

# DEVELOPMENT AND EVALUATION OF HYDRATING FACE WASH WITH DRAGON FRUIT.

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## Abstract

**Majority of cosmetic product are applied over skin for different purposes like beautification, protection etc. skin preparation are not new; it is the age of necessity of mankind. Therefore structure and function of skin is important consideration of cosmetics. Skin has been described as a mirror of the body. It reflects the physical, mental and psychological state of the individual. Skin is also barrier between the body's internal and external environment. It protect the body from physical trauma such as light (UV rays), heat and cold and microbial injuries. Skin also performs the function of immunological mechanism. Skin is not simply a protective wrap for the body but it is busy frontier which mediates between the organism and environment. The human skin is the outer covering of the body. In humans, it is the largest ectoderm tissue and guards the underlying muscles, bones, ligaments and internal organs.**

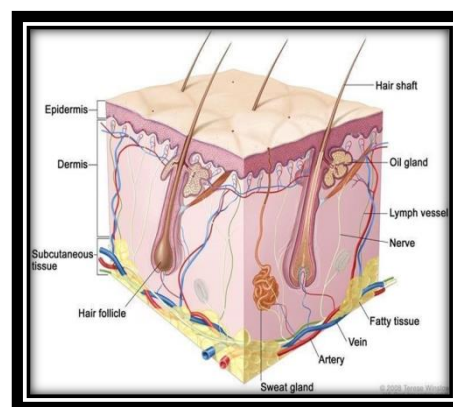
**Keyword: Rosehipextracts, Hylocereusundatus, Anti-Oxidant.**

## 1.INTRODUCTION

Skin is that the outermost and one in every of the biggest and most complex organs of the frame. The skin doesn't just keep our insides in and therefore the outside out. it's the primary line of the body's immune defense against infectious organisms. It helps keep our body from dehydrating, helps keep us at the correct temperature, is an organ of sensation (touch), protects us from actinic radiation, and synthesizes fat-soluble vitamin from sunlight.

1.1 Structure of Skin:

The skin covers the outer surface of the body. it's the most important organ of the body in both expanse and weight .In adult, the skin covers a part of about 2 square meters, (22 square feet) and weigh 4.5-5 kg (0-11 lb), about 16% of total weight. It range in thickness from 0.5 mm (0.02 in) on the eyelids to 4.0mm (0.16 in.) on the heels. However, over most of the body it's 1-2 mm (0.04-0.08 in.) thick.

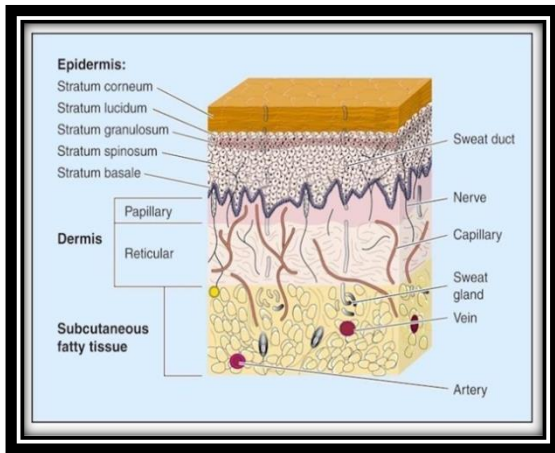


**Fig.1 Structure of skin**

## 1.2 The layers of skin:

Skin is mainly divided into three layers-

- Epidermis
- Dermis
- Hypodermis (Subcutaneous layer)



**Fig.2 Layers of skin**

### **1.3 introduction of dry skin:**

Dry skin dermatitis or eczema, causes very dry skin on the face and other parts of the body, it's thought to be inherited. Seborrhea dermatitis affects areas with oil glands like the eyebrows and nose .psoriasis is chronic skin condition that features scaling of the skin, dry skin patches and other symptoms.

Many skin conditions that are common can cause itchy skin. Eczema: a chronic skin disorder that features itchy, scaly rashes. Psoriasis: an disease that causes skin redness and irritation, usually within the kind of plaques. Dermatographis a raised, red, itchy rash caused by pressure on the skin.

What can dry skin be a sign of?

What can dry skin be an indication of? These factors include hot or weather, low humidity, and soaking in predicament. you'll be able to do plenty on your own to boost your skin, including using moisturizers and avoiding harsh, drying soaps. Chronic or severe dry skin problems may require evaluation by a doctor who focuses on skin (dermatologist).

### **1.4. Symptoms**

Dry skin is commonly temporary — you catch on only in winter, as an example — but it should be a lifelong condition. Signs and symptoms of dry skin depend upon your age, your health, where you reside, time spent outdoors and therefore the reason behind the matter. Dry skin is probably going to cause one or more of the

followingA feeling of skin tightness, especially after showering, bathing or swimming

- Skin that feels and looks rough
- Itching (pruritus)
- Slight to severe flaking, scaling or peeling
- Fine lines or cracks
- Gray, ashy skin
- Redness
- Deep cracks that may bleed
- Your skin doesn't improve in spite of your best efforts
- Dry skin is accompanied by redness

### **1.5. Causes**

Dry skin (xerosis) often has an environmental cause. Certain diseases can also significantly affect your skin.

Potential causes of dry skin include

- **Weather.** Skin tends to be driest in winter, when temperatures and humidity levels plummet. But the season might not matter the utmost amount if you reside in desert regions
- **Heat.** heating, wood-burning stoves, space heaters and fireplaces all reduce humidity and dry your skin.
- **Hot baths and showers.** Taking long, hot showers or baths can dry your skin. So can frequent swimming, particularly in heavily chlorinated pools..
- **Harsh soaps and detergents.** Many popular soaps, detergents and shampoos strip moisture from your skin as they're formulated to induce obviate oil
- **Other skin conditions.** People with skin conditions like dermatitis (eczema) or psoriasis are vulnerable to dry skin.

### **1.6. Complications**

Dry skin is typically harmless. But when it isn't cared for, dry skin may lead to:

- **Atopic dermatitis (eczema).** If you're liable to develop this condition, excessive dryness may find yourself in activation of the disease, causing redness, cracking and inflammation.

### 1.7. Prevention

Try these tips to keep skin from getting excessively dry:

- **Moisturize.** Moisturizer seals skin to stay water from escaping.
- **Limit water exposure.** Keep bath and shower time to 10 minutes or less. Turn the dial to warm, not hot. try and bathe no over once daily.
- **cover as much skin as possible in cold weather.** Winter are visiting be especially drying to skin, so illustrate to wear a shawl, hat and gloves once you venture out.
- **Wear rubber gloves.** If you've must be compelled to immerse your hands in water or are using harsh cleansers.

## 2. DEVELOPMENT AND FORMATION OF DRY SKIN:

This article presents an evidence-supported scientific pathway for dry skin prevention and treatment. the event of the pathway involved the following: a literature review was conducted and demonstrated that literature on dry skin is scarce. To make amends for the gap within the available literature, a modified Delphi method was accustomed collect information on prevention and treatment practice through a panel, including 10 selected dermatologists who currently provide medical aid for dermatology patients in Ontario. An advisor experienced during this therapeutic area guided the method, including a central meeting. Panel members completed a questionnaire regarding their individual practice in caring for these patients and more responsible questions on assessment of dry skin etiology, frequency of skin care visits The result was presented as a clinical pathway. The panel concluded that our current awareness of dry skin and thus prevention and effective treatment is limited; that identifying dry skin and its clinical issues requires tools like clinical pathways, which can improve patient outcomes;

### 2.1. Moisturization:

- **Dry Skin:** Moisturization Dry S  
Dry skin is characterized by sensation of tightness with skin feeling rough and scaly and visible line developing. It is the dehydration of stratum Corneum and is a condition especially

seen among the elder people. As it worst it may look cracked.

- Causes Dry Skin:

Skin dehydration is generally causes by following factor:

- a) Friction, Weather, water, organic solvent, soap, surfactant.
- b) Disturbed skin functions like lack of protection from bacterial invasion.
- c) No protection against penetration of foreign substance.
- d) No maintenance of temperature.
- e) No regulation of the water content of the body Moisture in Stratum Corneum:
- f) The stratum corneum has flexibility and protective functions which are tightly linked with its moisture level depend basically on three factors.
- g) the speed at which the water within the dermis reaches the corneum. the speed at which water is eliminated by evaporation.
- h) The corneum ability to retain H<sub>2</sub>O. this can be tightly linked with the role if surface lipids film natural moisturizing factor and polar lipids and glycol lipids phospholipids, free organic compound which makes the well-known lamellae within the intracellular space.
- i) The functioning of skin and its mechanism are upset by changes within the environment and aging. There are 2 basic reasons for dry skin.
- j) First is because of prolonged exposure to low humidity and air movement which modifies the conventional hydration gradient of stratum.
- k) the type is thanks to physical and chemical changes within the skin thanks to process like aging. For the aim of moisturizing the stain oil the character humectants components exhibits complementary function within the respect continuous and prolonged immersion in soap for detergent solution may contribute to dryness of stratum.
- l) The etiology skin surface lipids the attractive layer the dissolution of the hygroscopic water soluble components within the Corneum.

### 2.2 Concept of Moisture Balance:

Organs, it is stated their ideas concerning the moisture balance and said the following. We have demonstrated that the horny layer NMF and lipid amount decrease skin ages resulting in reduction in this moisture retention capacity leading to hardening of the horny layer. But we can make up for reduction in moisture NMF and lipid darkening through again by supplying equivalent substance (water humectants and oil) in cosmetic.

### **2.3 Role of Moisturizer:**

Moisturizers are the material used for the prevention or relief of dryness as well for the protection of the skin. The approach to restoring water to dry skin has taken three different routes.

- Occlusion
- Humectancy
- Restoration

Deficient material which may be often combined. Occlusions consist in reducing the rate of transepidermal water loss through old or damaged skin or in protecting of a severely drying environment. It has been demonstrated that the occlusion of skin result in an immediate decrease in rate of water loss through epidermis. This has the desired effect of causing the stratum Corneum to become more hydrated making it softer and more supple. However

Eventual effect of the extra hydration is to increase the diffusion coefficient of H<sub>2</sub>O across the epidermis.

A second approach to the moisturizing problem is the use of humectants to attract water from atmosphere, so supplementing the skin water content.

The third and perhaps the most valuable approach to moisturizing of skin is to determine the precise mechanism or the material miniaturization process to access what has gone wrong with it. In the case of dry skin and to reduce any material in which such research has shown damaged skin to the deficient

### **2.4. Moisturizer helps to decrease appearance of skin wrinkling:**

What exactly does 'decreasing' the looks wrinkles mean from standpoint? It means moisturizing the skin. the best ways to enhance wrinkles are those of skin

dehydration. Moisturizer can smooth down desquamating coenocytes and fill within the gap between the remaining corneocytes to form the impression of tactile smoothness moisturizers can create an optimal environment for healing and minimizing the looks of lines of dehydration by decrease transepidermal water loss.

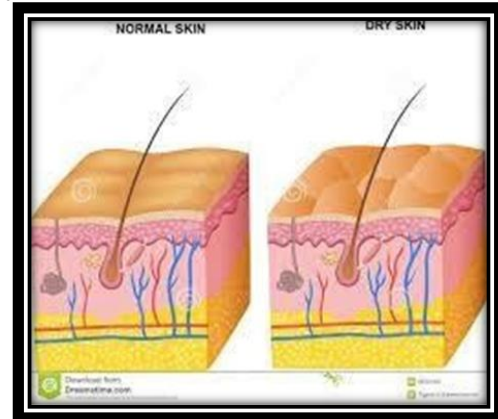


Fig.3 Normal and Dry Skin

### **3. INTRODUCTION OF FACE WASH:**

A cleanser could be a facial care product that's wont to remove conjure, dead skin, oil, dirt, and other t-types of pollutant from the skin of the face. These helps to unclog pores and stop the skin condition like acne. A cleanser may be used as part of skin care regimen along with tonner and moisturizer. Face wash is a vital a part of our lifestyle. it's a routine chore for all people to clean your face firstly within the morning. Face wash helps within the clearing away all the dust partials also as by the moisturizer within the face wash help to take care of the skin soft and supple. The soap has more chemical compared to the face wash. Face wash may be a a part of fast paced Consumer Good (FMCG). Face wash helps especially to scrub all the dust particles. The moisturizer present within the face wash helps to stay the skin soft, fresh and supple. Face wash helps to fighting the harshness provided by the sun and other pollutant which causes damage to the one's skin. In most cases, the skin getsroughened thanks to use of chemical based so called beauty soaps. The soaps may causes wrinkles too. There are many face washes which is herbal and would be very useful a safeguard you from many side effects. it's a crucial a part of facial care and one could see the benefit if you employ it regularly. Now

with increasing awareness there are many face washes which are get the market which might suit consistent with your skin type.

### **3.1 how to choose face wash for your skin type?**

Skin of each human is different from each other. The skin reacts differently with the given ingredients which are the rationale why a face wash wouldn't suit you but the opposite will. If you would like to settle on an honest face wash, then here is what you've have to be compelled to look for:

- **If you've got Dry Skin:**  
The skin is typically dry and feels tight and flaky if it over dries evens a small amount. The skin lacks moisture which is that the reason you ought to choose face wash based or oil-based face wash containing essential oils and moisturizing ingredients.
- **If you've got Oily Skin:**  
The skin is typically oily. The T-zones are oily because of active oil sebum or glands. They require a face wash which could control their oil glands which are the explanation why they must use oil- free or foam based or face wash based face wash for cleansing pores.
- **If you have got Combination Skin:**  
The skin could be a combination of oily T-zones and other places being dry. they ought to choose all skin types or natural-based ingredients which don't dry or make skin oily. they must help unclog the pores and don't damage the skin's lipid barrier.
- **If you have got Sensitive Skin:**  
Tender care is that the need of this skin. they ought to select soothing ingredients like Aloe vera or tea tree oil.
- **If you have got Normal Skin:**  
Go for all skin type.

### **3.2 tips to use face wash**

- These are some tips to recollect for better results.
- Wash your face twice in a very day, it's best to scrub within the morning and at nighttime time.
- Remove your makeup using makeup remover. If you're not comfortable with it then we will use purgative or Vaseline for this purpose.
- Do not go harsh within the process because the skin is gentle and cause wrinkles sooner.
- No harsh chemicals or ingredients.
- Low levels of AHAs and Neutralize pH balance is mandatory.
- Never scrub your face with a towel and even ingredients with exfoliates is bad for skin. Just avoid exfoliating daily.
- A soft washcloth could be a better alternative than a facial scrub.
- Avoid hot or cold water. Always select lukewarm water.

## **4. AIM AND OBJECTIVE OF WORK**

### **4.1. aim: -**

To develop and evaluate Hydrating face wash with dragon fruit.

### **4.2. objective of my work:**

- The basic objective of study is to prepare a face wash with incorporating some actives.
- It helps in treating with acne, reduces sebum secretion, scars, dark circles around eyes.
- Beside these it moisturizes the skin' glow the skin, gives soothing treatment, maintain elasticity of skin, revitalizing the skin.
- The main purpose is to prepare face wash with anti-ageing property, with sun protecting factor with excellent cleansing properties.
- The main objective is to prepare a non-sticky, non-greasy & non-oily preparation that leaves a soft & smooth layer with deeper penetration into the skin.

## 5. PLAN OF WORK:

The conventional way of experimentation was adopted the penetration of final product. Certain different parameters were checked in course of the time to reach the final conclusion. The actual experimentation includes following steps

1. Literature survey.
2. Selection of actives and excipients.
3. Formulation & development of the product-
  - Selection of bases.
  - Preparation of bases.
  - Consideration of various parameters for its efficiency.
  - Selection of desired concentration of actives.
  - Preparation of final formulation with actives.
  - Evaluation of Face Wash.

## 6. DRUG PROFILE:-

### 6.1. dragon fruit extract:-



**Synonym** – Pitaya, Moon lovers.

**Biological source** – It is obtained from the fresh fruit of plant known as *Hylocereus undatus* belonging to family Cactaceae.

**Geographical source** – it is cultivated in America, Asia, Mexico, north south.

**Chemical constituent** – its contain vita ,B1,B2,B3, calcium iron ,protein etc. vita c high water content antioxidant property and polyunsaturated fatty acids

carotene, protein phytonutrients ,combination of E and C vitamin

### Description –

- Color –brown to amber.
- Odor - characteristics
- Taste – sweet
- Solubility – soluble in water

Acid	Types of fatty acid	Percentage
Myristic acid	3 unsaturated	0.2%
Palmitic acid	Saturated	17.9 %
Stearic acid	Saturated	5.49%
Palmitolein acid	Saturated	0.91%
Oleic acid	9 unsaturated	21.6%
Linoleic acid	6 unsaturated	1.21%
Linolenic acid	6 unsaturated	49.6%

**Table No 1. chemical constituents.**

- **Uses**
- **Antioxidant activity:** Vitamin C is a powerful antioxidant with radical scavenging activity very useful in the treatment of pigmentation. Vitamin C can neutralize free radicals generated by UVB radiation Lutein and zenthin also enhances the antioxidant properties of dragon fruit
- **Softening and Transepidermal water loss regulatory activity:** Carbohydrates are active principles extensively used in cosmetics. Monosaccharides are hygroscopic, namely they absorb water thus contributing to keep a healthy moisture level in the horny layer.
- **Vitamins and mineral replenishing activity.**
- **Revitalizing and Stimulant activity.**
  1. Provides Essential Moisture to the dry skin.
  2. Fights signs of aging.
  3. Treat acne.
  4. Soothes sunburned skin.
  5. Promotes skin health.

6. Very high antioxidant content.
  7. High water content 90% providing hydration to the skin
- Benefits of dragon fruit extract:  
Exotic fruit could be a rich source of antioxidants which helps fight the free radicals and slows down. The aging process this makes your skin look younger and smoother use. and contours what you wish one half dragon fruit.

### **1) Provides Essential Moisture to Dry Skin**

Dragon fruit also has an incredibly high water content (a whopping 90%) which is crucial in providing hydration to your skin, especially once you have dry skin. So make it a degree to incorporate dragon fruit in your diet during winters to save lots of yourself from the perils of the season.

### **2) Fights Signs Of Aging**

Wrinkles, sagging skin, fine lines, dullness—all these signs appear when your skin starts aging. While this is often a natural action (you are absolute to get old in the future, fell as), its untimely attack is what makes us worry this much. Who would love to seem older than they really are absolutely no one? And this can be where natural ingredients like dragon fruit acquire play. This exotic fruit may be a rich source of antioxidants which helps fight the free radicals and slows down the aging process (1). This makes your skin look younger and smoother.

### **3) Treats Acne**

Acne another gift from oily skin that gets tagged along within the early years of puberty, sometimes not leaving you until you switch thirty. It's annoying really, but mourning over the unexpected pop-outs isn't any solution, neither goes after one market product to a different. The solution comes within the style of an exotic fruit which when applied topically can reduce acne. this can be thanks to the abundance of water-soluble vitamin in dragon fruit.

### **4) Soothes Sunburned Skin**

While basking within the warmth of the valuable sun may be a pleasant treat, its unprotected acquaintance can cause severe blisters. In such cases, a pack product of dragon fruit can help soothe the redness and inflammation. As mentioned earlier, dragon fruit is a wonderful source of ascorbic acid. a mixture of vitamins

E and C has been proven to safeguard your skin against UV rays and soothe sunburns

### **5) Promotes Skin Health**

Promotes Skin Health Attaining a healthy and glowing skin is not any longer a tricky task. Just keep a watch on what you eat and exercise more, and you'll witness a change for yourself. Adding dragon fruit to your diet can also do lots good to your skin. Drinking one glass of tangy dragon potable could be a great way to start out your mornings. it'll not only cause you to healthy but also will help release all the toxins from the body, abandoning a glowing skin. Additionally, dragon fruit is rich in ascorbic acid that helps brighten the skin.

#### **• Dragon Fruit for Skin:**

##### **1. Helps soothe sunburn skin**

The fruit is loaded with vitamin B3 that allows it to appease sunburnt skin and provide instant relief from the inflammation, redness and itchiness caused by the tough ultra-violet rays. Moreover, it keeps the skin from the unsafe sunrays.

##### **2. Helps reduce acne**

When applied topically, dragon fruit can help reduce acne; thanks to the presence of antioxidant content. This antioxidant inhibits your skin from breaking out and additional keeps it well and glowing

##### **3. Makes the skin glow**

Vitamin C in dragon fruit may help defend against dullness and leave your skin appearance fresh and rejuvenated.

##### **4. May prevent free radical damage**

Free radicals are said to wreck cells and cause oxidative stress, leaving your skin look dull and dehydrated all the time. Moreover, it can cause your skin to age early. Topical use of this fruit can stop free radicals to inhibit the skin from being dull.

##### **5. Helps fight premature ageing**

A poor lifestyle, lack of sleep, radical damage, poor diet, and sun damage can speed up the skin's ageing process and cause premature signs of ageing, which includes fine lines and wrinkles. Regular application of the fruit can inhibit free radicals from damaging the skin.

##### **6. Acts as a natural moisturizer**



Dragon fruit is truly a natural moisturizer because it contains about 80 percent of water and comes packed with skin-essential vitamins and antioxidants. One all told the foremost effective ways to use dragon fruit is to use it directly on the skin. Now, that you just simply know such amazing benefits of this exotic fruit, bring it your rescue.

### 6.2 extraction of dragon fruit:

- Preparation of extract:

The plant material (40gm) was extracted with 100ml of methanol using Maceration technique at room temperature with occasional shaking for 7 days. The extract was filtered through Whatmann filter paper and then extract store in air tight container.



Dig. 1 Preparation of extract

- Evaluation of Extract:

#### Preliminary phytochemical screening:

**Flavonoids:** To test solutions add few drops of NaOH solution formation of dilute acid indicate presence of flavonoids.

**Glycosides:** A small amount of alcoholic extract of samples is dissolved in 1ml water and then aqueous sodium hydroxide is added. Formulation of yellow color indicates the presence of glycosides.

**Alkaloids (Mayer's test):** 1.36gm of mercuric chloride is dissolved in 60ml and 5gm of potassium iodide is

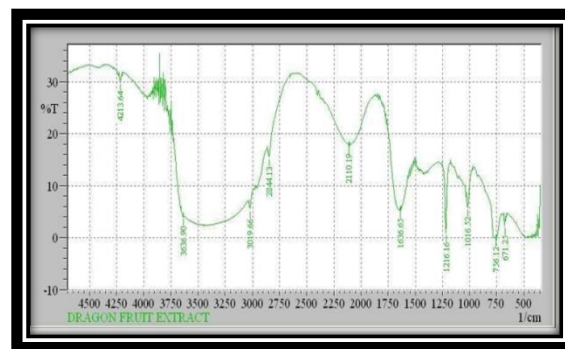
dissolved in 10ml of distilled water respectively. These two solvents are mixed and dilute to 100ml using distilled water. To 1ml of acidic aqueous solution of samples few drops of reagent is added. Formation of blue or green color indicates the presence of alkaloids. Phenols (ferric chloride test): To 1ml of alcoholic solution of sample. 2ml of distilled water followed by a few drops of 10% aqueous free chloride solution is added. Formation of blue or green color indicates the presence of phenols.

**Tannins (lead acetate test):** In a test tube containing about 5ml of an aqueous extract a few drops of 1% solution of lead acetate was added. Formation of a yellow or red precipitate indicates the presence of tannin.

**Lipids:** In a test tube 5 drops of the sample was taken and a pinch of sodium hydrogen sulphate was added. Pungent odouremantes from the tube which indicates that glycerin is present which is produced by hydrolysis in fixed oil which shows the presence of lipids.

#### 1. FTIR:

Is process or method used to detect various functional groups such as alkenes, alkane, phenol, ketone, carboxylic acid, alcohol, ether and esters.



Dig.2 FTIR

## 7. EXPERIMENTAL WORK:-

### 7.1 Preformulation Study:

#### Compatibility study through Fourier transforming infra-red spectroscopy (FTIR):

The primary objective of this investigation was to identify a stable storage condition in drug for solid state and identification of compatible excipients for formulation



### 7.2 Method of preparation of face wash base:

Sr no	Content	F1	F2	F3
1	Stearic Acid	6	8	10
2	Cetostearyl Alcohol	3.5	4	5
3	Glyceryl mono Stearate-SE	1.5	2.4	4
4	Cetyl Alcohol	2	2.5	2
5	Light Liquid Paraffin	9	8	9
6	Glycerine	4	3	4
7	Carboxy methyl cellulose	0.3	0.4	0.3
8	Phenoxytol	0.5	0.5	0.5
9	Disodium EDTA	0.25	0.25	0.25
10	Water	To make 100	To make 100	To make 100
11	Sodium hydroxide	0.5	0.6	0.5
12	Coco glucoside	4	4.5	4
13	CAPB	8	9	8
14	SLES	28	29	28
15	Euperlan PK 77	2	2.5	2
16	Cetiol LDO	0.5	0.5	0.5
17	Perfume	0.5	0.5	0.5
18	Lamssoft60	3	-	-

**Table No 2. Preparation of base formulation**

#### Procedure:

The aqueous phase weight and heated at 75-85o C. then oil phase weight and heated at 75-85o C. Then the oil phase added into aqueous phase with continues stirring by homogenizers. Prepared formulation and filled into suitable container and labeled. The preparations were further optimize and face wash base was selected.

SR.NO	PARAMETERS	F1	F2	F3
1	Appearance	++	+++	++
2	Color	++	++	++
3	Consistency	++	+++	+
4	Spreadability	+	+++	+++
5	Feel	++	+++	++

**Table No 3. Optimization of face wash Base**

From the above observation formula F2 was stable and it shows consistency, spreadability, and feel therefore it was selected and extract was added with different concentration and forward for in vitro study as in vivo study with human volunteers Here, + = good, ++ = Better, +++ = Best

### 7.3 Methods of preparation of face wash containing different concentration of active ingredients:

COMPOSITION	CONTENT	F1	F2	F3
Active Ingredients	Dragon fruit extract	3.5	4	4
	Aloe Vera extract	3	3.5	3
	Rosehip extract	0.2	2	0.25
Oil phase	Stearic Acid	6	8	10
	Cetostearyl Alcohol	3.5	4	5
	Liquid Paraffin	9	8	9
	Cetyl Alcohol	2	2.5	2
	Glyceryl mono Stearate	1.5	2.4	4

Water Phase	Disodium EDTA	0.25	0.25	0.25
	Glycerin	4	3	4
	Distilled Water	q.s. 100	q.s. 100	q.s. 100
	Sodium hydroxide	0.5	0.6	0.5
	CMC	0.3	0.4	0.3
	Phenoxyethanol	0.5	0.5	0.5
Surfactant Phase	SLES	28	29	28
	water	6	6	6
	Coco glucoside	4	4.5	4
	CAPB	8	9	8
	Euperlan PK 77	2	2.5	2
	Cetiol LDO	0.5	0.5	0.5
	Perfume	0.5	0.5	0.5

**Table No 4. Preparation of Active Base Formulation**

**• Procedure:**

1. First take accurately weigh amount of water, Di-EDTA, glycerin, sodium hydroxide and CMC in one beaker.
2. In another beaker stearic acid, cetyl alcohol, cetostearyl alcohol, LLP and GMS in oil phase.
3. Weight remaining phase in separate beaker.
4. Then heat both phase 1 and 2 up to 75 to 80°C, heat completely it.
5. After heating add both phase mix it properly.
6. Add phase 3 mixture of surfactant with continuous mixing.
7. Add preservative to the formulation.
8. Add perfume to formulation at last.
9. Add the active to the base with continuous stirring up to complete mixing of it.
10. After complete mixing and cool then finally filled in proper container.

**8. EVALUATION TEST FOR ACTIVE BASE FORMULATION:**

To evaluate active base formulation following test were carried out:

**8.1 In Vitro evaluation:**

**A) Determination of Ph**

**Apparatus:** pH meter, preferably equipped with glass electrode.

**Procedure:** Take 5gm of sample in a beaker and add 45 ml of distilled water in it. Mix it properly until the whole face wash is dissolved in water, and then note the pH of the sample mixture by using pH meter.

SR.NO.	F1	F2	F3
1	7.2	7.3	7.20

**B) Determination of Viscosity:**

**Apparatus: Brook Field Viscometer.**

**Procedure:** The viscosity of face wash was determined by using spindle no. 4 using brook field viscometer then all the operating conditions was set up. Then five readings were taken at different rpm and average of there will be the final reading. Viscosity was measured at 6 rpm in cps.

**C) Determination of Spreadability:**

**Procedure:** Spreadability of formulations make up my mind by the apparatus suggested by multi meter et al. which was invented in laboratory & used for study. The apparatus comprises wooden block, with a fixed glass slide with one end tied to weight pan rolled on the pulley which was in horizontal level with fixed slide. 1.5 g was placed between two glass slide and 100gm weight was placed on slide for five min to compress. The sample to uniform width weigh was added to the pan. The time (seconds) required to separate the 2 slides was taken as a measure of Spreadability. It was Calculated using the formula:

$$S = m.l / t$$

Where,

S= Spreadability in gm.cm/sec

m= weight tide to upper slide

l= length of glass slide

**D) Test for Thermal Stability:**

**Apparatus:** A humidity chamber controlled at 60-75% RH and 40 ± 1° C and observed.

**Procedure:** A 20 nm broad and 5 nm thick strip for the material to be tested was spread on the internal wall of

beaker of 100 ml capacity in its total height. The beaker was kept for 8 hours in humidity chamber a 60 to 75% relative humidity and temperature of  $40 \pm 1^\circ \text{C}$ .

**E) Determination of total fat content:**

Procedure: 2gm of sample was taken in a conical ask and diluted with hydrochloric acid, reflex condenser was fitted and the content of the flask were boiled till perfectly clear. Then the content of the flask was transferred to 300ml separating funnel and cooled to 20o C. Then the conical flask rinse 50 ml of ethyl ether in portions of 10ml. Then ether rinsing was rating funnel and leaves the funnel until the layers separate. The aqueous phase was separated and shakes with 5 ml portions of ether. Then all the ether extracts were combined and washed with water until free of acid. Then the ether extracts were filtered through the filter paper containing sodium sulphate into a conical flask which has been previously dried at a temperature of 60o C and weighted. Then the Sodium sulphate on the filter with ether was washed and then washing and filter was combining. Then the ether was distilled off and the material retaining on the flask was dried at a temperature of 60°C to constant mass.

**Calculation:**

Total fatty substance, percent by mass =  $100 \cdot \frac{F1}{F2}$   
Where,

F1= mass in gm of residue,

F2= mass in gm of material taken for test

**F) Centrifuge Test:**

Apparatus: Centrifuge

Procedure: Sample taken in to centrifuge tube at same level, then start the centrifuge machine at 4000 RPM for 20 min. Check ate centrifuge tube for separation of sample, otherwise again centrifuge sample for 20 min at 4000 Rpm. If separation is observed then its break the emulsion, otherwise it passes the centrifuge test.

**G) Stability Study of Face wash:**

The sample of face wash was kept at 50C, room temperature 400C. The changes in physical appearance, color, feel etc were studied.

SR.NO	Parameter s	F1	F2	F3
1	Appearance	Creamy	Creamy	Creamy
2	Color	White	White	White
3	Spreadablity	Good	Very Good	Good

**Table No 5. Stability Study of Face Wash**

**Accelerated stability studies:**

**A) Cyclical Temperature Tests:**

These tests are not carried out at fixed temperature and humidity. In this test, temperature was changed cyclically every day e.g. low-high-low-high to stimulate the changes in temperature daily.

Sr. No.	Parameter	F1	F2	F3
1	Freeze temperature	Stable	Stable	Stable
2	Room temperature	Stable	Stable	Stable
3	High temperature	Stable	Stable	Stable

**Table No 6. Cyclic temperature test**

**I] foaming test:**

Weight 5 gm of sample dissolved in 45 ml of water then transfer in 250ml of topper cylinder and shake 12 times clockwise and anticlockwise then allow the stand for 5 min and after check the readings.

**Calculation:**

Foaming power =  $V1 - V2$

Final reading =V1

Solution reading=V2

**8.2) In Vivo Evaluation**

**a) Skin Irritation**

Procedure: The skin irritation was dole out on human volunteers. For formulated face wash, five volunteers were selected and 1.0 gm of formulated face wash was applied on a vicinity two sq in to the rear of the hand. The volunteers were observed for lesions of irritation.

Result: No irritation is observed after used the face wash

**b) Photographic evaluation:**

**Procedure:**

The study of effectiveness of product was done with the help of the volunteer study. This was carried out on human volunteers. Face wash was applied on skin. Then photograph were taken before and after application of the product.



**Fig.2 Photographic Evaluation.**

Result: No irritation and No inflammation is observed after used the face wash.

**9. RESULT AND DISCUSSION:**

**9.1 Evaluation of Extract**

Sr. no.	Alkaloids	Flavonoids	Phenols	glycosides	Tannins	Lipids
1	Dragon fruit extract	+	+	+	-	+

Table No 7. Preliminary Phytochemical Screening

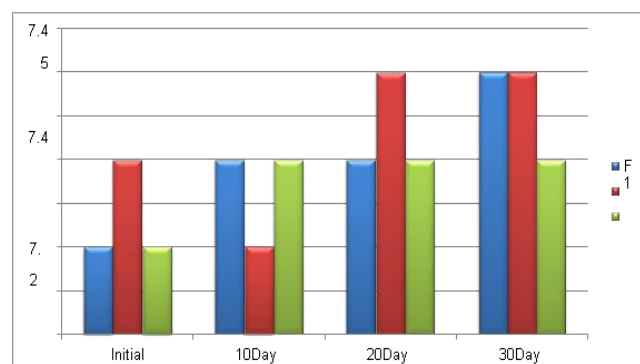
**9.2 In vitro studies:**

**A) Determination of pH**

**a) Determination of pH of Face wash incorporated with dragon fruit extract:**

Sr. No.	Time Interval	F1	F2	F3
1	Initial	7.2	7.3	7.20
2	10th	7.3	7.2	7.3
3	20th	7.3	7.4	7.3
4	30th	7.4	7.4	7.3

Table No 8. Determination of pH of Face wash Incorporated with dragon Fruit Extract



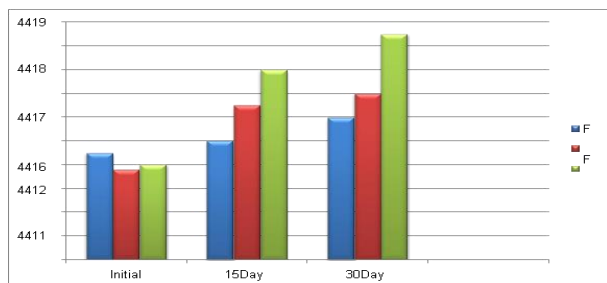
**Graph No.1**

**B) Determination of Viscosity:**

Determination of Viscosity of face wash in corporate with Dragon fruit extract:

Sr. No.	No of Days	F1	F2	F3
1	Initial	44135	44128	44130
2	15days	44140	44155	44170
3	30days	44150	44160	44185

**Table No 9. Determination of Viscosity:**



**Graph No.2**

Graphical representation of determination of viscosity of face wash

**C) Determination of foaming test:**

SR.NO.	NAME OF TEST	F1	F2	F3
1	FOAMING	150	150	145

**10. Conclusion:**

At present due to availability of big selection of cosmetic products in market, consumers are giving special attention towards the choice of cosmetic product.

To improve a well standard formula, the new product viz. herbal face wash was formulated by incorporating combination permanently effect. Thus F2 of face wash contains 4% of Dragon fruit extract and aloe extract, were found to be best and stable.

Thus, conclusion are often made that the face wash containing Dragon fruit extract and aloe extract, has been ready to improve complex of skin and skin tone and moisture the skin with none side effect making skin soft, smooth and supple. The scope of present result's that the formulated product i.e. .face wash with different concentration of active showed a good whitening property for extended time. Development of face wash products will be finished different actives or herbal extract which can give more practical results.

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