

Formulation and Evaluation of Herbal Handwash

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Abstract

Background: The herbal cosmetics are herbal and free from all the dangerous artificial chemical substances which typically might also emerge as lethal to the skin, the herbal ingredient used assures no side impact you can still carried out them any time. So, natural cosmetic are greater referable in comparison to synthetics one.

Aim and Objective: The reason of the present work is to formulate and evaluated herbal hand wash the use of herbal elements to sell the non-public hygiene. The formulated hand wash changed into evaluated for exclusive parameters like pH, colours, foaming performance, viscosity and stability.

Materials and Methods:-The herbal hand wash formulated the usage of neem extract for antibacterial property, aloe vera juice for soothing assets, glycerine for moisturization, sodium lauryl sulphate as a surfactant, carbopol 934 as a jellying agent, rose oil for perfume and distilled water, the hand wash is prepared and evaluated then the end result turned into documented.

finding: five human beings were asked for acceptability of fragrance and their opinion changed into taken. The fragrance was found to be precise in comparison to reference hand wash.

Result and conclusion: The hand wash become discovered to be mild inexperienced fragrant and homogeneous with rosy perfume. pH became 6.zero which is much like the skin pH. The hand wash turned into found to be strong in all evaluation parameters with top cleansing belongings

Keywords: Azadirachta indica

❖ Introduction:

Introduction : - Pores and skin being the maximum exposed part of our body cells for protection from skin pathogens the fingers of fitness care people (HCWs) are the primary routes of transmission of multidrug resistant pathogens and contamination to the patients.Hands are the essential route of microbe and contamination which hand cleanliness is the most efficient way to save you the spread of dangerous geams and disease .

Some of the chemical antiseptics are now to be had in market as alcohol - primarily based Sanitizers ,chlorhexidine products etc.

Handwashing is an critical manner to Help fight the spread of sickness Handwashing eliminates visible dust from arms and reduce the range of dangerous microorganisms . dangerous bacteria and viruses consisting of , E. coli and Salmonella can be carried by humans , animals or gadget and transmitted to food .

In healthcare , hand cleanliness is the best and most effective , best , and low cost approach to save you nosocomial infections . contaminated fingers can feature as vectors for unfold of germs .

Antimicrobial residences of certain Indian medicinal vegetation had been suggested based totally on folklore data and only few reviews are to be had on inhibitory activity towards certain pathogenic micro organism and fungi

❖ Anatomy and body structure of skin :

Skin is the layer of generally tender , flexible outer tissue masking largest organ of the human body that plays a physical barrier the outside and the internal environment this is Serves characteristic of safety and homeostatic . PH of pores and skin is four to 5.6 . The pores and skin composed of 3 Layers &

a)dermis

b)epidermis

c)Subcutaneous Tissue

a)Dermis : The epidermis is a skinny layer of pores and skin . it's miles the outer layer of skin . it is composed of epithelial tissue . features of the epidermis include contact and safety . This skin is further divided into 5 separate Layers , they're

(1) Stratum corneum : The stratum corneum is the outermost layer of dermis and is made of 10 to 30 skinny layers of always losing useless Keratinocytes . The corneum is mentioned ' Horry layer ' , as it's cells an toughened like an animal's horn .

2)Stratum Lucidum : present most effective in skin of fingentine palms and Soles ; includes 4 to 6 rows of clean , flat , clead keratinocytes with large quantities of Keratin .

3)Stratum Granulosum : - The Stratum Granulosum is a thin layer that is located in guess the stratum spinosum and stratum Lucidum .

4)Stratum spinosum : The stratum spinosum Layer observed in bet the stratum basale and the Stratum granulosum .

5)Stratum Basale : -8 of ten rows of many sided Keratinocytes with bundles of Keatin intermediate filaments ; includes challenge me lanocytes and interepidermal macrophage .

(b) The Demis : The deamis is a center Layer of ski beneath ties the epidermis . As there has been prescence of blood vessels the skin become noun sh because of oxygen & vitamins and facilitates to cast off waste products .

C) The Subcutaneous Tissue /Hypodermis / Subcutis :-It's far the innermost layer of the skin which is made up of fat and connective tissue . The subcutis acts as a Layer of insulation of shield internal hady organs and muscular tissues from surprise and adjustments in temperature

❖ **HANDWASH:**

Handwashing is the most efficient way to prevent the transmission of bacteria they could motive diarrhea,influenza and the most usually the commonplace bloodless.

it's miles the very best,much less pricey approach to sell hand cleanliness in healthcare and the prevention of infections diseases.

The time length range on common as brief as 15 to 30 sec in that including rubbing the backs of arms,wrists,among fingernails arms are the primary mode of germs and infection transmission.

Merits of Polyherbal handwash:

- they're easily use and available each in urban and rural areas.
- they are clearly use for every person.
- The value of herbal flowers is decrease than the cost of the chemical substances in artificial handwash.
- they may be much less bad impact.
- herbal handwashes are less in all likelihood to have facet consequences.
- it's far an easy approach of doing away with microorganisms.
- Washing your arms helps hold germs out of your frame.

Demerits of Polyherbal handwash:

- there's confined research to be had at the effectiveness of polyherbal handwash in comparison to different types of hand Sanitizers or handwashes.
- The effectiveness of polyherbal handwash is rely on the excellent and attention of the herbal extract used.
- tough to modify.
- some humans are can be allergic to herbs used in polyherbal handwash,they may purpose skin inflammation or different damaging reaction

Extraction of Neem

1. fresh neem leaves are amassed and shed dried for 15 days.

2. The dried leaves then powered the use of mortar and pestle
3. The powered neem leaves are weighed 25gm and macerated in a beaker the use of 100ml of methanol
4. The organized aggregate is kept blanketed with aluminium foil and kept for three days for maceration even as stirring in among, and then the aggregate changed into filtered the use of a clear out paper.
5. The excess, solvent is evaporated using a Rotary evaporator after which the final aggregate was dried on a warm water tub.
6. The dried extract was accrued and saved in desicator for cooling.
7. The prepared extract is weighed.

❖ Formulation of herbal Hand Wash

Hand wash turned into prepared through was including 20 ml filtrate of ethanolic Neem extract on this Hand wash became prepared with the adding 20 ml filtrate of ethanolic Neem extract on this filtrate 6gm of sodium lauryl sulphate was added, 2 gm of carbolpol 934, forty ml glycerin, zero.three gm Methyl Paraben, 5ml rose oil become delivered and volume became made as much as 100 ml distilled water.

Table 1:- Formulation of Herbal Hand Wash

Ingredients	Quantity	Use
Methanolic neem extract	20 ml	Antibacterial and Anti inflammatory properties.
Aloe Vera juice	20 ml	Soothing properties.
Sodium lauryl sulphate	5 gm	Foaming Agent
Carbolpol 934	2gm	Gelling Agent
Glycerin	45 ml	Moisturizing Agent
Rose oil	3ml	Fragrance
Methyl Paraben	0.3gm	Preservative
Distilled water	q.s	

❖ EVALUATION PARAMETERS

A) Physical Parameters

i) Appearance:-

It was observed visually.

ii) Colour:-

It was observed visually.

iii) Odour :-

It was observed manually.

iv) Homogeneity

It was observed visually

v) Fragrance:-

It was based on individual observation for its acceptability. 5 people were asked for acceptability of fragrance and their opinion was taken and fragrance was evaluated based on the below-described criteria.

B) Chemical Parameters (18,19,20)

1. PH Determination:

pH was determined by using digital pH meter. 1 gm of formulated hand wash was taken and dissolved in 100 ml distilled water. pH of hand wash was adjusted using 40 % NaOH Solution.

2. Viscosity:

The viscosity was determined by using digital Brookfield viscometer.

3. Foam Height:

0.5gm of sample of Herbal handwash was taken and dispersed in 25 ml distilled water. Then, transferred it into 500 ml stoppered measuring cylinder; volume was make up to 50 ml with water. 25 strokes was given & stand till aqueous volume measured upto 50 ml & measured the foam height; above the aqueous volume.

4.Foam Retention:

50 ml of the Herbal hand wash was taken into a 200ml graduated cylinder & shaken 10 times. The volume of foam at 1-minute intervals for 4 minutes was recorded.

RESULT AND DISCUSSION

Physical evaluation:-

In this test color, texture, and state of the three formulations were checked .

Table No :04

Sr.no	Parameters	F1	F2	F3
1.	Colour	Light Green	Light Green	Light Green
2.	Odor	Pleasant	Pleasant	Pleasant
3.	Appearance	Opaque	Opaque	Opaque

Determination of pH:-..

Table No :-05

Sr.no	Formulation	pH
<u>1.</u>	<u>F1</u>	<u>5.96</u>
<u>2.</u>	<u>F2</u>	<u>6.04</u>
<u>3.</u>	<u>F3</u>	<u>6.02</u>

Homogeneity :-

All prepared formulations produce uniformity of Handwash. Homogeneity was confirmed by appearance and by touch.

Table No :06

Sr.no	Formulation	Homogeneity
1.	F1	Homogenous
2.	F2	Homogenous
3.	F3	Homogenous

Appearance

When formulation was kept for a long time, it found that no change in the color of hand wash.

Reference

1. Boyce JM and Pittet D. Guideline for Hand Hygiene in Health-Care Settings. Morbidity and Mortality Weekly Report 2002; 51:1-45.
2. Mahetre GD, Jaya P, Amphore RS, Sachin D. Consise Course in Cosmetic Science. vol. 2021. and others, editor. S. Vikash and Company medical publisher;. p. 203–4.
3. Pallai DR, Chandrashekar K, Nayak D, Banu A, Kumar P, Pai V, et al. Development and evaluation of Herbal hand wash with Neem Alcoholic Extract. Res J Pharm Tech. 2021;14(1):308 10.

4. Kaur H, Kaur J. Hand Hygiene Practices among Staff Nurses during Drug Administration at Selected Tertiary Health Care Centre of Ludhiana, Punjab. *Asian J Nur Edu Res.* 2015;5(2):199-201.
5. Kokate CK, Purohit AP, Gokhale SB. *Pharmacognosy*. 56th ed. And others, editor. Nirali prakashan; 2019. p. 19.
6. Kavitha T. A Study to assess the Knowledge regarding Hand Hygiene among Staff Nurse in Wockhardt Hospital Rajkot, Gujarat State. *Asian J Nurs Educ Res.* 2018;8(3):333-4.
7. Ghotkar NM, Kharade SS, Chavan RS, Jadhav RS, Jagtap NM, Vambhurkar GB. Formulation and Evaluation of Herbal Facewash for Acne. *Asian J Pharm Ana.* 2018;8(4):183-5.
8. Power PV, Bhandaul. Formulation and Evaluation of Poly Herbal anti-Bacterial Gel Based Hand wash. *Int Pharm Sci Rev Res.* 2014;33(1):79-82.
9. Ravi K, Pratibha MD, Kolhapure SA. Evaluation of the antimicrobial efficacy and safety of Pure Hands as a hand sanitizer. *Indian J Clin Pract.* 2005;15(10):19-27.
10. Natarajan SB, Shah MA. Formulation Evaluation and Antibacterial Efficiency of Herbal Hand Wash Gel". *Int J Pharm Sci.* 2014;23:120-4.
11. Choudhari S, Sutar M. Evaluation and antibacterial Efficiency of Herbal Hand Wash. *Indo Am J Pharm Res.* 2014;23:120-4.
12. Mahesh B, Satish S. Antimicrobial Activity of Some Important Medicinal Plant against Plant and Human Pathogens. *World J Agricultural Sci.* 2008;4:839-43.
13. Patel D, Shah P, Managoli N. Evaluation of In-vitro Anti-oxidant and Free Radical Scavenging activities of *Withania somnifera* and *Aloe vera*. *Asian J Pharm Tech.* 2012;2(4):143-7.
14. Kokate CK, Purohit AP, Gokhale SB. *Pharmacognosy*. 56th ed. And others, editor. Nirali prakashan; 2019. p. 9.
14. Minakshi G, Joshi D, Kamat SD. 4. Minakshi G Joshi, D V Kamat* and S D Kamat Evaluation of herbal handwash formulation Natural Product Radiance, 2008; 7(5): 413-414. *Nat Prod Radiance.* 2008;7(5):413-5.
15. Mounika A. Formulation and evaluation of herbal hand wash Containing essential oil. *Int J Creat Res Thoughts .* 2017;6(4).