

# Preparation and Evaluation of Herbal Body Lotion from Nutmeg

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## Abstract

This study focuses on the formulation and evaluation of a Nutmeg Body Lotion made with a 55:45 oil-to-water ratio. The key active ingredient is nutmeg (*Myristica fragrans*), along with turmeric, liquid paraffin, cetyl alcohol, glycerine and methyl paraben. The formulation aims to provide moisturizing, antioxidant, anti-inflammatory and antimicrobial benefits. The preparation process involves emulsification of oil and water phases by cooling and homogenization. Various evaluation parameters were carried out which include viscosity, spread ability, absorption, preservative efficacy and skin compatibility, confirms the lotions stability and effectiveness. The final product exhibit desirable organoleptic properties good spread ability, and no sign of phase separation or microbial contamination. The results suggest that this herbal lotion is a promising cosmetic product for skin nourishment and protection.

**Keywords:** Nutmeg, anti-inflammatory, antioxidant, emulsification, herbal body lotion, skin nourishment.

## Introduction

The aim of the study has to prepare and evaluate the Herbal Body Lotion. A body lotion is a topical skin care product meant to moisturise and hydrate the skin leaving it soft, smooth and supple.<sup>[1]</sup> Some lotions are sometime used to perfume the skin also.<sup>[2]</sup> It helps replenish lost moisture, soothe dryness, improves skin structure and enhance overall skin health.

Nutmeg is a spice that comes from the seed of the (*Myristica fragrans*) plant. The seed has an inner red brown kernel called Nutmeg and the outer ariles are known as mace. Seeds have an oil content of more than 60%.<sup>[3]</sup> Nutmeg seeds are reported to have potent antimicrobial properties against a wide range of various bacteria and fungi. It shows potential to combat microbial infection thus promoting overall growth.<sup>[4]</sup> It has some potential benefit to skin too. It contains essential oil, fat oil, resin, wax and other components for its benefits.<sup>[5]</sup> Nutmeg is used in a variety of skin care products like face masks, scrubs,

body lotion and exfoliating masks. Nutmeg can improve the appearance of uneven skin tone, dark spots and hyperpigmentation. It can also reduce redness and irritation due to its anti-inflammatory properties making it good for sensitive skin.<sup>[6]</sup> It has been demonstrated that evens out skin tone and makes the skin look lighter and younger. This might be because nutmeg contains a lot of vitamin C, which increases the formation of collagen, firming and tightening the skin and making it look younger.<sup>[7]</sup>

**Drug Profile**

**Table 1: Drug Profile of Ingredients**

Ingredient	Family	Active Ingredient	Properties
Nutmeg (Myristica fragrans)	Myristicaceae	Myristicin, Elemicin, Eugenol, Safrole	Antioxidant, Anti-inflammatory, Antimicrobial, Analgesic
Turmeric (Curcuma Longa)	Zingiberaceae	Curcumin, Desmethoxycurcumin, Bisdemethoxycurcumin	Antibacterial, Anti-inflammatory, Wound Healing, Skin Brightening
Liquid Paraffin (Mineral Oil)	-	C <sub>n</sub> H <sub>2n+2</sub>	Emollient, Occlusive Agent
Cetyl Alcohol	-	C <sub>16</sub> H <sub>34</sub> O	Emulsifier, Thickener, Emollient
Glycerine	-	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	Humectant, Skin-soothing agent
Methyl paraben	-	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>	Antimicrobial, Preservative
Distilled Water	-	H <sub>2</sub> O	Solvent, Hydrating agent

**Materials And Methods**

**Table 2: Formulation Ingredients and Their Quantities**

Sr. No.	Ingredients	Quantity
1.	Liquid Paraffin	2.5ml
2.	Cetyl Alcohol	5g
3.	Nutmeg Powder	5g
4.	Turmeric Powder	0.5g
5.	Glycerine	5ml
6.	Methyl paraben	0.5g

7.	Distilled water	10ml
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**Method of Preparation**

The preparation of Nutmeg and Turmeric powder begins by drying, grinding, and sieving them to obtain a fine powder. The powders are then soaked in water overnight and boiled until the liquid is reduced to one-fourth of its original volume. Oil Phase Preparation: Liquid paraffin and cetyl alcohol are heated to 70°C until fully melted. Water Phase: simultaneously, the water phase is prepared by heating water and glycerine to 70°C, and then addition of turmeric and nutmeg powder extract, ensuring uniformity. Emulsification is carried out by slowly adding the heated oil phase to water phase with continuously stirring at 800 rpm to achieve a uniform emulsion. Allow the mixture to cool to 4°C with continuous stirring to enhance stability, methylparaben is dissolved and incorporated as a preservative and stir well. Finally, the prepared lotion is transferred into the sterilized container and stored at room temperature.



**Figure 1: Nutmeg**



**Figure 2: Turmeric Powder**



**Figure 3: Body Lotion**

**Evaluation Parameter**

**Table 3: Evaluation Test and Observation**

Test	Observation & Result
1. Physical and Chemical Test	
a) Viscosity	The lotion is neither too thick nor too runny, easy to apply
b) Phase Separation	No Phase Separation observation

2. Organoleptic Test	
a) Colour	Yellow
c) Appearance	Uniform
d) Odour	Pleasant Characteristic smell of Nutmeg
3. Texture	Smooth and non-gritty
4. Spread ability Test	The Lotion Spread Easily
5. Light Stability Test	There is no change in consistency and colour upon exposure to light.
6. pH Test	5.5-6.0
7. Absorption Test	The lotion absorbs quickly into skin
8. Irritation Test	No irritation
9. Sensory Evaluation	Skin feels hydrated and soft
10. Preservative efficacy Test	Preservative is effective; no microbial growth observed

### Discussion

Nutmeg Herbal Body lotion exhibited desirable physical, chemical, and organoleptic properties, indicating its suitability for cosmetic application. The formulation maintained a stable emulsion with no phase separation, demonstrating effective emulsification. The viscosity of the lotion was optimal, ensuring ease of application and good spreadability. The absorption test confirmed that the lotion quickly penetrated the skin without leaving a greasy residue, and hence a positive user experience.

This lotion is designed to be gentle and safe for everyday use, as its pH level matches that of human skin, so it won't cause irritation; it has been tested to ensure it stays fresh and effective over time, making it safe for long-term use. Additionally, the lotion contains organic components like turmeric and nutmeg that help combat infection, reduce inflammation, and shield the skin from harm. The lotion is stable and dependable because it maintains its color and texture even when exposed to light. All things considered, this herbal body lotion is a viable natural skin care choice that may be expanded and evaluated for broader market acceptance.

### Conclusion

The Nutmeg Herbal Body lotion, made with a 55:45 oil-to-water ratio, is a stable, effective, and moisturizing product that's great for the skin. It spreads easily, has a skin-friendly pH, and doesn't separate over time. Packed with antioxidants and anti-inflammatory ingredients, it helps hydrate, brighten, and protect the skin. The lotion is gentle, safe for daily use, and doesn't cause irritation. In the future, more studies can be done to test its long-term stability and effectiveness on a larger scale.

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