E-BOOK OF EXTENDED ABSTRACT

THE 14TH INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2025

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BLOOMA: THE TRANSFORMATION OF TRADITIONAL KLUWEK (PANGIUM EDULE) EXTRACT INTO ECO-FRIENDLY AND NATURAL EYEBROW COSMETICS

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ABSTRACT

This research aims to develop BLOOMA, a natural eyebrow colouring product based on kluwek (*Pangium edule*) fruit, as a safe, environmentally friendly, and local wisdom-based cosmetic solution. Kluwek is known to contain natural black pigments that have the potential to be used as colouring ingredients in the beauty industry, especially for eyebrow products. The process of making BLOOMA involves pigment extraction from kluwek seeds, formulation with natural additives to maintain colour stability and consistency, and direct application tests on the skin. The test results showed that BLOOMA produces a deep black colour that is long-lasting, easy to apply, non-irritating, and suitable for various skin types. Thus, BLOOMA shows great potential as a natural ingredient-based cosmetic innovation that is not only healthy and sustainable but also supports the optimal utilisation of local resources.

Keywords: BLOOMA, kluwek, eyebrow colouring.

1. INTRODUCTION

In recent years, there has been a significant increase in the demand for natural beauty products, driven by consumers' growing awareness of the potential risks posed by synthetic chemicals and the importance of environmental sustainability. As a result, the beauty industry has shifted towards using eco-friendly, locally sourced ingredients that offer both health benefits and high economic value. One such ingredient gaining attention is *Pangium edule*, commonly known as kluwek, a plant indigenous to Indonesia that has long been used in traditional culinary practices, particularly in making rawon in East Java. Kluwek extract contains active compounds such as tannins, flavonoids, carotenoids, and anthocyanins, with a total tannin content of 2.80% (Warnasih, 2018). Despite its potential, the population of *Pangium edule* is decreasing, and it is rarely used in the cosmetics industry due to the lack of knowledge about how to cultivate and process this plant (Suleman, 2024).

In response to this growing demand, BLOOMA was developed as an innovative solution in the form of an eyebrow pencil made from the natural pigment of kluwek. Traditionally used in culinary applications, kluwek has now been transformed into an eco-friendly and safe cosmetic ingredient. The increasing consumer demand for safer products free from synthetic dyes, such as carbon black and heavy metals, which can cause skin irritation, led to the creation of this product. BLOOMA offers a more natural and safer alternative, especially for individuals with sensitive skin. Additionally, this product supports sustainability by utilising local resources and traditional knowledge, contributing to the economic value of Indonesia's natural resources and marking a breakthrough in the beauty industry with its environmentally conscious and sustainable approach.

2. METHODOLOGY

2.1 Extraction Process

2.1.1 Preparation of Materials and Equipment

The equipment used in this study included an analytical balance, a beaker, a metal spatula, filter paper, sterile storage containers, and a stirring rod. The materials involved were kluwek (*Pangium edule*), aquadest, and 70% ethanol.

2.1.2 Kluwek Pigment Extraction

The preparation began by cleaning the kluwek (*Pangium edule*), drying it at room temperature, and cutting it into small pieces. For maceration, the kluwek pieces were soaked in a mixture of 70% ethanol and aquadest at a 1:3 ratio for 48 hours at room temperature. The mixture was then filtered, and the liquid extract was heated until the solvent had completely evaporated, resulting in a concentrated kluwek extract.

Table 1 Comparative Design

No.	Solvent	Volume (mL)	Kluwek Quantity (gram)	Ratio
1.	Ethanol 70%	150	50	1 : 3
2.	Aquadest	150	50	1: 3

2.2 Eyebrow Cream Formulation

2.2.1 Preparation of Materials and Equipment

The equipment used included a digital balance, beaker glass, spatula, hot plate, stirrer, stirring rod, pH meter, containers, and product labels. The materials involved in the formulation were kluwek extract, *cera alba*, cetyl alcohol, triethanolamine (TEA), cocoa butter, propylene glycol (PG), lanolin, butylated hydroxytoluene (BHT), propylparaben (PP), and aquadest.

2.2.2 Formulation Plan

Table 2 Formulation Plan of Kluwek Eyebrow Cream

Materials	Quantity (gram)	
	F1	F2
Kluwek Extract	3	5
Cera Alba	20	20
Cetyl Alcohol	5	5
TEA	4	4
Oleum Cacao	15	15

Propylene Glycol	5	5
Lanolin	5	5
BHT	0,1	0,1
Propyl Paraben	0,02	0,02

3. FINDINGS

3.1 Extraction Result

Table 3 Yield and Colour of Kluwek Extract in Various Solvents

No.	Solvent	Yield (%)	Extract Color
1.	70% Ethanol	19,42	Coklat
2.	Aquadest	19,28	Coklat Tua

3.2 Formulation Result

Table 4 Evaluation Result

Parameter	F1	F2
Color	Brown	Dark Brown
Smell	Dominated by cocoa	Dominated by cocoa
Texture	Semi-solid	Semi-solid
Homogenity	Homogenous	Homogenous
pH	±5,1	±5,3
Skin Irritation	Non-irritating	Non-irritating
Color Stability	Stable	Stable

4. CONCLUSION

This study demonstrates that BLOOMA, an eyebrow cream made from kluwek (*Pangium edule*), holds strong potential as a safe and natural alternative to synthetic colourants. The extraction process using 70% ethanol and distilled water produced a high yield with stable brown pigmentation. The formulation of BLOOMA resulted in a semi-solid texture with good homogeneity, stable colour, suitable pH levels, and no skin irritation. In addition to meeting consumer demand for skin-friendly and chemical-free products, BLOOMA supports the sustainable use of local natural resources.

REFERENCES

Hasanah, S. W. (2018). Ekstraksi zat warna dari kluwek (*Pangium edule* Reinw). *Ekologia, 18*(1), 40-48.

Sandoro, S. P. S., & S. S. (2021). Formulasi sediaan eyebrow cream arang aktif batok kelapa. *Jurnal Indah Sains dan Klinis, 2*(2), 12-17.

Suleman, A. W., & N. S. (2024). Perbandingan dan uji aktivitas antioksidan akstrak etanol daun. *CERATA Jurnal Ilmu Farmasi*.

Warnasih, S., & H. U. (2018). Phytochemical characterisation and tannin. *Journal of Science Innovare*, 44-49.

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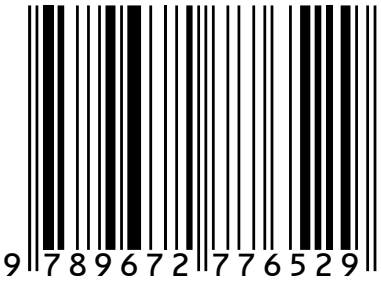

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