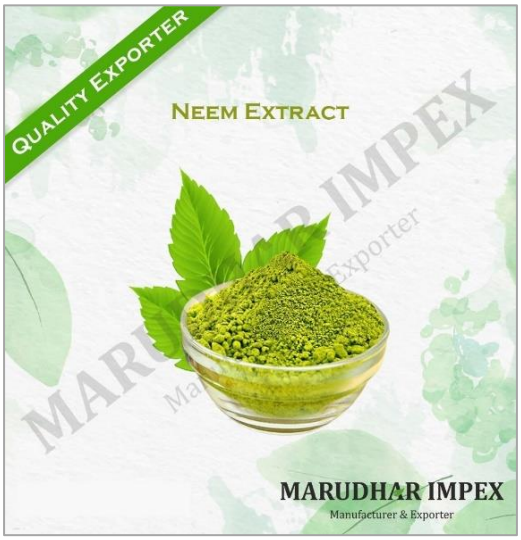

FIG: NEEM EXTRACT

To properly wash your hands, you should wet them with clean, running water and turn off the tap. Then, apply hand wash and lather well for at least 20 seconds, making sure to cover all surfaces of your hands and wrists, including the back of your hands, between your fingers, and under your fingernails. If you wear rings or watches, it is best to remove them or ensure that you wash under them to eliminate any microorganisms that may be present. Once you have lathered thoroughly, rinse your hands well under running water and make sure to remove all traces of soap. To dry your hands, use a clean towel or air dry them. If using a towel, it is best to use a paper towel or single-use cloth towel, and make sure to dry under any rings to prevent future contamination Hot air dryers can also be used as an alternative drying method

Mimosa pudina L. (Mimosaceae) also referred to as touch me not, live and die, shame plant and humble plant is a prostrate or semi-erect subshrub of tropical America and Australia, also found in India heavily armed with recurved thorns and having sensitive soft grey green leaflets that fold and droop at night or when touched and cooled. It majorly possesses antibacterial, antivenom, antifertility, anticonvulsant, antidepressant, aphrodisiac, and various other pharmacological activities. The herb has been used traditionally for ages, in the treatment of urogenital disorders, piles, dysentery, sinus, and also applied on wounds

FIG: Mimosa pudina

MATERIALS AND METHODS

MATERIALS

The accoutrements used in this study were precisely named grounded on their known medicinal parcels and traditional use in colorful societies. Neem, Tulsi, and Pudina are sauces generally used in Ayurvedic drug for theiranti-inflammatory, antibacterial, andanti-fungal parcels. Clove oil painting is known for its analgesic and antimicrobial goods. Aritha greasepaint is a natural surfactant and has been traditionally used as a cleaner. Turmeric is a spice withanti-inflammatory andanti-oxidant parcels. These constituents were used in colorful combinations and attention to prepare herbal phrasings for the evaluation of their efficacity in treating skin

METHOD

Polyherbal hand wash gel was prepared using Carbopol 940 as gelling agent which is socked in 15ml distilled water overnight. Neem and peppermint extracts, Aritha powder along with Tulsi and clove oil were measured accurately and dissolved by gentle heating. After heating, keep the solution aside for sometimes. The required quantity of sodium lauryl sulphate dissolved in 10ml distilled water along with glycerine were mixed in above aqueous phase with continuous stirring. The methyl paraben was dissolved

in remaining quantity of purified water and dispersed into the extract. The swelled polymer was stirred using a mechanical stirrer to ensure the uniform dispersion of polymer and finally added into the above mixture to form a homogenous gel and then there required quantity of rose oil was added for fragrance and turmeric also added for colorant. Lastly, it was stored in well closed container and labelled suitably for further analysis

Method of extraction of plant material:

Extraction of Azadirachta indica and Mimosa pudina: The leaves of Azadirachta indica and mimosa pudina were collected, air dried and powered using mixture grinder. 10 grams of coarsely powdered leaves of both plants was extracted in 200 ml of methanol by Soxhlet apparatus up to 1 to 2 days after extraction the extract was filtered and the filtrate was collected and stored at room temperature

FIG: Azadirachta indica

Method of extraction of Glycyrrhiza glabra:

10 grams powered of Glycyrrhiza glabra were extracted with 100 ml of ethanolic solution (9 parts of ethanol and 1 part of distilled water by means of extraction). The mixture was heated in water both at 600C for 1 hour. The content was filtered thought Whatman filter paper. The filtrate was collected and stored at room temperature.7

Method of preparation of polyherbal handwash Herbal hand wash

was prepared by using Carbopol 940 as a gelling agent in 0.5%w/v concentration with distilled water over night then the swelled polymer was stirred using mechanical stirrer to ensure the uniform dispersion of polymer the pH was adjust to 7. Azadirachta indica, Glycyrrhiza glabra and Mimosa pudina with lemon oil were measured accurately and dissolved by gentle heating. After heating keep the solution aside for some time. The required Sodium lauryl Sulphate dissolved in 10ml distilled water along with Glycerine were mixed in above aqueous phase with continuous stirring.

1.Organoleptic evaluation

Parameters like colour, odour, texture was carried out colour and texture were evaluated by visual and touch sensation respectively. The odour was inspected by sensing the formation.

II. Appearance and homogeneity

Appearance and homogeneity were evaluated by visual inspection.

III. Grittiness 1ml of gel was taken on finger tips and rubbed between two finger tips then the formulation was evaluated

IV. Skin irritation test

Skin irritation test was evaluated by applying poly herbal hand was gel on skin and left for 30 min, after 30 min of washing observe any itching, rashes or redness on skin by sensory and visual inspection

V. pH

1gm of sample of poly herbal hand wash gel was taken and dissolved it into 100ml distilled water. The pH solution was measured by standardized digital pH meter.

VI. Spread ability

5. gm of sample of poly herbal hand wash gel was pressed between two slide and left for about 5 min where no more spreading was expected. Diameter of spreader circle was measured in cm and was taken as comparative values for spread ability

VII. Viscosity

The viscosity of poly herbal hand wash gel was determined by using Ostwald viscometer

VIII. Foam height

One gram of sample of poly herbal hand gel was taken and dispersed in 50ml distilled water. Dispersion was transferred in to measuring cylinder. Volume was made up to 100ml with water. This solution is taken in 10 test tubes in series of successive portion of 1,2,3...10ml and remaining volume is made up with water to 10ml. Then the test tube was shaken for 15 seconds. And the height of foam was measured

IX. Stability

The stability studies were carried out for poly herbal hand wash gel formulation by storing at different temperature conditions like 40 c, 25 c and 37 c for 1 week. During the stability studies no changes in colour and no phase separation were observed in the formulated hand wash

X. Anti-microbial study of poly herbal hand wash

The screening of anti-microbial efficacy of the formulated poly herbal hand wash was performed on soil microbes by using agar plate method as per standard procedure. Two sterile petri plates were taken for testing the anti-microbial activity against soil microbes. The plates were filled with nutrients agar solution and allowed for solidification. After solidification the soil Patel JK et al Research Article f IJBPAS, April, 2024, extract from the subculture were poured into the nutrient agar media by pour plate method and inoculated for 24 hours. After 24 hours of inoculation two cavities were made in it by cup plate method

CONCLUSION

Like Cosmetics, Cosme cuticles (A cosmetic that has or is claimed to have medicinal properties) are topically applied but they contain ingredients that influence the biological functions of skin. The WHO estimates that 80% of the population of Asian country presently use herbal medicine for primary aspect of primary health care and for the purpose of hand hygiene includes preparation of Hand wash. The present study was carried out to formulate Poly herbal Hand wash Gel containing herbal extract which is used not only for the purpose of cleaning hands but also for the prevention of bacterial growth. Its composition was prepared according to delicateness of skin so that it cannot cause any type of irritation. Hence, it can be concluded that the Polyherbal Hand wash Gel are much better than plain soaps or existing marketed synthetic hand wash due to their ingredients and effectiveness on our skin of hands and as well as suitable for all type of skin

REFERENCES

[1] Rotter M. hand washing and hand disinfection. In: Mayhall CG, ed. Hospital epidemiology and infection control, 2nd ed. Philadelphia, PA, Lippincott Williams & Wilkins, 1999: 1339-1355.

[2] Jumaa PA. Hand hygiene: simple and complex. International Journal of Infectious Diseases, 2005, 9: 3- 14.

[3] Simmons BP. Guidelines for hospital environmental control. Section1. Antiseptics, hand washing, and hand washing facilities. In: Centres for Disease Control and Prevention (CDC), ed. CDC Hospital infections program (HIP) guidelines for prevention and control of nosocomial infections. Atlanta, GA, Springfield, 1981: 6-10. Patel JK et al Research Article g IJBPAS, April, 2024, 13(4)

[4] Bjerke NB. The evolution: hand washing to hand hygiene guidance. Critical Care Nursing Quarterly, 2004, 27: 295-307.

[5] The Healthcare Infection Control Practices Advisory Committee (HICPAC). Recommendations for preventing the spread of vancomycin resistance. Infection Control and Hospital Epidemiology, 1995, 16: 105-113.

[6] Garner JS, and the Healthcare Infection Control Practices Advisory Committee. Guideline for isolation precautions in hospitals. Infection Control and Hospital Epidemiology, 1996, 17: 53-80.

[7] The skin "boundless anatomy and physiology [online]. Available: https: //courses. lumen learning. com/boundless - ap/chapter/theskin/#: ~: text=The%20epidermis%20is%20a %20thin, divided%20into%20fiv e%2C%20separate%20layers.

[8] Shaloo, Shayna Shafi, Simran Singh, Shashi Verma, Ritesh Kumar Tiwari and Devika Tripathi, Formulation and Development of Mint containing Herbal Hand Sanitizer, European Journal of Pharmaceutical and Medical Research, 2017 [11], 454- 457.

[9] Powar P. V, Bhandari N. R, Arya Ashwini, Sharma P. H., Formulation and Evaluation of Poly Herbal Anti - Bacterial Gel Based Hand Wash, International Journal of Pharmaceutical Sciences Review and Research, 33 (1) July – August 2015; ArticleNo.16, Pages: 79 - 82.

[10] Andeep DS, Narayana Charyulu R, Prashant Nayak, Aliss Maharjan, Indira Ghalan, Formulation of Antimicrobial Polyherbal Hand Wash, Research J. Pharm and Tech., 2016, 9[7],864 - 866

[11] Megha Bahuguna and Shil1pi Kashyap, Formulation and Evaluation of Hand Wash, World Journal of Pharmaceutical Research.2011, 5[7], 1559 – 1577

[12] AGRI FARMING, "Tulsi Oil Extraction Process, Benefits, Uses" [Online]. Available: https: //www.agrifarming. in/Tulsi - oil - extraction - process - benefits – uses

[13] Rina Maskare, Nitin Indurwade, Abhishek Purohit, Veena Atrahe, of Polyherbal Formulation and Evaluation Hand Sanitizer, International Journal of Pharmacy and Biological Science, 2019, 449 – 454

[14] Hany. M. Yenia, Methanolic Extract of Neem [Azadirachta Indica] and its Antibacterial Activity against Foodborne and Contaminated Bacteria Sodium dodecyl Sulphate Polyacrylamide gel Electrophoresis [SDS PAGE], American Eurasian J. Agricultural and Environmental Science,2016, 16 [3]: 598 – 604.

[15] Mashood Ahmad Shah, Satheesh Babu, Hatarjan, Mohd. Goushuddin, Formulation, Evaluation and Antibacterial Efficiency of Herbal Hand Wash Gel, Research article.