

**DEVELOPMENT AND EVALUATION OF A POLYHERBAL FACE
WASH GEL****Seema Y. Mendhekar* and Pooja V. Badhe,**

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ABSTRACT

Herbal formulations have growing demand in world market. Face wash prepared by herbal ingredient are better than synthetic ingredient to avoid side effect. The present work deals with the development and evaluation of polyherbal face gel containing five extract of Neem leaves, Tomato, Kiwi, Chickoo, green tea and three oils Peppermint, cinnamon oil, lemon oil and camphor. The plant have been reported for having good antiallergic, antidermatic, antioxidant, anti-inflammatory, antifungal activity. It also provide possible benefits include skin protection, cancer prevention, cardiovascular health and antioxidant activity. Antioxidant are the compounds capable of inhibiting free radical reactions. Acne is common disorder caused by oil glands. Face and neck areas are more to acne. The above properties of plants helps to keep skin smooth, attractive and also provide protection to the skin.

Various formulation of batches were prepares from F1 to F2 by using various gelling agent like carbapol 940 in varied concentration. Gel was prepared and evaluated for its spreadability, consistency, pH and the result were found to be satisfactory.

KEYWORDS: Polyherbal Face Gel, Anti-bacterial, antiallergic, antidermatic, antioxidant, antifungal activity.

INTRODUCTION

Acne vulgarise is an extremely common disorder of skin (pilocebaseous unit) that affects. Virtually all individuals atleast once during life. The incidence of acne peaks at teenage, but substancial numbers of men and women between 20-30 years of age are also affected by the disorder. Acne may be classified as comedonal, popular, pustular, cystic and nodular and

comedonal acne is non-inflammatory and divided into two types; white heads and black heads present as an open pores containing dark coloured skin roughage consisting of melanin, sebum and follicular cell. Papules appear as red, solid, elevated lesions often less than 5mm in diameter. Plenty of herbal as well as synthetic ingredients re reported to have remarkable beneficial effect on acne vulgaris. They may have different actions like antibiotics which inhibits propionibacterium acne and staphylococcus epidermidis, the min causative organism of acne. Anti-inflammatory which prevents the worsening of condition due to inflammation or redness etc. Numbers of formations are available in the market with variety of active pharmaceutical ingredient for the treatment of acne. Topical formulations available in market are as follows: gel cren, lotion, face wash or cleanser, Face pack or mask.

MATERIAL AND METHOD

Plant Material

Neem leaves, Tomato, Kiwi, Chickoo, green tea and three oils Peppermint, cinnamon oil, lemon oil and camphor were collected from local market of Pune. Chemical were collected from store room of college. (Table No. 1).

Plant Extract: All extract prepared by soxhlet extraction method.

Preparation of Gel

1gm of carbapol 940 was dispersed in 50ml of distill water with continuous stirring. 5ml of distill water was taken and required quantity of Methyl paraben and propyl paraben were dissolved by heating on water bath. Cool the solution, then to that added 4.5ml of propylene glycol 400 and volume made up to 75ml by distilled water.

In this solution add Neem leaves extract, Tomato, Kiwi, Chickoo, green tea and three oils Peppermint, cinnamon oil, lemon oil and camphor. Mixed it properly and this solution mixed with Carbapol 400 gel with continuous stirring and triethanolamine was added drop wise to the formulation for adjustment of required skin PH (6.8-7) and to obtain the gel at required consistency. The same method was followed for preparation of control sample without adding any leaves extract.

The above procedure is same for F1 and F2 formulation batch and control formulation. The formulation batch F1 and F2 were prepared according to Table No. 2 only the quantity of ingredient is different for F1 and F2.^[1]

Table 1: Herbal extract of polyherbal face wash gel.

Sr. No.	Herbal extract	Medicinal importance	Pictures
1	Green tea leaves (<i>Camellia sinensis</i> family- Theaceae)	Stop Alzheimer's and Parkinson's diseases. Treatment and prevention of cancer, polyphenols present in green tea helps in anti ageing. Makes your skin looks younger and better.	
2	Tomato (<i>Lycopersicon esculatum</i> family - Solanaceae)	Antioxidant major source of lycopene. Antioxidant are compound capable of inhibiting free radical reactions.	
3	Neem leaves (<i>Azadirachta indica</i> family – Meliaceae)	Its having many medicinal uses such as anti-allergenic, anti-dermatitic, anti-fungal, anti-inflammatory, anti-feedant.	
4	Chickoo (<i>Manilkara zapota</i> family- Sapotaceae)	It provides vit. A and vit. C, and also acts as energy provider, anti-inflammatory, antioxidant.	
5	Kiwi (<i>Actinidia deliciosa</i> family- Actinidiaceae)	Higher source of vitamin C, sleep inducer, provide beautiful skin, antioxidant, also provide vitamins and minerals.	

Table 2: Formulation of polyherbal face wash gel.

Sr. No.	Ingredients	Parts used	Property	Quantity		
				F1	F2	Control
1	Ethanollic extract of Neem	leaves	Kill acne causing bacteria	0.2gm	1gm	Nil
2	Tomato extract	fruit	Antioxidant	0.2gm	0.3gm	Nil
3	Green tea extract	leaves	Ant ageing	0.2gm	0.1gm	Nil
4	Chickoo extract	fruit	anti-inflammatory	0.2gm	0.3gm	Nil
5	Kiwi extract	fruit	Antioxidant	0.2gm	0.4gm	Nil
6	Peppermint oil	oil	Cooling sensation, antimicrobial	0.1ml	0.3ml	Nil
7	Cinnamon oil	oil	Improve skin tone	0.1ml	0.2ml	Nil
8	Carbapol 940	-	Gelling agent	1gm	1gm	1gm
9	Methyl praben	-	Preservative	0.2gm	0.2gm	0.2gm
10	Propyl paraben	-	Preservative	0.2gm	0.2gm	0.2gm
11	Distilled water	-	Vehicle	Q.S.	Q.S.	Q.S.
12	camphor	Pallet	Cooling sensation	0.5gm	0.5gm	Nil
13	Rose oil	oil	Antispasmodic	Q.S.	Q.S.	Q.S.

Evaluation

Marketed Formulation: Patanjali neem lemon aloe era face wash.

Evaluation Parameters

A. Physical Evaluation

Physical parameters such as colour, consistency were checked manually.

B. Washability

The product was applied on hand was observed under running water.

C. pH

pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant temperature.^[2]

D. Spreadability

500mg of the cream was sandwiched between 2 slides. A weight of 100gm was placed on upper slide. The weight was removed and extra formulation was scrapped off. The lower slide was fixed on board of apparatus and upper slide was fixed with non flexible string on which 20g load was applied. Time taken by upper slide to slip off was noted down.^[3]

E. Extrudability

The gel formulation were filled in standard capped collapsible aluminium tubes and sealed by crimping to the end. The weight of tubes were recorded and the tubes were placed between two glass slides and were clamped. 500gm was placed over the slides and then the cap was removed. The amount of extruded gel was collected and weighed. The percent of extruded gel calculated as

1. When it is greater than 90% then extrudability is excellent.
2. When it is greater than 80% then extrudability is good.
3. When it is 70% then extrudability is fair.^[4]

F. Irritancy Test

The cream was applied on left hand dorsal side surface of 1sq.cm and observed in equal intervals upto 24hrs for irritancy, redness and edema.^[5-6]

RESULT AND DISCUSSION

The result of evaluation are displayed in table no. 3. Formulation was reddish brown in colour where as marketed formulation was black in colour formulation F1, F2 was found to have semisolid consistency. All formulations were found homogenous easily washable. All the formulation has slightly alkaline pH which was compatible with skin physiology (i.e. skin pH 6.8-7).

Table 3: Evaluation parameter.

Formulation batch	Colour	Consistency	Washability	Ph	Extrudability	Spreadability	Skin irritation
Marketed	Black	Semisolid	Easily Washable	6.15	Good	Good	No sign
F1	Reddish brown	Semisolid	Easily Washable	6.2	Good	Good	No sign
F2	Reddish brown	Semisolid	Easily Washable	6.4	Good	Good	No sign

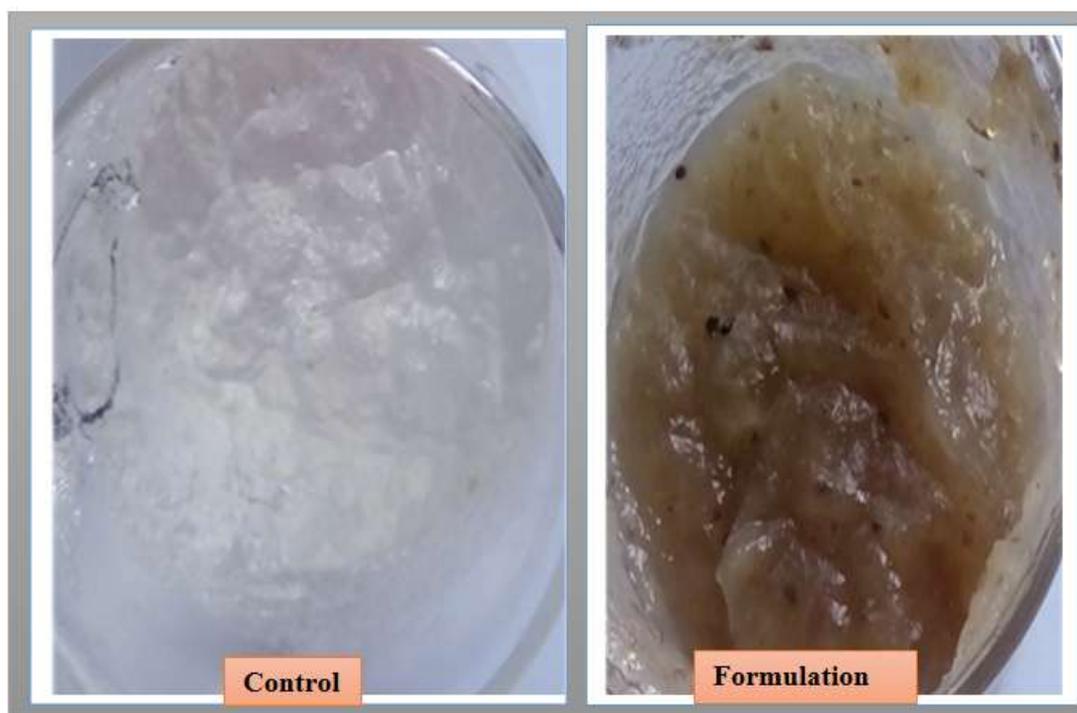


Fig. 1: Polyherbal face gel.

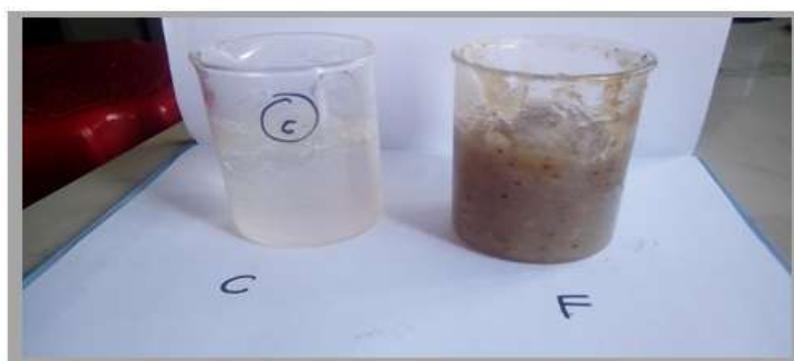


Fig. 2: Formulation.

CONCLUSION

Herbal formulations are safe with fewer side effects than synthetic ones. It is a very good attempt to establish the herbal face gel containing aqueous extracts of five extracts of Neem leaves, Tomato, Kiwi, Chickoo, green tea and three oils: Peppermint, cinnamon oil, lemon oil, and camphor. The plants have been reported in literature to have good anti-allergic, anti-dermatitic, antioxidant, anti-inflammatory, and antifungal activity. Possible benefits include skin protection, cancer prevention, cardiovascular health, and antioxidant activity. Antioxidants are compounds capable of inhibiting free radical reactions. Acne is a common disorder caused by oil glands. F1 and F2 formulations were prepared by using varied concentrations of extract. Prepared formulations (F1 and F2) were evaluated for various

parameters like colour, appearance, consistency, wash ability, pH and Spreadability, Extrudability, skin irritation and compared with marketed formulation. After evaluation study show that both formulation gives good affect as marketed formulation and neither show any side effect or skin irritation. During performing evaluation parameter is found that it show most stable effect on skin and we use easily daily in our life as cleansing, to prevent any skin infection and also give nourishing to skin and maintain moisture.

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