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Moringa Oleifera Leaf Extract as A Natural Alternative to Treat Acne on The Skin

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ABSTRACT

Acne is a common skin disorder, especially among teenagers and young adults, which can affect a person's self-confidence. This condition is caused by blockage of hair follicles due to excess oil and dead skin cells, and is influenced by hormonal factors, stress, diet, and skin hygiene. The high cost of skin care encourages some people to look for alternative solutions made from natural ingredients. Moringa oleifera leaves are known to contain active compounds such as flavonoids, tannins, and saponins which are antibacterial and anti-inflammatory, so they have the potential to be used for skin care. In this study, a simple experiment was conducted by mixing moringa leaf extract and pure honey to make a natural mask that was applied to acne-prone facial skin for seven days. The results of the observation showed a decrease in the number of acne, inflammation, and redness of the skin. This effectiveness is obtained from the active compounds of moringa leaves which are able to fight acne-causing bacteria and the honey content which plays a role in maintaining moisture and accelerating skin regeneration. The results of this study indicate that the combination of Moringa leaf and honey masks can be an effective and safe natural alternative in acne skin care, and has the prospect of being further developed in the world of cosmetics and herbs.

Keywords: *acne, moringa leaves, honey, natural mask, anti-inflammatory, antibacterial*

1. INTRODUCTION

Acne or acne vulgaris is a very common skin condition, especially among teenagers and young adults. The causative factors are very diverse, ranging from hormones, excess sebum production, clogged pores, diet, irregular sleep patterns, hygiene, to bacterial infections such as Propionibacterium acnes (Imasari & Emasari, 2021). In addition to internal factors, environmental and lifestyle factors also play an important role in the emergence of acne. At the same time, the use of skin care products such as skincare that contain chemicals and are not suitable for the skin often causes side effects such as irritation and drying of the skin, thus encouraging the search for safer natural alternatives (Yuliana et al. 2022).

Moringa oleifera leaves have been widely known for their high nutritional content and various health benefits (Toripah, 2014; Fahey, 2005; Mahmood et al., 2010). Traditional medicine systems, including Indian Ayurveda, have long documented its therapeutic applications (Nadkarni, 2009). The plant contains numerous bioactive compounds with significant therapeutic potential, including vitamins, minerals, flavonoids, and phenolic acids (Bhattacharya et al., 2018; Kasolo et al., 2010). In addition to being a source of vitamins and minerals, Moringa leaves also contain bioactive compounds such as flavonoids, tannins, and saponins which have antibacterial, antioxidant, and anti-inflammatory properties (Kumar & Pandey, 2013; Peixoto et al., 2011). Literature shows that Moringa leaf extract can inhibit the growth of acne-causing bacteria and increase skin cell regeneration (Rahman et al., 2009; Shama, 2020). This potential makes Moringa leaves an ideal candidate for the formulation of environmentally friendly and effective skin care products.

The purpose of this study was to evaluate the effectiveness of moringa leaf extract as a natural ingredient in treating acne. After conducting various experiments, researchers wanted to see how effective moringa leaves are in reducing the amount and intensity of acne-prone skin and what active compounds contribute to inhibiting and growing acne-causing bacteria.

2. METHODS

This research was experimental, aiming to test the effectiveness of the Moringa leaf mask in reducing acne. In this experiment, a face mask will be made and applied directly to the authors' face as experimental objects and observe the results after use for a certain period of time.

Tools and materials for making mask

a. Tools:

1. Smoothing tool (blender/mortar)
2. Container for mask
3. Mask brush (optional)

b. Ingredients:

1. Moringa leaves that have been ground
2. Pure honey
3. Aquades

Mask-making procedures

The steps for making the mask are as follows:

1. Prepare the moringa leaves.
2. Then wash them clean and dry them for 3 days with a drying process of 2-3 hours per day.
3. Prepare the dried moringa leaves and then grind them using a mortar until they become a fine powder.
4. Mix the previously ground moringa leaf powder with honey in a bow.
5. Add distilled water as a solvent to taste and stir until thick.
6. Transfer the finished mask into the container provided.

Data was collected by conducting direct observation of the skin condition before and after using the Moringa leaf mask. This observation was carried out on changes in the size, number, and intensity of acne and the general condition of the facial skin. Data analysis was carried out by comparing the condition of the facial skin before and after using Moringa leaves. The data collected was analyzed qualitatively to assess the effectiveness of the Moringa leaf mask in reducing acne.

3. RESULTS & DISCUSSION

The resulting mask had a sticky consistency due to the use of honey in larger quantities. The color of the mask was greenish typical of moringa leaves, this mask provides a moisturizing effect on the skin thanks to the honey content which functions as a natural hum. However, the consistency of the mask was less optimal because it is difficult to stay on the face. This mask was packaged in a glass container in a size of 15 grams for twice uses to maintain its quality and make it last longer. Storing it in the refrigerator was recommended at a temperature of 4 degrees celsius to prevent damage to natural ingredients, such as moringa and honey. The reason for using a glass container was because of its quality that gives active ingredients to the natural ingredients of the mask, so the product is safer and has a longer shelf life compared to those made of plastic that can absorb the mask. The mask made can be adjusted to the use and skin condition. For example if the skin is oily, you can put honey as the mixture because it can control excess monkeys, and if the skin condition is sensitive, you can add rose water to the mask and storage is also optional. If it is made in the form of a Banjar, it can be stored in a glass container and put in the refrigerator. However, if this mask is made for single use only, then you can use 2-3 spoons of powder and mix it with honey or rose water depending on the skin condition. After dissolving the mask and it becomes a

thick paste, it is ready to use on a clean face. This mask product is made from a combination of Moringa leaves and honey and is expected to provide good benefits for the skin, especially in maintaining moisture, treating acne, and preventing premature aging.

Based on the test results, this mask provides several benefits as follows:

a. Moisturizes the skin

This mask provides good moisture for dry skin because the honey content functions as a humectant that attracts moisture from the air and keeps the skin hydrated (Kaur and Kaur, 2017). This is in accordance with research that states that honey plays an important role in maintaining skin moisture (Hussein et al., 2019). In addition, moringa leaves are rich in vitamin E which helps maintain moisture and provides a calming effect on the skin (Leone et al., 2015).

b. Treat acne

Moringa leaves have anti-inflammatory and antibacterial properties that can help reduce skin inflammation and kill acne-causing bacteria based on research (Shama, 2020; Peixoto et al., 2011). Moringa leaves have been shown to be effective in treating acne thanks to their ability to reduce inflammation and fight bacteria. Honey also supports this process with its antibacterial properties that help cleanse the skin of bacteria that can cause acne (Kaur & Kaur, 2017).

4. CONCLUSION

From this study, it can be concluded that a mask made from Moringa leaves and honey demonstrates significant potential for skincare applications, particularly in treating inflammation and acne. The comprehensive pharmacological profile of Moringa oleifera (Bhattacharya et al., 2018) supports its traditional reputation as a 'natural gift' for health (Mahmood et al., 2010). Honey contributes antibacterial and anti-inflammatory properties that help reduce skin inflammation, while Moringa leaves provide powerful antioxidants that protect against free radical damage (Luqman et al., 2012). The combination of Moringa's anti-inflammatory (Waterman et al., 2014) and nutritional properties (Fahey, 2005) creates a particularly valuable natural skincare solution. This formulation effectively maintains skin moisture balance without adding excess oil, making it suitable for oily skin types. However, users should apply the mask in proper amounts to prevent excessive oiliness. While the natural composition offers safety advantages for sensitive skin, the mask's relatively thin consistency may reduce its adherence to the skin surface.

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