



Formulation And Evaluation Of Botanical Extract Based Facewash For The Treatment Of Acne

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Abstract: Acne vulgaris is the most common chronic inflammation disorder that occur when oil cells blocked the hair follicles from ancient we believe that the herbal medicine are more safer and has low side effects as compare to synthetic medicine herbal therapeutic industry is the oldest cure method of disease and also seen in Vedas. The present work deals with the development and evaluation of the herbal Anti-acne face wash containing aqueous extract of tulsi leaves, nutmeg and extract of beet root. Although various topical herbal formulations for acne are available in the market, we propose to make pure herbal formulations without using any synthetic ingredient. The plants have been reported in literature having good anti-microbial, anti-oxidant, anti-inflammatory activity. Various formulations were evaluated for various parameters like colour, appearance, consistency, pH and spreadability Optimized batch of formulation was compared with the marketed preparation. Amongst all the formulation studies batch was found optimum for all the parameter. It was very good attempt to establish the herbal anti acne face wash containing aqueous extract of Tulsi leaves, nutmeg fruit and beet root. It more acceptable to believe that natural remedies are safer with synthetic subjects than with fewer side effects. The global market demand is increasing due to the fusion of herbs. Current work Herbal anti-acne is the development and evaluation of face wash containing leaf extract of Tulsi. The plants have been reported in the literature with microorganisms, anti-oxidants and anti-inflammatory activity. The study concludes that the combination of these botanical extracts offers a promising natural alternative for the treatment of acne

Index Terms - Acne vulgaris, Botanical extract Tulsi, Gum Tragacanth, Antibacterial, Natural Cosmetic

INTRODUCTION

Acne vulgaris, or acne, is a skin condition that affects many people and influences almost every individual. It generally impacts individuals in their adolescence and young grown-ups and is stimulated by male chemicals brought about by the adrenal glands of both genders. It is, for the most part, observed on the face, chest, and back. Symptoms include pain, pustules (pimples), papules, tenderness, erythema, and loss of function.

Acne influenced around 650 million individuals worldwide in 2023 and was appraised as the eighth-most regular sickness universally. Nationalities with hazier skin are more inclined to postprovocative hyperpigmentation, and it is more extreme in those with a positive family ancestry. Scars are known to lessen with age and time, yet this is very dubious. Acne accounted for 5.3 percent of all skin diagnoses in a recent survey and is well-known as the second most common of all skin conditions. During puberty, it is more common in boys than girls; however, it is more prevalent in ladies than men during adulthood. Acne prevalence is related to diet, weight, hereditary commitment, hormonal changes, and feelings of anxiety



Fig.1. Tulsi



Fig.2. Beet Root



Fig.3. Nutmeg



Fig.4. Gum Tragacanth



Fig.5. Lemon

Medicinal plants have the advantages of patient tolerance and wide acceptability. For example Tulsi, Honey, Lemon, Gum Tragacanth, Beet Root, Nutmeg, antimicrobial, anti-inflammatory, and antioxidant activities that significantly treat skin infections. They are additionally known to have nutrients and minerals to improve the general strength of the skin. Acne accounted for 5.3% of all skin diagnoses reported, and acne vulgaris was the second most common by gender.

This formulation combines the therapeutic properties of Tulsi (*Ocimum sanctum*), Gum Tragacanth (*Astragalus gummifer*), Lemon (*Citrus limon*), Nutmeg (*Myristica fragrans*), and Beetroot (*Beta vulgaris*) to create an effective botanical extract for acne treatment. Each ingredient has unique active compounds that may help reduce acne symptoms, such as antibacterial, anti-inflammatory, and skin-healing properties. The main objective of this present research work is to develop an effective herbal Anti-acne facewash containing *Ocimum tenuiflorum*, *Myristicic*, *Astragalus gummifer*, *Citrous Limon*, and Honey to evaluate the same by preliminary methods.

MATERIAL AND METHODS

List of Apparatus:

Sr. No	Apparatus	Manufacture
1	Beaker	Siemes
2	Stirrer	Sungrow enterprises
3	Busen burner	Diksha analytical
4	Tripod stand	Zoom scientific world
5	Measuring cylinder	Labsow india
6	Water bath	D.P Lab instrument
7	Funnel	Gaurav trading co.

Table No.1

List of Chemicals:

Sr. No.	Chemicals	Supplier
1	Gum tragacanth	Vishal techno agency
2	Sodium lauryl sulphate	Anant pharmaceutical pvt.
3	Propyl paraben	Matangi industries
4	Rose water	Zoic pharmaceuticals

Table No.2

METHODOLOGY**Collection-**

Tulsi leaves, Beet root, Turmeric, Orange peel, lemon juice are collected from the local market area. honey, rose water, Gum Tragacanth, sodium lauryl sulphate, methyl paraben are purchased from the local market. [2]

Preparation Of Herbal Extract -

Herbal extracts can be prepared by the maceration method by using rose water used as a solvent. Tulsi leaves, Turmeric Powder, orange peel, beet root were kept in a hot air oven for drying purposes at 45°C and ground into small pieces by using a grinder. Desired quantities of the herbal drug were weighed and each herb macerated with rose water in a conical flask. Dried herbs were allowed to mix with rose water by moderate shaking of the conical flask for 3 days separately. After 3 days, contents were filtered out by using a simple filtration method, and filtrates were collected in vessels separately. [3]



Fig.6. Herbal Extract

Filtration-

Extracts were filtered using simple filter paper and funnel for two times.

Development Of Formulation-

1) Various batches of formulations were prepared according to the table. The desired quantity of gelling agent i.e., Gum Tragacanth was weighed accurately and dispersed in hot rose water (not more than 60 degrees:50% weight of the batch size) with moderate stirring in order to avoid air entrapment and allowed to soak overnight. [3]



Fig.7. Gum Tragacanth

2) Desired quantity of lemon juice and honey mixture by gentle stirring together with the desired quantity of concentrated herbal extracts were added to the above-prepared gum Tragacanth mixed with sodium lauryl

sulphate and propyl paraben. To this add a sufficient quantity of rose water. Then the Prepared formulations were filled in a suitable container and labeled accordingly.



Fig.8. Formulation Of Herbal Antiacne Facewash

Formulation Table:

Sr. No.	Ingredients	F 1	F 2	F3	USES
1	Tulsi extract	3ml	4 ml	5 ml	Antibacterial
2	Nutmeg extract	0.50ml	0.50ml	0.50ml	Anti-inflammatory
3	Beet root powder	2gm	3gm	2gm	Colouring agent, Anti-wrinkle.
4	Honey	1ml	1ml	1ml	Antioxidant humactant
5	Gum Tragacanth	5 gm	5gm	5gm	Emulsifier, stabilizer,
6	Propyl paraben	0.05gm	0.05gm	0.05gm	Preservative
7	Lemone juice	0.50ml	0.50ml	0.50ml	Natural cleanser, pH adjuster
8	Sodium laryl sulphate	2gm	2gm	2gm	Surfactant Foaming Agent
9	Perfume	0.01ml	0.02 ml	0.01ml	Fragrance
10	Rose water	q.s	q.s	q.s	Solvent.

EVALUTION PARAMETER:**1) Physical Appearance:**

Visual checked the physical appearance of the formulation.

Colour: the colour of the formulation was checked out against a white background.

Odour: the odour of the facewash was checked manually.

2) Consistency:

The consistency was evaluated by applied on the skin.

3) Determination pH:

1) Traditional firstly using a litmus paper and Deep into a Face wash and show a pH show that is 5.6

2) By using pH meter:- firstly using a metre scale callibrating a metre and thancheak out the pH of face wash

4) Spreadability:

Spreadability denotes the extent of the area to which the formulation readily spreads on the application to the skin. The bioavailability efficiency of the formulation depends on the spreadability value. Spreadability is defined in terms of time in seconds required taken by the upper slide to slip off the product place between the two slides under a certain load. The lesser time is taken for the of two slides; the better the spreadability. A few ml of formulation sandwiched between the two slides. A weight of 1 g was placed upon the upper slides so that formulation between the two slides gets presereduniformaly to form a thin layer then the weight was removed and excess of the formulation adhering to the slides was scrapped.

calculation: Spreadability was calculated by using the following formula.

$$S = M \times L / T$$

Where,

S- Spreadability

M- Weight tied to the upper slide (1gm)

L- Length of the glass (7.5Cm)

T- Time in seconds. (22)

$$S = 1 \times 7.5 / 22 = 0.34 \text{ gm.cm/sec}$$

5) Washability:

Prepared formulations were easily washed with water.

6) Homogeneity-

Under visual inspection of the prepared formulation indicates no lumps or aggregate presence. And the formulation is found to have uniform colour dispersion, free from any particles.

7) Skin Irritability Test:

Small amount of the formulation was applied on the skin and kept for few minutes and found to show no redness, oedema, inflammation and irritation during the studies. This formulation is safe to use for skin.

8) Zone inhibition:

In this anti-microbial activity, formulation where checked against the inflammation that is propionibacterium acnes. The modified agar well diffusion method determine the formulation antibacterial activity. The antimicrobial activity was evaluated by measuring the diameter of zones of inhibition (in mm) 20. The experiment repeated two times.

RESULT OF DISCUSSION: -**1) Physical appearance:**

Visual checked the physical appearance of the formulation.

Sr.no	Physical appearance	F1	F2	F3
1)	Colour	Reddish-pink	Reddish-pink	Reddish-pink
2)	Odour	Pleasant	Pleasant	Pleasant

Table no.3

2) Consistency:

The consistency was evaluated by applied on the skin.

Sr.no	Formulation	Result
1)	F3	Semi-solid
2)	F2	Semi-solid
3)	F1	Semi-solid

Table No.4

3)pH:

Firstly, using a metre scale calibrating a metre and then check out the pH Of facewash.

Sr.no	Formulation	pH
1)	F1	5.6
2)	F2	5.8
3)	F3	5.6

Table No.5



Fig:14 pH Meter

4) Spreadability:

Prepared formulation were easily spread.

Sr.no	Formulation	Spreadability
1)	F1	0.34
2)	F2	0.68
3)	F3	0.68

Table No.6



Fig..9. Spreadability

5) Washability

Prepared formulations were easily washed with water.

Sr.no	Formulation	Washability
1)	F1	Good
2)	F2	Good
3)	F3	Good

Table No.7



Fig.10.Washability

6) Homogeneity

Under visual inspection of the prepared formulation indicates no lumps or aggregate presence.

Sr.no	Formulation	Homogeneity
1)	F1	Homogeneous
2)	F2	Homogeneous
3)	F3	Homogeneous

Table No.8

7)Skin irritability

Small amount of the formulation was applied on the skin and kept for few minutes and found to show no redness, oedema, inflammation and irritation during the studies. This formulation is safe to use for skin.

Formulation	Irritability test		
	1hour	2hour	3hour
F1	No Irritant	No Irritant	No Irritant
F2	No Irritant	No Irritant	No Irritant
F3	No Irritant	No Irritant	No Irritant

Table No.9

8)Zone inhibition

In this anti-microbial activity, formulation was checked against the inflammation that is propionobacterium acnes. The modified agar well diffusion method determine the formulation antibacterial activity. The anti-microbial activity was evaluated by measuring the diameter of zones of inhibition (in mm) 20. The experiment repeated two times.

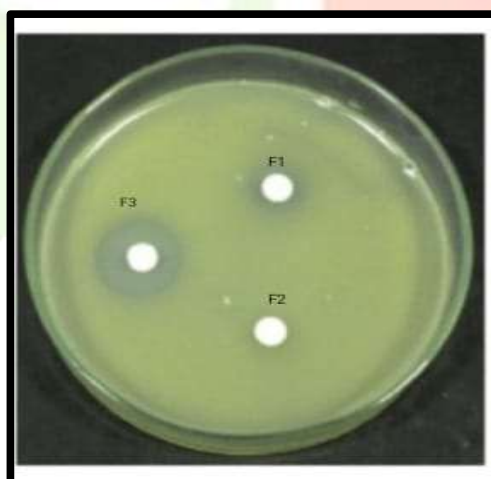


Fig.11. Zone inhibition

CONCLUSION

It is more acceptable to believe that natural remedies are safer with synthetic subjects than with fewer side effects. The global market demand is increasing due to the fusion of herbs. It is a very good effort to establish an herbal facial wash, which includes Tulsi leaves, turmeric rhizomes, rooted roots and aqueous extracts of Orange peel. In this study, it was found that the herbal fixation developed from Batch F1 should be relatively better than other formulations. This present article comes to conclusion that, people need perfect skin care treatment or remedy but without causing any kind of toxic effect to the beautiful face. Natural remedies are more suitable in the assurance that they are safer without side effects than the synthetically ones. Now a days herbal formulations are in trending and demand, so our purpose is to develop multiherbal face wash formulation for acne. The formulation contains the antibacterial, anti-acne, anti-aging, antioxidant, and anti-inflammatory property that is used to glow of skin and promote beauty except treat skin disorder. This review formulation

study, this article conclude that our face wash give beneficial effect to the skin.preparedmultiherbal formulation is more efficacious, stable and patent as compare to synthetic formulation in the treatment of skin.

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