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Formulation of Lip Gel from Secang Wood (*Caesalpinia sappan*) Extract as a Natural Colorant and Honey (Apis dorsata) as a Moisturizer

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ABSTRACT

Lip gel is a cosmetic preparation formulated to provide color while maintaining lip moisture. Sappan wood extract (Caesalpinia sappan) contains brazilin and anthocyanins, which function as natural red colorants and antioxidants, while honey (Apis dorsata) is selected as a moisturizer due to its humectant, antioxidant, and antibacterial properties. This study was conducted to evaluate the potential of sappan wood extract as a natural colorant and honey as a moisturizer in lip gel formulation, as well as to assess the physical stability of the product. The extract was obtained using 70% ethanol maceration, yielding 11.45%, which meets the requirements of the Indonesian Herbal Pharmacopeia (≥10.9%). Lip gel formulations were prepared in four variations: F0 (without extract), F1 (5%), F2 (10%), and F3 (15%). Physical stability evaluation included organoleptic testing, homogeneity, pH, adhesion, spreadability, and irritation tests. The results showed that all formulations were homogeneous, had a strawberry aroma, and a soft texture, with color intensity increasing along with higher extract concentrations. The pH values ranged from 4.5 to 6.0, which is safe for the lip mucosa. The spreadability was 5 cm, indicating ease of application, while adhesion was more than 1 second, showing good retention on the lips. Irritation testing on five panelists showed no signs of irritation, suggesting that lip gel formulated with sappan wood extract and honey has potential as a safe and effective natural cosmetic product.

Keywords: *Lip Gel, Secang Wood Extract, Honey, Natural Colorant, Moisturizer.*

1. Introduction

Lip gel is a widely used cosmetic formulation aimed at enhancing lip appearance while maintaining hydration. Increased consumer demand for natural cosmetics has encouraged the use of plant-based ingredients as alternatives to synthetic additives. Secang wood (Caesalpinia sappan) is known for its brazilin and anthocyanin content, which provides a natural red pigment and antioxidant activity. Honey (Apis dorsata), with humectant and antimicrobial properties, has long been used as a natural moisturizer. Previous studies reported the effectiveness of secang extract in cosmetic

formulations as a safe natural dye, while honey demonstrated strong moisturizing effects. However, limited studies have examined their combination in lip gel formulations. Therefore, this study was conducted to evaluate the formulation and physical stability of lip gel containing secang wood extract and honey.

2. RESEARCH METHODS

This study employed an experimental laboratory design to produce lip gel formulations using secang wood extract and honey.

Materials: Secang wood extract, honey,

HPMC, Carbopol, propylene glycol, glycerin, methyl paraben, fragrance, aquadest.

Extraction: Secang wood was extracted with 70% ethanol (maceration) yielding 11.45%.

Formulation: Four formulas (F0–F3) were prepared with varying extract concentrations (0%, 5%, 10%, 15%).

Evaluation: Organoleptic tests, homogeneity, pH, adhesion, spreadability, and irritation tests.

3. RESULTS AND DISCUSSION

Extraction Yield

From 200 g of dried secang powder, 22.9 g of concentrated extract was obtained, equivalent to 11.45%. This value meets the Indonesian Herbal Pharmacopeia standard (>10.9%), confirming the quality of the extract.

Table 1. Extraction Yield of Secang Wood

Berat sampel simplisia kayu secang (g)	Berat Ekstrak (g)	Presentase(%)
200	22,9	11,45

Physical Evaluation

Organoleptic tests showed that all formulations were homogeneous, smooth in texture, and had a strawberry fragrance. The color intensity increased with higher concentrations of secang extract, ranging from light reddish-brown (F1) to dark reddish-brown (F3).

Table 2. pH of Lip Gel Formulations

Formula	Ulangan 1	Ulangan 2	Ulangan 3	Rata-rata
F0	6,1	5,9	6,0	6,0
F1	6,0	6,1	5,9	6,0
F2	5,0	5,1	4,9	5,0
F3	4,5	4,6	4,4	4,5

The pH values (4.5–6.0) fall within the safe range for lip mucosa (4.5–6.5) [6].

Adhesion tests indicated that all formulations had adhesion times greater than one second, which meets cosmetic requirements [7]. Spreadability tests showed an average diameter of 5 cm, which indicates easy application without being overly fluid. No irritation was observed in all five panelists, confirming the safety of the formulations.

These findings are consistent with previous reports that secang extract provides stable natural coloration [8] and honey enhances moisture retention and product safety [9]. The combination demonstrates synergistic

effects suitable for cosmetic lip gel products.

4. CONCLUSION

This study demonstrated that secang wood extract and honey can be successfully formulated into a natural lip gel preparation. The formulations exhibited good physical stability, appropriate pH, adequate adhesion and spreadability, and no irritation. These findings highlight the potential of combining plant-based natural colorants and moisturizers in cosmetic preparations. Further studies should assess long-term stability and consumer acceptability.

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BIBLIOGRAPHY

[1] N. A. Putri, dkk., "Tren perkembangan kosmetik berbahan alami," *Jurnal Farmasi Indonesia*, vol. 31, no. 2, hlm. 115–123, 2021.
[2] A. R. Smith dan L. Brown, "Formulation strategies for semisolid cosmetics," *Cosmetic Science Review*, vol. 12, no. 1, hlm. 55–64, 2020.
[3] S. Lestari, "Kandungan fitokimia *Caesalpinia sappan*," *Jurnal Herbal Medicine*, vol. 8, no. 3, hlm. 145–152, 2019.
[4] T. K. Nguyen, "Biological activities of brazilin and its derivatives," *Phytochemistry Letters*, vol. 32, hlm. 150–158, 2019.
[5] R. Ahmed dan J. A. Phillips, "Therapeutic properties of honey in cosmetics," *International Journal of Cosmetic Science*, vol. 42, no. 4, hlm. 375–382, 2020.
[6] BPOM RI, *Pedoman Evaluasi Kosmetik*, Jakarta: Badan POM RI, 2017.
[7] R. Voigt, *Textbook of Pharmaceutical Technology*, New York: Springer, 1994.
[8] Y. Ambari, dkk., "Natural dyes in cosmetic formulations: stability studies," *Journal of Cosmetic Dermatology*, vol. 19, no. 5, hlm. 120–129, 2020.
[9] E. J. Prasetyo, dkk., "Evaluation of natural lip gel formulations with honey," *Indonesian Journal of Pharmacy*, vol. 34, no. 1, hlm. 40–47, 2023.