

# Formulation and Evaluation of a Poly Herbal Skin Care Lotion containing Neem, Tulsi & Papaya

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## ABSTRACT:

**Background:** Currently market is flooded with synthetic skin care lotion which contains Sodium carboxymethyl cellulose, butylated hydroxyanisole (BHA), parabens, aluminium.

**Method:** The present work was aimed to formulate herbal skin care lotion by using *Osmium sanctum*, *Azadirachta indica* & *Carica papaya* extract and glycerine, lemon oil, rose oil, gum tragacanth & distilled water as additives. After formulation, it was evaluated & various parameters such as organoleptic properties (Colour, odour, appearance) & physicochemical parameters (pH, viscosity, smear test, spreadability, microbial growth, irritancy, ease of removal) were determined and reported.

**Results:** Results showed that, different evaluation parameters of prepared skin care herbal lotion were resembled with standard values and with marketed formulation.

**Conclusion:** Now-a-days consumers more prefer natural based cosmetics to avoid unnecessary side effects. Further research is appreciated for Formulation with other herbal sources for skin benefits.

**Keywords:** *Osmium sanctum*, *Azadirachta indica* & *Carica papaya*, Poly herbal skin lotion.

## Introduction:

The herbal lotions are the preparations containing phytochemical from a variety of botanical sources, which influence the functions of skin and provide nutrients that is necessary for the healthy skin. Neem (*Azadirachta indica*) is a tree belonging to Meliaceae Family. The bark, leaves, and seeds are used to make medicine. Less frequently, the root, flower, and fruit are also used. Neem leaf is used for leprosy, eye disorders, bloody nose, intestinal worms, stomach upset, loss of appetite, skin ulcers, diseases of the heart and blood vessels (cardiovascular disease), fever, diabetes, gum disease (gingivitis), and liver problems. Of all the herbs used within Ayurvedic, Tulsi (*Osmium sanctum* Linn.) is preeminent, and scientific research is now confirming its beneficial effects. Tulsi has been found to protect organs and tissues against chemical stress from industrial pollutants and heavy metals, and physical stress from prolonged physical exertion, ischemia, physical restraint and exposure to cold and excessive noise. The use of Tulsi in daily rituals is a testament to Ayurvedic wisdom and provides an example of ancient knowledge offering solutions to modern problems. *Carica papaya* (papaw or papaya) is one of the tropical and subtropical trees that is well known for having the entirety of its parts utilized. In foods, the fruit has been advantageously used as a nutritional supplement, appetizer, and snack, whereas as an herbal medicine, the leaves have been utilized in antimicrobe, antioxidant, antiviral, haematology disorder treatment, and antitumor applications. In non-food and non-medicine applications, papaya leaves are also used as a bioherbicides, ectoparasite controls, and larvicides. As a nutritional supplement, the fruit can be used as a detoxifier and as a metabolism inducer.

## Materials and methods:

**Material:** Neem and Tulsi were collected from the local garden of Sikkim & Papaya was purchased from the rural market of Sikkim. Glycerine, lemon oil, rose oil, gum tragacanth and distilled water were collected from Himalayan Pharmacy Institute, Sikkim.

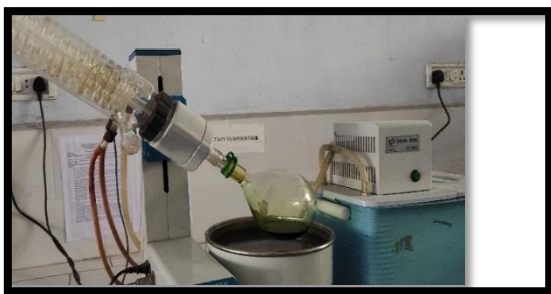


Fig. 1: Filtration process of *Osmium sanctum*

**Method:**

- **Extraction of *Osmium Sanctum*:**

The extraction was carried out using 67 gm of crushed Tulsi leaves macerated with 450ml of ethanol and then putting it into the rotary evaporator for almost 15-20mins. After completion of the method, the extracted material was kept for further drying in a water bath for about 9-10hrs until we get a sticky like consistency.



**Fig. 2: Extraction of *Osmium sanctum***



**Fig. 3: Drying of *Osmium sanctum* in water bath**

- **Extraction of *Azadirachtaindica*:**

The extraction was carried out using 19 gm of crushed Neem leaves macerated with 150ml of distilled water and kept it for 3 days. After 3 days the solution was put into the rotary evaporator for almost 30-40 mins. After completion of the method, the extracted material was kept for further drying in a water bath for about 9-10hrs until we get a sticky like consistency.



**Fig.4: Maceration of *Azadirachtaindica***



**Fig.5: Sticky mass of *Azadirachtaindica* after extraction**

- **Extraction of *Carica Papaya*:**

The papaya fruit was cut into pieces & the seeds were removed from it. Then the pieces were crushed by using mortar pastel. After fine grinding, it was taken into a beaker & ethanol (100ml) was put into the beaker & kept it for 20-25mins for maceration process.



**Fig.6: Extraction of *Carica papaya***

**Formulation of herbal lotion:**

In a beaker, all the materials of the above -mentioned quantity were taken & stirred properly so that we got a uniform mixture. After that the solution was taken into a volumetric flask.

**Table 1: Ingredients used for the formulation of Poly herbal skin care lotion**

Sl no	Ingredients	Quantity	Use
01.	Neem Extract	3mg	Helps to fight skin infections, promote wound healing & as anti-aging.
02.	Tulsi extract	3mg	Prevent blackheads, acne & relieves skin infections.
03.	Papaya pulp	10mg	Exfoliates the dead skin cells & eases skin impurities.
04.	Glycerine	2ml	Used as humectant
05.	Lemon oil	1.5ml	Anti- microbial
06.	Rose oil	Q.S	For fragrance
07.	Gum tragacanth	4.5mg	As emulsifier & stabilizer.
08.	Distilled water	30ml	Used as vehicle.

**Table 2: Evaluation parameters of Poly Herbal Skin care lotion**

Organoleptic parameters	
Test	Description
• Appearance	The appearance of the lotion was observed by visual examination.
• Colour	The colour of the cream was observed by visual examination.
• Odour	The odour of the lotion was tested by smelling.
Physicochemical Parameters	
• P <sup>H</sup>	P <sup>H</sup> of prepared herbal lotion was measured by using both P <sup>H</sup> paper & digital P <sup>H</sup> meter.
• Spreadability	Spread ability of formulated lotion was measured by placing sample in between two slides then compressed to uniform thickness by placing a definite weight for defined time.
• After-fill	Emolliency slipperiness and amount of residue left after the application of the fixed amount of cream was found.
• Types of Smear	After application of the lotion, the type of film or smear formed on the skin were checked.
• Irritancy test	The lotion was applied to a specific area of the left- hand dorsal surface. Irritancy, erythema, oedema were checked upto 24hrs & reported.
• Ease of removal	The ease of removal of the cream applied was examined by washing the applied part with water.
• Test for Microbial growth	To check the microbial growth, the formulation was placed in the centre of the petri dish, and then the plates were incubated at 37°C for 72hrs.

**Results:**

- ✓ Appearance- The appearance of the formulation was lotion type.
- ✓ Colour- The colour of the formulation was observed greenish.
- ✓ Odour- The odour was aromatic.
- ✓ P<sup>H</sup>- The P<sup>H</sup> of the formulation was found to be approx. 7.8 both in the P<sup>H</sup> paper & in digital P<sup>H</sup> meter.
- ✓ Spread-ability- The formulation was easily spreadable.
- ✓ After fill- The formulation was emollient in nature & the after fill was so soft.
- ✓ Types of smear- The formulation was good in forming film on the skin.
- ✓ Irritancy test- The formulation was non-irritable & non allergic on the skin.
- ✓ Ease of removal- The formulation was easily removed from the skin by using water & the time of the removal was 25-30sec.
- ✓ Test for microbial growth- No microbial growth is observed.



**Fig.7: Determination of PH. Fig.8: Determination of microbial contamination Fig.9: Formulation of polyherbal lotion**

#### Discussion:

Poly herbal skin care lotion containing Neem, Tulsi and Papaya extract was formulated and for evaluation organoleptic properties, Physicochemical Parameters were being analysed. All the parameters shown results in acceptance range. Further this formulation can be compared with marketed one for better efficacy.

#### Conclusion:

Herbal lotions evaluation tests refer to studies & experiments undertaken during production & which occasionally ought to be undertaken post-production by regulatory agencies & researchers. In this study a formulation herbal lotion was tested & evaluated in terms of their Organoleptic properties (appearance, colour, odour) & Physiological parameters (pH, spread-ability, after-fill, types of smear, ease of removal, irritancy test, test for microbial growth). The results indicate the formulation met the requirements of the standards, which means they are chemically sound.

#### Authors' contribution:

MS designed the work SR wrote the manuscript and SB formulated and evaluated the product. MS, SR and SB involved in formulating and evaluating the poly herbal skin care lotion. RD played central role for guiding and successful completion of the research work.

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