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ANTI-AGING FACE SERUM BY CLITORIA TERNATEA

Ms. Bhavana D. Tambe*, Ms.Mayuri T. Gadhave.

Assistant Professor*****, SMBT Institute of Diploma Pharmacy, Dhamangaon, Nashik- 422403, India.

Student, SMBT Institute of Diploma Pharmacy, Dhamangaon, Nashik, Affiliated to MSBTE Maharashtra, India.

ABSTRACT

Herbal cosmetics are emerging as a safe and natural alternative for skin protection and maintenance. Many commercially available synthetic face serums offer temporary results but frequently cause side effects such as irritation or allergic reactions. To address this gap, the primary objective of this research was to prepare and scientifically evaluate an effective natural, and anti-aging face serum using the medicinal plant butterfly peas***(clitoriaternatea)*** as the key ingredient.

The present research focuses on the formulation and long-term evaluation of a natural antiaging skin serum utilizing clitoriaternatea (butterfly peas), aloe vera gel, sesame oil, neem oil, glycerine, vitamin-E and Tween-80 . To improve bioavailability, the serum was created with the Helps of appropriate stabilizers and carriers. The effects of the serum on collagen synthesis, skin elasticity, and appearance were assessed using physicochemical and stability testing, in vitro investigation on human fibroblasts, and clinical assessments

KEYBOARDS: Clitoriaternatea (Butterfly pea) , anti-aging , Herbal skin care.

INTRODUCTION:

Herbal cosmetics, also known as products, are made from a variety of approved cosmetics to from a base in which one or more herbal ingredients are used exclusively to create specific cosmetics. Because of their many related qualities, including antioxidant, anti-inflammatory, antiseptic, and antimicrobial qualities, plant extracts are primarily added to cosmetics products. Due to their high efficacy and comparatively low or non-existent side effects compared to synthetic drugs, herbal preparations have drawn a lot of attention. Pharmacology and cosmetic qualities are how are cosmeceutical sector respond to these issues because of their high concentration of active substance which improve transport and efficacy, serum are especially advantageous. Botanical clitoriaternatea and aloe vera well known for their moisturizing, anti-aging, and antioxidant qualities.Cosmetics have taken precedence over the desire to appear youthful and attractive in society. Despite being the largest and most protective part of the body .

Skin aging is a progressive biological process influenced by intrinsic mechanisms (cell senescence, reduced collagen) and extrinsic factors (UV exposure, pollution, dehydration).

Increasing preference for natural skincare has encouraged investigation of botanical extract in anti-aging formulations.Butterfly peas flowers contain anthocyanins, known for antioxidant,

anti-glycation, and antiwrinkle activity. Aloe vera provides hydration and wound-healing properties. Oils such as sesame and neem supply essential fatty acids, antibacterial components, and skin-protective phytochemicals. Glycerine acts as a humectant while vitamin-E serves as a major antioxidant. Tween-80 is used as an emulsifier to stabilize the oil phase. The present study develops a unique, completely natural anti-aging serum based on these ingredients, focusing on long-term stability.[1]

Figure.1 Butterfly peas flowers

CLITORIA TERNATEA: [2,3]

- Kingdom: plantae
- Order: Fabales
- Family: fabaceae
- Genus: clitoria
- Botanical name: clitoriaternatea
- Synonyms: butterfly peas, Asian pegion wing blue pea

OBJECTIVES:

- Skin care
- Improve skin texture
- Provide anti-aging effect
- Lightens the skin
- Has antioxidant properties
- Hasanti-inflammatory properties

Extraction method: .[4]

Extraction method of clitoriaternatea flower using soxhlet Apparatus The dried flowers of clitoriaternatea was extract with ethanol (90%, 300mL) in a soxhlet apparatus for 24 h. the extract was concentrated to dryness by steam distillation at a concentration temperature of 60-70 C using a steam distillation apparatus. The resulting extract was a brown-blue color.

Figure.2 Extraction of clitoria ternatea flower

Preparation method of Face Serum:

1) Aloe vera gel was taken in a beaker and stirred using a magnetic stirrer at 300-400 rpm.

2) Glycerine was added slowly into the aloe gel and mixed until a uniform gel base formed.
3) Prepared butterfly pea extract was added gradually with continuous stirring.
4) The mixture was homogenizer for 5 minutes to obtain a smooth, uniform aqueous phase.

Preparation Method of oil phase: [5,6]

Sesame oil and neem oil were mixed in a separate beaker. Vitamin-E capsule were broken and added directly into the oil mixture. Twee-80 was added as the emulsifying agent. Oil phase was mildly heated to 40 C reduce viscosity and improve emulsification. Emulsion formation (main serum preparation): The oil phase was added slowly and dropwise into the aqueous phase. Continuous stirring was maintained at 600-800 rmp. After complete addition, the mixture was homogenized using a high-speed homogenizer for 8-10 minutes to from a uniform emulsion. The final serum was allowed to cool to room temperature, and transferred into cline beaker.

FORMULATION TABLE

Sr. No	Ingredients	Observations		
		Formulation 1	Formulation 2	Formulation 3
1	Clitoriaternatea extract	6ml	6.9ml	6.9ml
2	Alovera gel	6ml	6.9ml	6.9ml
3	Sesame oil	0.6ml	0.6ml	0.6ml
4	Neem oil	0.75ml	0.45ml	0.45ml
5	Glycerine	0.75ml	0.45ml	0.45ml
6	Tween 80	0.6ml	0.6ml	0.6ml
7	Vitamin E Capsule	1ml	1ml	1ml
8	Perfume	Qs.	Qs.	Qs.
9	water	Qs.	Qs.	Qs.

Figure .3Formulation of clitoriaternate

Evaluation Parameter: [7,8]

1. **Appearance:** The serum appearance was examined visually.

2. **Colour:** The color of the serum was visible.

3. **Odour:** Sniffing was used to assess the serums's aroma.

4. **P^{H}**: The P^{H} of the formulated herbal serum was measured using a digital PH meter and PH paper.

5. **Viscosity Test:** The viscosity of the formulated herbal face serum using Clitoriaternatea was determined using a Brookfield viscometer (LV Viscometer) with spindle No. 62 at 20 RPM for 3 minutes. The obtained values were recorded.

6. **Stability Test:** The sample was placed in a sterile petri dish and incubated at 37°C for 72 hours to observe any microbial growth.

7. **Spreadability Test:** A sample was placed between two glass slides and compressed to a uniform thickness using a specified weight for a predefined period of time to assess the spreadability of the serum.

8. **Washability Test: A** small amount of the sample was applied on the skin and allowed to stand for a few minutes. It was then washed with water, and the ease of removal along with any residue left on the skin was observed.

9. **Irritation Test: Slight** irritation was observed, indicating that the formulation may cause mild sensitivity in some individuals.

10. **Microbial Test:** No microbial growth was observed, indicating that the formulation is microbiologically stable and safe for use.

11. **Antioxidant activity Test:** The formulation showed significant antioxidant activity.

Table.2 Evaluation Table

Evaluation Parameter	Observation		
	F1	F2	F3
Colour	Bluish white	Pale blue	Pale blue
Odour	Pleasant	Characteristics	Characteristics
Texture	Smooth	Smooth	Smooth
Washability	Easy washable	Easy washable	Easy washable
PH	5.5	6.3	6.5
Spead ability test	Easy spread	Easy spread	Easy spread
Viscosity(cp)	90	94	95
Irritancy test	Irritant	Smooth irritant	Smooth irritant
Stability test	stable	stable	stable

Result and Discussions

The herbal face serum prepared with butterfly pea extract showed significant advantages. According to the study findings and product evaluation, the extract plays an important role in improving skin hydration, enhancing skin texture, and providing antioxidant benefits. The colour of the formulation was greenish. The pH, viscosity, stability, and irritancy were found within acceptable limits (pH 5.5 6.5), and the serum did not cause any skin discomfort upon application. Overall, the study indicates that the herbal serum is safe, stable, and suitable for topical application, providing beneficial effects on the skin.

Conclusion:

The present research accomplished the successfully development of a scientifically optimize natural anti-aging serum utilizing butterfly pea extract.Skin compatibility studies indicated that the serum was well-tolerated, showing no evidence of irritation or adverse dermatological reactions, there by validating its safety for topical cosmetic application. The overall findings strongly suggest that the developed herbal serum is a promising alternative to conventional synthetic anti-aging formulation, offering a safer, naturally-derived, and environmentally sustainable option.

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