

# LEEALIN: A POTENT SKIN INFECTION FIGHTER

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## ABSTRACT:

*Leea indica* is locally known as “Mali-mali” in Pahang. The traditional uses of Mali-mali leaves as an antibacterial and antioxidant agent were quite rare but it was believed to treat skin infections such as eczema, vitiligo and dermatophytosis. Our previous intensive phytochemical investigation discovered alkaloid, saponins, terpenoids and phenolics as the main active components and they were antioxidative and antibacterial which responsible for the inhibitory effect against some bacteria that can cause superficial skin infection such as *Staphylococcus epidermidis*. Throughout this finding, we concluded that Mali-mali leaves have potential to develop skin care products such as skin cream product. Thus, a skin cream has been the first time designed from Mali-mali leaves which called LEEALIN from Hutan Simpan UiTM Pahang. The objectives are mainly to formulate a natural skin cream from the extract of *L. indica* leaves and to evaluate its potency as skin infection fighter. This potent skin care product has been well formulated using a technique of “water in oil emulsion” with the presence of “*Habatus sauda*” for the first time. Our finding revealed that the use of this skin cream on superficial skin helped to reduce itching and red inflammation. This finding is hoped to build better skincare and wellness in future.

**Keywords:** Leeaceae, *Leea indica*, Antioxidant, Antibacterial

## INTRODUCTION

The search of new natural therapeutic agents from plant source is now gaining popularity due to the increasing development of the resistant pattern of a microorganism to most currently use antimicrobial drugs. Our previous scientific investigation on *Leea indica* leaves found saponin, terpenoids and phenolics as important antioxidative and antimicrobial constituents whereby the leaves extract exhibited good antibacterial activity against *Staphylococcus epidermis* as well as its antioxidant potency.

These constituents from *L. indica* stem established the use of *L. indica* in traditional practice for treating skin problem. Since a skincream from *L.indica* is not yet formulated up until now, and moreover several skincream sold in market contained ‘lanolin’ which is uncertain syariah compliance, thus the objective of this work are to formulate a skincream called LEEALIN from *L. indica* leaves and to evaluate its potency on superficial skin problem. The methods for LEEALIN formulation is based on the dispersion of water extract of *L. indica* in oil emulsion. Application of LEEALIN skin cream on itching hand skin revealed the reduction of the symptom and its red inflammation.

## METHODS

### Preparation of water extract of *L. Indica* leaves (PART A)

Certain amount of dried *L.indica* leaves was measured and soaked with boiling distilled water to get about 200 ml water extract.

### Preparation of liquid oil base and solid oil base (PART B)

About 150 ml liquid oil mixture of Habatus sauda was mixed with 50 ml of olive oil. The liquid oil mixture was mixed with solid oil which consisted of about 14 g cocoa butter and 14 gram vegetable fat.

### Dispersion process of skincream and skin testing

The mixture from **PART B** was placed in a small pan. The pan was heated using double boiler until oils and mixture of cocoa butter and vegetable solid fat are melted.

The mixture was removed to a blender and allowed cooling to room temperature until it solidified a bit and is cream colored. When the oils have cooled enough, the solidified oil mixture was subjected to highest speed. The water extract was dropped slowly into the center of the whirling oils. When most of the water has been added, the cream starting to thicken. When the cream looks nice and thick and most or all of the water has been added, the blender was turned off and the rest of the water extract was mixed by hand with a spoon or a rubber spatula.

A small amount of skin cream was applied on infected surface of skin. It was rubbed gently until it absorbed completely. The effect was observed after 30 minutes to 1 hour.

## RESULTS AND DISCUSSIONS

According to skin cream testing result, the targetted infected area on skin surface such as itching became reduced as well as red inflammation. Figure 1 shows the result before and after applied the skincream on hand skin.



A

B

C

Figure 1. A: Itching and red inflammation skin before applied skincream; B and C: : Itching and red inflammation reduce after applied skincream.

The good results was might be due to the presence of bioactive compounds which can inhibit bacterial infection that causes itching and red inflammation. We have previously reported bioactive compounds as alkaloid, saponin, steroid, triterpenoid and phenoic compound from *L.indica* leaves which responsible for antibacterial activity as well as antioxidant activity (Harun et al., 2016). Since this bacteria is skin disease-caused microbe, the leaves has potential in skincream formulation. According to Nascimento et al. 2000, the growth of *S. epidermis* was

inhibited because of the extract was able to penetrate the cell wall of bacteria through diffusion process. The leakage of the cell wall came into contact and ruined the cell wall which finally lead to mortality of the cell.

## **CONCLUSION**

As a conclusion we managed to formulate new skincream called LEEALIN from *L.indica* leaves. The skin cream testing revealed that the cream can reduce itching and red inflammation of skin.

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