



Formulation and Evaluation of a Poly Herbal Anti Acne Fruit Face Wash Gel

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ABSTRACT

Skin inflammation happens most ordinarily in over 96% of young people on skin as it is the most uncovered piece of our body to the microbes particularly acne causing microscopic organisms. In the current review, poly natural enemy of skin inflammation organic product face wash gel. Results showed that the gel was non-aggravation, stable and gangs hostile to acne action. The viability when tried with a standard was practically same to that of Clindamycin gel. From this review, it was reasoned that the pre-arranged organic product face wash gel is serious against standard with less incidental effects. The optimized formulation generates semisolid consistency, does not greasy residue upon implementation upon that skin. The pH of preparation was noticed to be satisfying in the range of 5.5-5.7. It shows no grittiness inadequately inspection process of the able to prepare preparation noted no lumps and to have standardize color scattering free from every fiber and particle. Viscosity of preparation would be in the range of 4.702-5.829. All preparation have better dispersibility in comparison to marketed preparation and then in the range of 8.982-9.983. During stability testing F2 preparation produce good results during 3 months.



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made out of manufactured medications which have outstanding incidental effects other than restoring acnes. They might cause skin bothering, opposition (Clindamycin) and even irritation (Isotroin) [1]. Life forms causing skin inflammation are *Staphylococcus aureus*, *S. epidermidis* and *Propionibacterium acnes*. This requests a need to faster the elective treatment of skin inflammation alongside the patient consistency. The need presents to us joining natural products in the details to treat acnes. There are many plants wealthy in the synthetic constituents that are dynamic against the above expressed microscopic organisms [2].

INTRODUCTION

Skin needs assurance from microorganisms particularly skin inflammation causing microscopic organisms as skin is the most uncovered part in human body. Compound anti-microbials gels and hostile to skin inflammation facewashes accessible are

Acne is perhaps the most widely recognized skin disease described by spaces of skin with different non incendiary follicular papules and by provocative papules, pustules, and knobs in its more serious structures, which influences 90% individuals, at some point or the other, especially in the ages

between 15-25 years. Because of skin inflammation, youngsters are viewed as hopeless to clear up their skin and refine their skin pores [3]. A huge scope of items flood the market today and the most widely recognized one to treat skin inflammation are known as skin inflammation face washes. Presently a days, natural product based face washes are likewise accessible which extraordinarily focus on the acne inclined skins. Papaya based face washes can likewise be utilized to control acne. Henceforth, another way is created to battle the antimicrobial safe skin inflammation causing microorganisms by setting up a face wash from the ethanolic concentrate of (*Vitis vinifera*, Vitaceae) Grapes and fluid concentrates of (*Cucumis sativus*, Cucurbitaceae) Cucumber, (*Citrus sinensis*, Rutaceae) Orange, Honey and this examination expresses that the treatment is protected and compelling in controlling acnes [4]. Glycerin, (which is used in preparation of fruit face wash) in its most flawless structure is only liquor called as glycerol. At the point when glycerol is utilized as a fixing in different restorative and drug items, it is changed in focus and is called as glycerin. Glycerin is a dismal, sweet tasting and thick fluid and it shapes a thick glue on freezing. Glycerin effectively breaks down in water or liquor however not in oils. Glycerin is hygroscopic in nature that is it assimilates water from the air. Glycerin relaxes the skin when it is included water. Glycerin keeps up with or balances the dampness levels of the skin. Realize more on glycerin utilizes for skin [5].

MATERIALS AND METHODS

The plant components have been collected from Sri Srinivasa Ayurvedic retail pharmacy located in Tirupati. The taxonomical distinguishing proof and verification was finished by Director, National organization of natural medication, Plant life structures research focus, Chennai. The miniature organic entities i.e *Staphylococcus aureus*, *S. epidermidis* and *Propionibacterium acnes* were gathered from Sri Padmavathi Mahila University in Tirupati. Carbopol, glycerine, triethanolamie, sodium lauryl sulphate, methyl paraben, propyl paraben and rosemary oil seemed to be actually bought from S.D. Fine chemicals, Mumbai.

Methodology

Preparation of Extracts

The face wash was prepared from the ethanolic concentrate of (*Vitis vinifera*) Grapes and aqueous concentrates of (*Cucumis sativus*) Cucumber, (*Citrus sinensis*, Rutaceae) Orange. Grape extricate is gotten by talking 30g of grape seed powder and sepa-

rating with ethanol as a dissolvable by soxhlation. Fluid concentrates of cucumber and orange were prepared by macerating the mash of natural products with chloroform water. The substance was separated and via whatman no 1 filter paper to be get specific chemical free filtrate. Filtrate was concentrated to get the concentrates [6].

Preparation of Poly Herbal Fruit Face Wash Gel

A 100ml of poly herbal fruit face wash gel was carried out by adding fruit helps in extracting of merged plant materials with 500 mg carbopol (gel base), 50 ml of glycerin. 10 mg of sodium lauryl sulphate, 1 ml of triethanolamine, 0.5 mg of methyl paraben and propyl paraben, colouring and flavouring agent was got to add according the precondition of standard process [7] for preparatory of face wash [Table 1].

Physical Evaluation

The process facilitates assessed for testing and comparison with marketed Clindamycin face wash gel.

Physical Appearance

The Physical features of the preparation was inspected visibly which largely composed [8].

Color

The color of the mixtures was did check against white color.

Odor

The smell of a face washes were did check by manual process.

Consistency

The consistency had been inspected by utilizing on skin.

Greasiness

The waxy buildup was analyzed even by utilization onto skin.

pH

An Quantity of 20 mg of a preparation was captured in such a beaker and also was exposed to a pH measurement that used a digital pH meter inside of 24 hrs of manufacturing process [9].

Wash Ability

The mixtures were adhered upon that skin & then relieve, magnitude of having to wash with water were did check manual process [10].

Homogeneity

It was evaluated by inspection process upon going to allow each other to set in a vessel. They're analyzed for appearance as well as existence of coarse aggregate [11].

Table 1: Quantity of Ingredients in Polyherbal Fruit Face Wash Gel

S. No.	Ingredient	Quantity			
		T1	T2	T3	T4
1	Ethanollic extract of <i>Vitis vinefera</i>	10 ml	10 ml	10 ml	Standard clindamycin gel
2	Aqueous extract of <i>Cucumis sativus</i>	10 ml	10 ml	10 ml	
3	Aqueous extract of <i>Citrus sinensis</i>	10 ml	10 ml		
4	Honey		4 g		
5	Carbopol	500 mg	500 mg	500 mg	
6	Glycerin	50 ml	50 ml	50 ml	
7	Triethanolamine	1 ml	1 ml	1 ml	
8	Sodium lauryl sulphate	10 mg	10 mg	10 mg	
9	Methyl paraben and propyl paraben	0.5 g	0.5 g	0.5 g	
10	Rosemary oil	5 ml	5 ml	5 ml	
11	Purified Water q.s	100 ml	100 ml	100 ml	

Grittiness

The preparations have been evaluated microscopic examination below 40 x magnifications again for appearance of any fine particulates or aggregates [11].

Viscosity

The developed gels have been ascertained using Brookfield viscometer spindle # 7 at 50 revolutions per minute and 25°C. The correlating dial trying to read upon that viscometer was mentioned [12].

Extrudability

The gel formulation was packed in a standard capped foldable metal tubes and enclosed by cutting to a end. The tubes have really been consisting of two slides but were clamped. 500 g weight had been positioned so over slides, and then the cap was removed. The distance of a ribbon of a preparation that ended up coming out again and 10 seconds had been recorded [13].

Spreadability

A weight of 100 g gel was located upon the upper slide right so the formulation between both the two slides get pressured uniformly to type a thin layer. The load was removed, as well as the abundance of a preparation adhering to the slides was scrapped off. The lower slide was fixed on the board of apparatus, and the upper slide was held to the non-flexible string to which 20g load was applied with the help of a simple pulley which was in horizontal level with the fixed slide. The time taken by the upper slide to slip off the lower slide was noted [14].

$$\text{Spreadability} = m \times l/t$$

Where

m=Weight tied to upper slide,

l=Length of the glass slide (6 cm),

t=Time in seconds.

Stability Studies

It was performed in a humidity chamber at 45°C and 75% relative humidity. There appearance and stability were thoroughly checked according to a period of 3 months duration period [15].

Anti Microbial Studies

In Dip well method three sterile petri plates were taken for testing the anti microbial activity against three different microorganisms i.e *Staphylococcus aureus*, *S. epidermidis* and *Propionibacterium acnes*. The plates were filled with nutrient agar solution and allowed for solidification. After solidification the microorganisms from the subculture were inoculated into the nutrient agar media and four cavities were made in it. The first cavity is filled with herbal face wash with honey, second one with herbal face wash without honey, third one with grape extract and the last cavity with marketed fruit face wash gel. It was taken care that sample should be placed at the level of cavity. The plates are placed in incubator at 37°C to test the activity. After 24 hours the plates were observed for the formation of zone of inhibition. From the zone of inhibition the anti microbial activity of formulation is estimated [16].

RESULTS AND DISCUSSION

Organoleptic variables of ready acne face wash gel was assessed for inits appearance, color and odor.

Table 2: Evaluation Parameters pH, Viscosity, Spreadability

Formulation code	pH	Viscosity (CentiPoise)	Spreadability (gm-cm/sec)
T1	5.6	5.674	9.654
T2	5.8	5.829	9.983
T3	5.7	4.702	8.982
T4(Marketed clindamycin gel)	5.8	5.934	10.23

Table 3: Results for Stability Studies

Parameter	T1	T2	T3	T4 (Marketed clindamycin gel)
Color	Light brown color	Light brown color	Light brown color	Light yellow color
Odor	Fruity odor	Fruity odor	Fruity odor	Sandal odor
Spreadability (gm-cm/sec)	9.654	9.983	8.982	10.23
Viscosity (Poise)	5.674	5.829	4.702	5.934
Skin irritation test	No	No	No	No

It generates characteristic light brown color and fruity odor. The prepared formulations produce semisolid consistency. This was confirmed by visual observation. The prepared formulations do not show greasiness upon application on the skin. The pH of formulation was found to be satisfactory and in the range of 5.5-5.7. [Table 2]. The prepared formulations were easily good wash ability and easily washed with water. Under visual inspection of the prepared formulation indicated no lumps, No aggregate and to have uniform color dispersion, free from any fiber and particle. The prepared formulations show no grittiness. Viscosity of formulations are in the range of 4.702-5.829 [Table 2]. The prepared formulations show that good extrudability. The spreadability studies showed that all preparations have better formulations have better spreadability when compared to marketed formulations and in the range of 8.982-9.983 [Table 2]. During stability studies F2 formulation produces good results during 3 months [Table 3].

Anti Microbial Study

The Anti-microbial efficacy of the formulated herbal face wash gel was tested on *Staphylococcus aureus*, *S. epidermidis* and *Propionibacterium acnes* by Dip well technique and turbidimetric method. The results of dip well method showed that the face wash gel prepared from ethanolic and aqueous extracts of combined plant materials had greater activity than the activity produced by commercially available Clindamycin gel [Figure 1]. The face wash gel prepared with honey showed better activity than

the formulation prepared without honey. The anti microbial efficiency of the prepared fruit face wash gel evaluated by turbidimetric method infer that the gel could effectively inhibit the growth of the organisms [Table 4]. The graph shows that the prepared fruit face wash gel stood competitive to the standard gel [Figure 2]. The results of the anti microbial test comparing the preparation and standard [Table 5].

Grape natural product is accounted for to contain vitigenin and vitiferin which has antibacterial action against different gram positive and gram negative life forms. Cucumber organic product likewise contain different antibacterial standards like flavonoids and polyphenols and furthermore it is demonstrated that cucumber concentrate can make the skin delicate and graceful. Orange concentrate is added because of its skin lighting up and skin greasing up properties. The outcomes from plunge well strategy showed that the face wash gel ready from ethanol and fluid concentrates of the joined plant materials have more prominent action than the action of the financially accessible natural product face wash gel. The better action of the pre-arranged definition might be because of the joined action of these phytoconstituents. The plan ready with honey showed best antimicrobial movement than definition without honey. The better outcome might be because of the presence of citrus extract in orange concentrate. Citrus extract is accounted for to have expected impact on microscopic organisms. In the current setting the natural products under study are wealthy in these changed mixtures

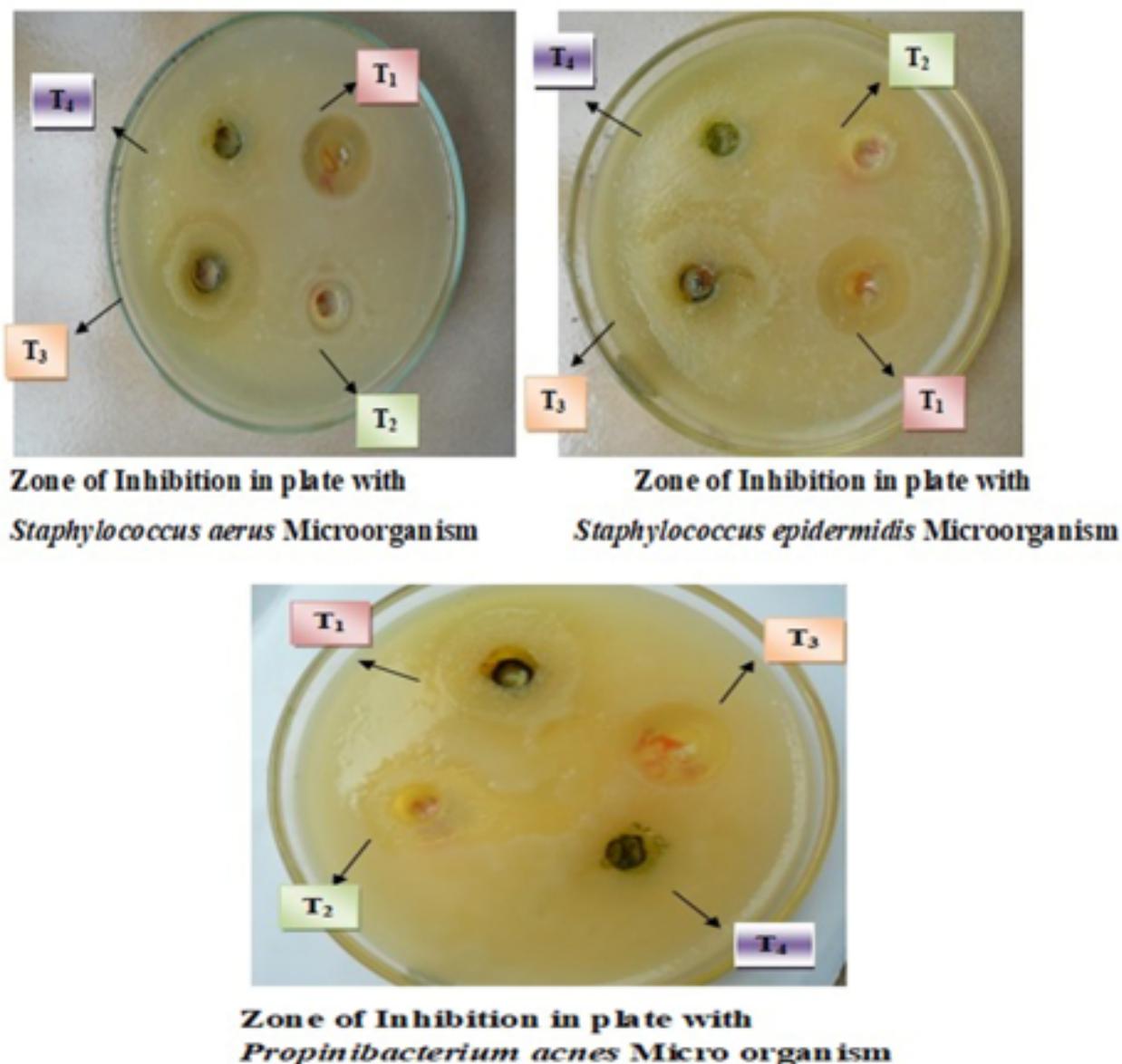


Figure 1: Zone of Inhibition in Plate with Micro Organism

Table 4: Table showing zone of inhibition

S. No	Micro organisms	Zone of inhibition in Cm				
		T1	T2	T3	T4	T5
1.	S.A (<i>Staphylococcus Aerus</i>)	1	0.6	0.6	0.5	0.7
2.	S.E (<i>Staphylococcus Epidermidis</i>)	0.8	0.5	0.4	0.5	0.8
3.	P.A (<i>Propinibacterium Acnes</i>)	0.9	0.4	0.8	0.6	0.9

Table 5: Table Showing Absorbance of Microbial Activity

S. No	Sample	Absorbance (A)			Mean Absorbance ($\Sigma A/3$)
		Reading 1	Reading 2	Reading 3	
1	Control	1.246	1.249	1.238	1.2442
2	Prepared fruit face wash gel	0.165	0.161	0.152	0.156
3	Standard	0.147	0.145	0.140	0.1402

and henceforth are more successful against skin microbes.

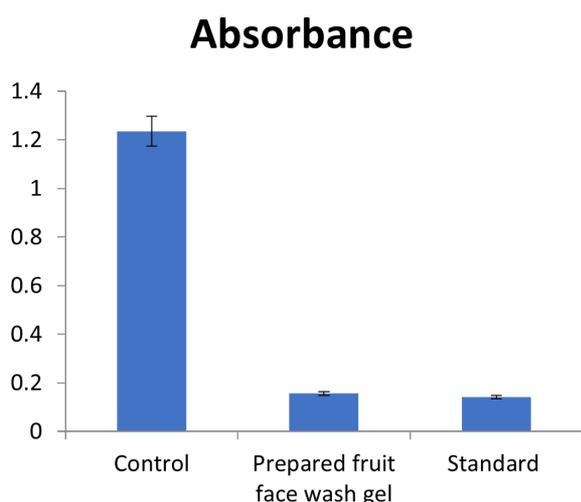


Figure 2: Graph Showing Absorbance of Microbial Activity

CONCLUSION

The outcomes recommend that the constituents of the different concentrates of *Vitis vinifera* (Grapes), *Cucumis sativus* (Cucumber), *Citrus sinensis* (Orange) and *Apis mellifera* (Honey) present in the pre-arranged organic product face wash gel are fit for giving prevalent hindrance than the industrially accessible Clindamycin gel against the skin microorganisms. This may be judicious reason for utilization of natural products in readiness of face wash gel. The natural product face wash gel arranged was checked for its adequacy utilizing plunge well strategy and turbidimetric technique. The outcomes obviously demonstrated that the organic product face wash gel in this manner arranged is more powerful than the monetarily accessible face washes. Hence, these mixtures can be separated and consolidated in bases to get ready prevalent enemy of microbial natural product face

wash gel with less or no secondary effects. Henceforth another way can be found to return anti-toxin safe of pathogenic organic entity and give protected and solid living through skin break out free face all however the evacuation isn't 100 percent yet a significant number can be decreased.

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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] Gil Yosipovitch, Mark Tang, Aerlyn G Dawn, Mark Chen, Chee Leok Goh, Yiung Huak, and Lim Fong Seng. Study of psychological stress, sebum production and acne vulgaris in adolescents. *Acta Dermato-Venereologica*, 87(2):135-139, 2007.
- [2] R Harisaranraj, S Saravana Babu, and K Suresh. Antimicrobial Properties of Selected Indian Medicinal Plants Against Acne-Inducing Bacteria. *Ethnobotanical Leaflets*, 14:84-94, 2010.
- [3] Gowda Bhaskar, Shariff Arshia, and S R B Priyadarshini. Formulation and evaluation of topical polyherbal antiacne gels containing *Garcinia mangostana* and *Aloe vera*. *Pharmacognosy magazine*, 5(19):93-99, 2009.
- [4] Sunsnda Mondal. Evaluation of the anti microbial efficacy and safety of pure hands herbal

- hand sanitizer in hand hygiene and on inanimate objects. *The Antiseptic*, 10(2):55-57, 2004.
- [5] A G Ghebretinsae, M Thulin, and J C Barber. Relationships of cucumbers and melons unraveled: molecular phylogenetics of Cucumis and related genera (Benincaseae, Cucurbitaceae). *American Journal of Botany*, 94(7):1256-1266, 2007.
- [6] D Kumar, S Kumar, and J Singh. Free Radical Scavenging and Analgesic Activities of Cucumis sativus L. Fruit Extract. *Journal of Young Pharma*, 2(4):365-368, 2010.
- [7] N K Nema, N Maity, and B Sarkar. Cucumis sativus fruit-potential antioxidant, anti-hyaluronidase, and anti-elastase agent. *Architecture of Dermatology Research*, 303(4):247-252, 2011.
- [8] J L Rios. Effects of triterpenes on the immune system. *Journal of Ethnopharmacology*, 128(1):1-14, 2010.
- [9] J Tang, X Meng, and H Liu. Antimicrobial activity of sphingolipids isolated from the stems of cucumber Cucumis sativus L.). *Molecules*, 15(12):9288-9297, 2010.
- [10] E Cho, J M Seddon, B Rosner, W C Willett, and S E Hankinson. Prospective study of intake of fruits, vegetables, vitamins, and carotenoids and risk of age-related maculopathy. *Architecture of Ophthalmology*, 122(6):883-892, 2004.
- [11] E M Galati, M T Monforte, and S Kirjavainen. Biological effects of hesperidin, a citrus flavonoid: antiinflammatory and analgesic activity. *Farmaco*, 40(11):709-712, 1994.
- [12] S Guarnieri, P Riso, and M Porrini. Orange juice vs vitamin C: effect on hydrogen peroxide-induced DNA damage in mononuclear blood cells. *British Journal of Nutrition*, 97(4):639-643, 2007.
- [13] E M Kurowska and J A Manthey. Hypolipidemic effects and absorption of citrus polymethoxylated flavones in hamsters with diet-induced hypercholesterolemia. *Journal of Agriculture & Food Chemistry*, 52(10):2879-2886, 2004.
- [14] P Rapisarda, A Tomaino, Lo Cascio, and R. Antioxidant effectiveness as influenced by phenolic content of fresh orange juices. *Journal of Agriculture & Food Chemistry*, 47(11):4718-4723, 1999.
- [15] R R Stange, S L Midland, J W Eckert, and J J Sims. An antifungal compound produced by grapefruit and Valencia orange after wounding of the peel. *Journal of Natural Products*, 56(9):1627-1629, 1993.
- [16] J Dhanavade Maruti. Study Antimicrobial Activity of Honey (Apis mellifera). *British Journal of Pharmacology and Toxicology*, 2(3):119-122, 2011.

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