**Study of polyherbal skin care cream containg : Punica granatum, Carica papaya, Withania somnifera.**

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**ABSTRACT**

The products used to improve and beautify a person's appearance are called herbal cosmetics. For the objective of treating acne, ageing, and bacteria on the skin, the current study set out to create and assess a polyherbal skin care cream that included plant extracts made by decoction method. Papaya seeds, pomegranate peel, and aswagandha root extracts are used to make the skin care cream. Several methods of evaluation were used to determine the formed product's quality assessment. There was no noticeable alteration to the cream's physical composition. Throughout the research period, the created cream had good homogeneity, pH, spreadability, and non-greasy properties with no signs of phase separation.

There was no discernible difference in the formulated cream’s viscosity, visual appearance, nature, or scent during the course of the research investigation, according to stability measures. Anti-aging, anti-acne, and antibacterial properties are provided by the herbal extract-infused skin care lotion.Due to its greasy barrier, which lowers water loss from the stratum corneum, the skin’s outermost layer, skin care creams also have a moisturising effect.

**Key Words**: Punica granatum, Carica papaya and Withania somnifera

**Introduction**

The primary organ in the human body that serves as a barrier against the majority of illnesses is the skin. The epidermis, dermis, and hypodermis are the fundamental three layers of skin. These skin layers serve as a barrier to prevent foreign objects from penetrating the body through the skin because of their unique characteristics. The skin’s additional roles include water resistance, insulation, temperature regulation, sense, vitamin D production and storage, and more.

Cosmetics are in high demand and are growing quickly. These developments are brought forth by the availability of new components, the financial incentives for creating profitable goods, and the necessity to maintain quality standards in consumer formulation. In terms of performance, a formulation’s quality should meet the needs of the consumer. Better knowledge of skin physiology is necessary given the plant parts employed in cosmetic preparation. Cosmetics are items designed to be applied to the body in order to enhance beauty, remove imperfections, or change look. Products for acne treatment, oil secretion control, and wrinkle reduction are all created.

Formulations such as skin protection, sunscreen, anti-acne, anti-wrinkle, and anti-aging are made with a variety of components, both natural and synthetic, to address different kinds of skin conditions. Cosmetic development involves a range of qualities, including antibacterial, anti-inflammatory, antiseptic, emollient, anti-seborrhatic, and anti-karyolitic activity. Compared to medicines containing synthetic chemicals, these natural products are said to have less negative effects. The market study reveals an increasing tendency in the herbal commerce, with the herbal cosmetics sector playing a significant role.

Nowadays, everyone enjoys taking care of their skin and wants to improve its beauty. Though everyone aspires to look beautiful, beauty is not everything. It supports the growth of self-assurance and attitude, which are essential in today's world. Since no one on the planet is uninformed about or has never used cosmetics, these products are like the foundation of society. Cosmetics are substances that are applied to the human body with the intention of cleansing, beautifying, enhancing attractiveness, and changing appearance without causing any changes to the body's structure or functions. However, the synthetic medications that are more pertinent to the consumer and have negative side effects are used in the cosmetics. Herbs are a gift from mother nature

**MATERIALS AND METHODS**

1. Collection of plant material:

Fresh Pomegranate, papaya fruit and are collected from farm (location Ule) and dried aswagandha root is collected from local market .The pomegranate peel and papaya seeds were washed and dried under shade for period of 7 days.

 After completion of drying process the pomegranate peel and papaya seeds and dried form of Ashwagandha root were powdered coarsely. It is used for further research formulation study.

2. Chemicals and reagents

Pure coconut oil (without any chemicals) was collected from oil shop, Distilled water, Ruthenium red dye, 0.5 N Alc. KOH, Phenolphthalein as a indicator, 0.5N HCl, Solvent ether, Alcohol, 0.1 N NaOH

3. Instruments and equipments

Digital PH meter Systronics, Brookfield viscometer Servewell Pvt. Ltd. Model-PBU-6. Servewell instruments Pvt. Ltd. Homogenizer, Heating mantle, Evaporating pan, weighing balance, all glasswares etc.

**Preparation:**

1.Preparation of Aqueous Extract:

In a 1000 ml round conical flask, about 30 g of powder was added. 100 ml of distilled water was then used in the decoction process, and the mixture was boiled for an hour in a closed vessel over a heating mantle. The extract was then filtered to eliminate the marc, and to obtain a semi-solid mass, it was concentrated on a water bath at 50°C. The extracts were refrigerated at or below 10 °C in an airtight container.

2.Aqueous extract of Pomegranate peel

Pomegranate peel powder weighing around 30 g was added to a 1000 ml round conical flask, which was then heated to a boil for an hour using a mantel for decoction with 100 ml of distilled water. After filtering the extract to remove the marc, it was concentrated at 50° over a water bath to create a semi-solid material. The extracts were kept in a refrigerator in an airtight container.

3. Aqueous extract of Papaya seed

A closed vessel on a heating mantel was filled with approximately 10 g of papaya seed powder, which was then decocted with 100 ml of distilled water and boiled for an hour. The extract was then filtered to eliminate the marc, and to obtain a semi-solid mass, it was concentrated on a water bath at 50°C. In a refrigerator, the extracts were kept in an airtight container.

4.Aqueous extract of Ashwagandha root

In a 1000 ml round conical flask, 10 g of papaya seed powder was added. 100 ml of distilled water was then used in the decoction process, and the mixture was boiled for an hour in a heated mantel. Following the extraction’s filtering to remove the marc, the bulk was concentrated at 50°C over a water bath. An airtight container was used to keep the extracts cold.

**FORMULATION OF HERBAL CREAM**

|  |  |
| --- | --- |
| **Ingredient**  | **Quantity taken** |
| Bees wax Cream base |  |
| Coconut oil Emollient |  |
| Agar Stabilizer |  |
| Lavender oil For perfuming activity |  |
| Turmeric powder Coloring agent |  |
| Papaya seed extract Cleansing, enzyme action |  |
| Pomegranate peel extract Anti ageing |   |
| Ashwagandha root extract Anti bacterial |  |

**EVALUATION OF HERBAL CREAM [20-22]**

1. Organoleptic evaluation
2. pH of the cream
3. Dye test
4. Acid value
5. Saponification value
6. Spread ability test
7. Viscosity
8. After feel
9. Removal
10. Irritancy test
11. **Organoleptic evaluation**

The resulting cream was assessed for its organoleptic qualities, including colour, odour, and condition. The colour and roughness of the cream’s appearance were used to grade it.

 **2) pH of the cream**

Standard buffer solution was used for pH metre calibration. The cream was weighed out at 0.5 g, diluted in 50.0 ml of pure water, and its pH was recorded.

 **3) Dye test**

The cream is combined with the ruthenium red dye. Apply a small amount of the cream to a tiny slide, cover it with a cover slip, and look at it under a microscope. If the dispersed globules are red in colour and ground white. It is an o/w variety of cream. With w/o type of cream, the situation is the opposite.

 **4) Acid value**

After precisely weighing and slowly heating the flask with an equal volume of alcohol and solvent ether until the sample was completely dissolved, add 1 ml of phenolphthalein and titrate it with 0.1 n NaOH until a faint pink colour appears after shaking for 30 seconds. The sample was 10 gm of cream.

Acid value =n\*5.61/w , N= the number of ml of NaOH ,W= the weight of substance

**5) Saponification value**

After around 2 gm of cream were refluxed for 30 minutes with 25 millilitres of 0.5 N alcoholic KOH, 1 millilitre of phenolphthalein was added, and the mixture was quickly titrated with 0.5 N HCL.

Value of saponification = (b- a)\*28.05 / w

The titrant volume in millilitres equals a

The titrant capacity in millilitres = b

The cream weighs w in gram

**6) Spread ability test**

A Multimeretal’s recommended apparatus was used to measure the Formulation’s dissemination ability (1956).Two glass slides make up the apparatus; one was attached to the wooden board, while the other was mobile and supported a weight via a thread that went over a pulley. Between the two glass slides was one gramme of Formulation. For the purpose of creating a uniform film of the formulation and releasing trapped air between the slides, a 100 gramme weight was left to lie on the upper slide for one to two minutes.After the weight was taken out, a pull was applied to the top slide using a 30-gram weight that was placed over the pulley. It was recorded how long it took the moving slide to move 6.5 cm in the premarket.

S= M.L/T

Where, M= wt. Tied to upper slide (30) , L= length of glass slides , T = Time taken to separate the slides.

**7) Viscosity**

The formulation’s viscosity was measured using a Brookfield viscometer with spindle number 64 at 20 rpm.

 **Conclusion**

Herbal cosmetics are becoming more and more popular among consumers these days. The global market for herbal cosmetics is seeing an increase in demand. The W/O type of prepared polyherbal cream was used. The constituents in formulations F1 and F2 are the same, but the stabiliser concentrations are different. The consistency of the two cream formulations was found to be identical, yet the formulation with the lowest stabiliser concentration (F1) exhibits rancidity after eight days. However, there was no discernible change in formulation F2’s physical appearance during centrifugation, nor was there any phase separation. Formulation F1 was removed from the trial because it was discovered to be rather unstable.

Based on the aforementioned findings, we can blend extracts of Withania somnifera, Carica papaya, and Punica granatum in various ratios to provide the skin a multifunctional impact that includes anti-aging, anti-wrinkles, and moisturising properties. As is widely known, a single plant extract’s cosmetic property cannot be made more effective. However, the efficacy of extracts and cosmetic products can be increased by combining multiple plant extracts.

**Result**

To enhance the cosmetic features of the created skin care cream, we combined the extracts of Punica granatum, Carica papaya, and Withania somnifera, as opposed to using them separately. These investigations therefore imply that the produced Polyhedral formulation was appropriate for topical application.

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