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Formulation and Development of Compact Powdered Blush by Using Natural Colour from Flowers of *Butea Monosperma*

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Abstract:

Blush is a makeup pigment that comes in different hues to color the cheeks. Blushing powder is a popular and high-quality cosmetic product. These days, compact powder blush is preferred because it is convenient to use, lightweight, and easy to carry. Compounds from *Butea Monosperma* are useful for preserving skin tone, elasticity, and natural coloration in cosmetics. The purpose of this study was to create a compact powder by extracting *Butea Monosperma* as the flowers were concentrated into an ethanolic extract. The main components of the Compact Powder Blush include isopropyl myristate, zinc oxide, talcum, kaolin, and paraffin liquid. *Butea Monosperma* concentrations of 2%, 4%, and 6% were employed. A favorable outcome was obtained from the pH stability test, color homogeneity test, polishing test, breakage test, hedonic test, and color stability test.

Keywords: Blush, *Butea Monosperma*, Extraction, Formulation, Evaluation

Introduction:

Cosmetics are meant to be applied to the skin, lips, hair, and teeth to enhance their look and appeal. A survey found that 80% of consumers used cosmetics for skin protection as well as fashion. Cosmetic powder is divided into two types based on its characteristics: compact powder and loose powder. Compact powder sources are easier to handle, carry, and operate. Consumers today have a preference for using herbal cosmetics. Herbal cosmetics, also known as plant-derived cosmetics, are composed of a number of cosmetic components mixed together and left to serve as a base for the application of one or more herbal substance. *Butea Monosperma* is used as a skin-whitening, anti-inflammatory, and natural coloring agent. The vibrant orange-red hue is a result of a naturally occurring pigment known as "butein." Butein is a member of the flavonoid class of plant chemicals, which are valued for their antioxidant and pigmenting properties. Creating an extract from *Butea Monosperma* and producing it as a compact powder blush was the aim of this investigation. The reflux method was used to create the extract from *Butea Monosperma* flowers.

The flower petals were cleaned and then refluxed with ethanol. It was then concentrated using continuous heating and distillation. In order to improve the powder content of the natural color, the blush's compact powder formulation included 2%, 4%, or 6% of powder in each composition.
All of this led to the conclusion that the goal of this study was to find out how *Butea Monosperma* might be used as a natural coloring agent and what other applications it might have after it solidified into a compact powder.

Material and Methods:

Materials:

Fresh *Butea Monosperma* flowers, 100% pure talcum, Kaolin, paraffin liquid, zinc oxide, and isopropyl myristate were used in this investigation. The purity and characterization of these chemicals and plant were carried out in laboratory.

Method:

Preparation of extract of *Butea Monosperma*:
The fresh *Butea Monosperma* (1 kilogram) was washed under running water to remove the dust and debris. The petals were allowed to air dry for a few minutes before being placed in a flask with a round bottom and filled with 100 milliliters of ethanol. It refluxed for three hours before being refrigerated for half hour. After filtering out the residual ethanolic floral residue, the filtrate was distilled in the distillation apparatus's second RBF until 90% ethanol was obtained. The concentrated residue was then vacuum-operated through a Rota evaporator to produce a more concentrated product. The concentrated ethanolic extract was prepared for use in the creation of Compact Blush Powder.

Formulation of Compact Blush Powder using *Butea Monosperma* extract:
First, the components need to be ready, talcum (38 mg), kaolin (20 mg), zinc oxide (22 mg), paraffin liquid (10 mg), *Butea Mononsperma* (5 ml) thick extract, and isopropyl myristate (10 ml).
All excess material was sieved using a number 100 sieve prior to formulation. Second, the viscous *Butea Monosperma* extract is combined with a material other than isopropyl myristate to create tiny, pliable particles. Once the mixture has softened, isopropyl Myristate and viscous *Butea Monosperma* extract are gradually added. After production, the compact powder goods are put into containers. We've tested a compact powder blush.

Ingredients	**F1**	**F2**	**F3**
Butea Monosperma flowers extract	5ml	10ml	20ml
Talcum	38gm	38gm	38mg
Kaolin	20mg	20gm	20mg
Paraffin Liquid	10ml	10ml	10ml
Zinc Oxide	22mg	22mg	20mg
Isopropyl Myristate	10ml	10ml	10ml

Table 1: Formulation of Compact Blush Powder

Evaluation Test of Compact Blush Powder:

- Organoleptic Properties:

The organoleptic characteristics of Blush such as colour, odour, and appearance, were investigated.

- pH test:

Using Universal pH paper, the pH of Compact Powder Blush is determined. The preparation is given water until it is homogeneous, and the pH of preparation is then determined. By dipping pH paper into homogeneity solution, pH is measured. The compact powder Blush on formulas 1, 2 and 3 shown pH results as pH of 7.

- Stability Test:

Color Stability of Compact Powder Stability on products refers to a medical or cosmetic product's ability to stay within the specified bounds for the period of storage and usage to guarantee the product's identity, strength, quality, and purity. To perform this stability test, any physical alterations to the cosmetics are monitored closely as per guidelines.

- Colour Homogeneity:

After 5 days of storage at room temperature, the colour of formulae 1, 2, and 3 does not changed. The colour was homogenous for longer days.

- Particle size:

Utilizing a microscope and sieve examination, the compact blush powder particle size was assessed.

- Polishing test:

Three applications of each formula were made on the inner arm.

- Breakage test:

This test was only performed for the compact powder by dropping the powder on the wooden surface three times at a height of 0.2-0.25.

Result and Discussion:

Phytochemical screening:

According to the results of the initial phytochemical screening, the aerial section of the plant of *Butea Monosperma* may contain flavonoids, lactones, diterpenoids, diterpene glycosides, and phytosterols. The powdered flower's preliminary phytochemical screening revealed a variety of phytochemicals that may be employed as a possible source for effective medicines, including alkaloids, glycosides, phenolic compounds, flavonoids, tannins, and saponins. *Butea monosperma* is genuinely a gift from Mother Nature.

- Color Homogeneity test:

Because it can evaluate whether or not the final blush preparation satisfies the aesthetic standards, the homogeneity test is significant. The news carriers' uniform dye dispersal suggests a high degree of color homogeneity. To ascertain if the cartier particles or the dye could combine effectively to produce color when applied to the skin, the color homogeneity test was performed on the blushes. There were no coarse grains seen in the homogeneity test findings (Table 2), which indicated a homogenous structure.

Homogeneity	Formula		
	CP2%	CP4%	CP6%
	Good	Good	Good

Note: CP=Compact Powder

Table 2: Color Homogeneity test

- Polishing test:

The purpose of the polishing test was to determine how simple it was to apply blush on the skin. The compact powder generated a velvety texture when applied, according to the polishing test results. After being applied three times, the compact powder demonstrated good results with the orange-red color at concentrations of 4% and 6%; however, at concentrations of 2%, no orange-red color was produced due to the very small amount of extract supplied.

- Breakage test:

This test looked for instances of compact powder breaking when it was dropped repeatedly from a height of roughly 0.2 to 0.25 meters onto a hardwood surface. The compact powder for all formulations stayed compact and unbreakable, according to the data detailed in, proving that the compactness had passed the test and that it was safe under all circumstances.

- pH stability test:

Human skin typically has an acidic pH of 4-6, which has historically served as a defense mechanism against other living things. Because the body's internal environment is near to pH 7– 9 (neutral), there is a sharp pH gradient of 2-3 units between the stratum corneum and the epidermis and dermis. In the past, the physiological function of skin characteristics has been thought of as a defense mechanism against invading organisms. The skin's pH can be affected by a number of factors, including age, skin type, and pigmentation.

The stability of the dosage such that any temperature variations will reveal whether the pH changed during preparation. The warmth of in addition to being the ideal temperatures to see if the dosages in this study stay constant, 8 and 30°C were chosen for the pH test in order to assess skin safety. Skin resistance to external physical and chemical agents and the formation of a skin barrier are both influenced by the correct pH of the skin. Following testing, the average pH of the compact powder was ± 5. Thus, it can be said that the small powder dose forms are safe to apply to the skin and satisfy the skin's pH requirements.

- Color stability test:

A stable cosmetic preparation is one whose qualities and attributes remain constant throughout storage and usage, just as they did during initial manufacturing. The value that displays the orange-red color, *a, can be used to symbolize color stability. The test sample will be redder the higher the *a value. No deterioration was seen, and the color remained constant for a longer period of time.

Conclusion:

Butea Monosperma extract might contain flavonoids, lactones, diterpenoids, diterpene glycosides, and phytosterols. The extract can be formulated into blush formulation, which shown good effects. The color stability was remained for longer period. Therefore, the Compact powder blush was most stable formulation. It was homogeneous and was easily applied. There were no fractures that occurred after the breakage test, and the pH remained stable for all formulae after 28 days of storage. This formulation offering a valuable potential for use and striving to make a positive impact, eco-friendly in the field of cosmetic.

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