

**FORMULATION AND EVALUATION OF HERBAL
ANTIBACTERIAL CREAM FROM
*PITHECELLOBIUM JIRINGA***

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ABSTRACT

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The demand of herbal cream has increased rapidly in the market due to the herbs' natural content which does not pose any side effects on the human skin. *Pithecellobium jiringa* (*P. jiringa*) also locally known as jering, has been used in various medicinal applications, either modern or traditional way such as treatment of hypertension, diabetes and removal of bladder stones. The study on stem bark of the *P. jiringa*, revealed that it possesses antioxidant and antimicrobial properties. Thus, the present study was carried out to extract *P. jiringa* stem bark by using ethyl acetate solution and to prepare and evaluate formulation of cream made from ethyl acetate extract of *P. jiringa* stem bark. The antioxidant properties of the *P. jiringa* extract were discovered and observed in antioxidant assay by using DPPH (2, 2-diphenyl-1-picrylhydrazyl) and was compared to the standard ascorbic acid. The study on antioxidant activity of *P. jiringa* extract, revealed that the highest percentage of DPPH scavenging activity of ethyl acetate extracts was 91.88% and the IC₅₀ value was 46.25 µg/mL whereas for ascorbic acid the IC₅₀ value was 11.00 µg/mL. After discovering the different types of emulsion, this study was able to prepare several antibacterial creams (oil in water) that were classified from F1 to F6, by using different concentrations of stearic acid and acetyl alcohol. The evaluation of all the formulations was done by analysing on several parameters such as pH, spread ability and stability. The formulated creams F1 to F6 were then investigated for their antibacterial activity against several bacteria such as *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumonia*, and *Bacillus cereus* by using agar disc diffusion technique. Among the six formulations F6 has been found to show good spread ability, homogeneity, appearance and pH. The formulation did not show any phase separation and easy to be removed. The F6 formulation also showed no irritations on skin such as redness, edema, or erythema in irritancy studies. In microbiological assay, F6 formulation exhibited the largest zone inhibition against *Staphylococcus aureus* which was 11.52 mm at the concentration of 2.0% w/v. Therefore, the study suggests that the composition of extract and the base of the cream of F6 are more stable and can be safely used for the consumers that have skin irritations caused by bacteria.

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