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Development and Pre-Clinical Evaluation of Polyherbal Hand Wash

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ABSTRACT

Hand-washing is significant in agriculture, housekeeping, and in addition vital in houses and daycare plans. The artificial handwash formulations an effort antiquated entice formulate a polyherbal hand wash victimization extract of *Sida cardifolia, Azadirachta indica*, aloe vera gel, and lemon juice. The pH of hand wash was ranging from 6.36 to 6.88. The handwash formulations were ranges from 56 cp to 62 cp. The formulation planned out along with lemon juice displayed the best antimicrobial utilization than the formulation while not lemon juice. The stableness reports no change in pH & Viscosity referred to in the formulations. The effects of the present work support the internalization as well as utilization of herbs in the formulation to help give better results.

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INTRODUCTION

Skin is one of the most important exposed organs of the body requires that requires protection from pathogens. To protect the skin from harmful microorganisms and to prevent the spreading of many contagious diseases hand washing is absolutely an important precaution [1]. However, the correct use of a fingernail brush to wash hands and fingertips is the best way to assure the removal of transient microorganisms. Not only hand washing is critical in food service and food production operations, but it is also important in homes and daycare operations [2].

MATERIALS AND METHODS

The taxonomic identification verification and validation has been done by Dr. P. Jayaraman, Director, National Institute of herbal medicine, plant anatomy

research center, Chennai. The microorganisms were a self-possessed delight in the Sri Padmavati Mahila University in Tirupati.

Methodology

Preparation of extracts

10 grams of the pulverized leaves of each vascular plant have been sequenced and 100 milliliters of methyl alcohol solution employing extraction. This mix used to be heated up to a boil at 60^0C for 1 hour. The content is used to percolate Whatman filter paper to attain the particle-free squeeze [3].

Formulation

The poly herbal hand wash formulations have been delineated by including methanolic extracts of plant substances, glycerin, and juice in 70 milliliters of distilled water. To with the final volume makeup with 150 ml, aloe vera gel, sodium lauryl sulfate, methylparaben, coloring, and flavoring agent used to be added as specified in the obligation of standard routine for the hand wash formulations [4]. The solution was homogenizer under room temperature and used for further evaluation studies [Table 1].

Evaluation Parameters

pH

The pH was determined by using a digital pH meter. 60ml of herbal hand wash is taken in a beaker and dipped the bulb of the pH meter into the formulation and the pH was measured [5].

Viscosity

It depends on employing a digital Brookfield viscometer [6].

Antimicrobial Test

Three sterile Petri discs drown as testing the overall antimicrobial utilization towards 3 different microorganisms, i.e. *Putida Vulgaris, Staphylococcus aureus, and Bacillus subtillis organism*. The plates have been stuffed with nutrient agar solution as well as consist of solidification. After hardening, the microorganisms from the overall subculture were inoculated into a spectacular medium, and five cavities have been made in.

The primary cavity is full of herbal wash in addition to lime juice, the second along without lime juice, The third one neem squeeze, The quarter cavity with Bala extract, and at last cavity with marketed solution act as standard.

The plate stretch in the incubator at 37^{o}C to check the activity. After 24 hours the plates have been referred to going from the zone of inhibition, the antimicrobial activity of the formulation is estimated [7].

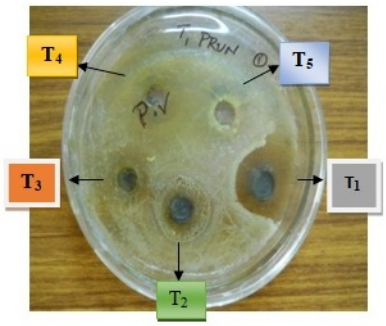

Figure 1: Zone of Inhibition in a plate with *Putida vulgaris*

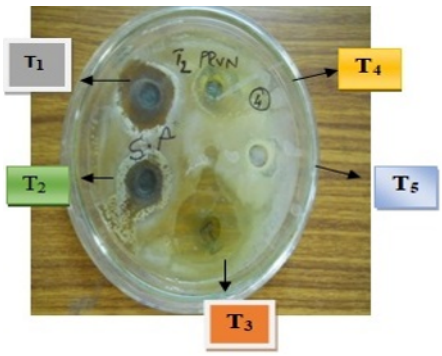

Figure 2: Zone of Inhibition in a plate with *Staphylococcus aureus*

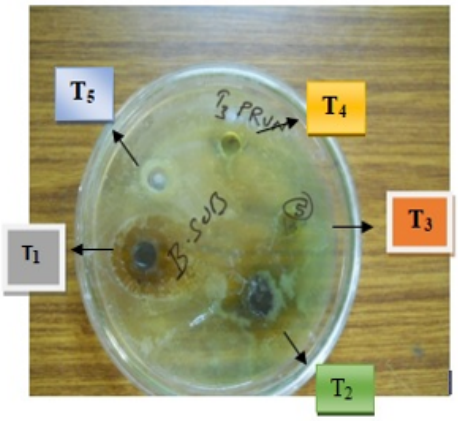

Figure 3: Zone of Inhibition in a plate with *Bacillus subtillis*

Stability Study

The stability studies have performed storage co ditions for 90 days as follows Acceleration stability studies storage status antiquated serviceable delight in 30°C ± 2°C and 60% RH ± 5% RH. The optimized batch T5 was utilized for each condition's pH & viscosity [8].

Table 1: Quantity of ingredients used in the preparation of formulations

Ingredient	Quantity				
	T_1	T_2	T_3	T_4	T_5
Methanolic extract of *Azadirecta Indica* (ml)	30	30	30	-	30
Methanolic extract of *Sida Cardifolia* (ml)	30	30	-	30	30
Aloe vera gel (gms)	-	9	9	9	9
Glycerin (ml)	7	7	7	7	7
Lemon juice (ml)	5	-	5	5	5
Sodium lauryl sulphate (gms)	7	7	7	7	7
Methyl paraben (gms)	0.3	0.3	0.3	0.3 g	0.3 g
Rosemery oil (ml)	6	6	6	6	6
Purified Water (ml)	150	150	150	150	150

Table 2: Evaluation Parameters of pH & Viscosity of the Herbal formulations

Parameter	Formulations				
	T_1	T_2	T_3	T_4	T_5
pH	6.36	6.48	6.28	6.88	6.44
Viscosity (Centipoise)	56	59	62	54	61

Table 3: Zone of Inhibition of the Polyherbal Hand Formulations

Microorganisms	Zone of inhibition in Cm				
	T_1	T_2	T_3	T_4	T_5
Putida Vulgaris	1	0.7	0.9	0.6	0.5
Staphylococcus aerus	0.8	0.5	0.7	0.5	0.4
Bacillus subtillis	0.9	0.6	0.8	0.6	0.4

Table 4: Stability Study for formulation LNSF4 in Acceleration Stability Studies

Period	**30°C ± 2°C and 60% RH ± 5% RH**	
	pH	Viscosity
15 Days	6.44	61
30 Days	6.44	61
60 Days	6.45	61
90 Days	6.45	62

RESULTS AND DISCUSSION

The Formulation used to be physical valuation than for the screening process for antimicrobial sensitiveness. The results of the performed following tests were observed in physical evaluation.

pH: The pH of hand wash was ranged from 6.36 to 6.88 [Table 2].

Viscosity: The hand wash formulations were ranges from 56 cp to 62 cp [Table 2].

Anti-Microbial Activity

The formulation planned out along with lemon juice displayed the best antimicrobial utilization than the formulation while not lemon juice [Table 3]. This sees the light result might be consisting of Citric acid in lemon juice. It is according to own a possible effect on bacteria [Figure 1, Figure 2 & Figure 3].

Note

T1: Formulation along with lemon extract

T2: Formulation devoid of lemon extract

T3: *Azadirachta indica* squeeze

T4: *Sida cordifolia* squeeze

T5: Herbal soap solution (standard).

Stability

During the stability studies no change in pH & Vis-

cosity is referred to in the formulations [Table 4].

CONCLUSION

The effects are well-tried so the herbal hand washes therefore planned out are simpler than commercially synthetic hand washes. The pH of hand wash was ranged from 6.36 to 6.88. The handwash formulations were ranges from 56 cp to 62 cp. The formulation planned out along with lemon juice displayed the best antimicrobial utilization than the formulation while not lemon juice. The optimized formulation of stability studies no change in pH & Viscosity referred to in the formulations. These compounds can be extracted and incorporated in bases to prepare superior antimicrobial handwash with less or no side effects.

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Conflict of Interest

The authors attest that they have no conflict of interest in this study.

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REFERENCES

[1] Hina Kausar, Mohd Mujeeb, Abdul Ahad, Thasleem Moolakkadath, Mohd Aqil, Adil Ahmad, and Md Habban Akhter. Optimization of ethosomes for topical thymoquinone delivery for the treatment of skin acne. *Journal of Drug Delivery Science and Technology*, 49:177–187, 2019.

[2] Ashok D. B. Vaidya and Thomas P. A. Devasagayam. Current Status of Herbal Drugs in India: An Overview. *Journal of Clinical Biochemistry and Nutrition*, 41(1):1–11, 2007.

[3] Prarthana Thakurta, Poulami Bhowmik, Souryadeep Mukherjee, Tapas K. Hajra, Amarendra Patra, and Prasanta K. Bag. Antibacterial, antisecretory and antihemorrhagic activity of Azadirachta indica used to treat cholera and diarrhea in India. *Journal of Ethnopharmacology*, 111(3):607–612, 2007.

[4] Minakshi G Joshi, D V Kamat, and S D Kamat. Evaluation of herbal handwash formulation. *Natural Product Radiance*, 7(5):413–415, 2008.

[5] Arun Rasheed, G. Avinash Kumar Reddy, S. Mohanalakshmi, and C.K. Ashok Kumar. Formulation and comparative evaluation of poly herbal anti-acne face wash gels. *Pharmaceutical Biology*, 49(8):771–774, 2011.

[6] Subramani Parasuraman, Gan Siaw Thing, and Sokkalingam Arumugam Dhanaraj. Polyherbal formulation: Concept of ayurveda. *Pharmacognosy Reviews*, 8(16):73–80, 2014.

[7] D S Sandeep, Charyulu R Narayana, Nayak Prashant, Maharjan Aliss, and Ghalan Indira. Formulations of Antimicrobial Polyherbal Hand wash. *Research Journal of Pharmacy and Technology*, 9(7):864–866, 2016.

[8] Syed Ammar Hussain, Ahsan Hameed, Furqan Nasir, Yang Wu, Hafiz Ansar Rasul Suleria, and Yuanda Song. Evaluation of the Spermatogenic Activity of Polyherbal Formulation in Oligospermic Males. *BioMed Research International*, 2070895:1–10, 2018.

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