

# **The Antibacterial Properties of Crude Extracts from White Crane Flower leaves (*Rhinacanthus nasutus* (L.) Kurz), Guava Leaves (*Psidium guajava* (L.)), and Yellow Poinciana leaves (*Peltophorum pterocarpum* (DC.) K.Heyne) in Inhibiting Facial Bacteria.**

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## **Abstract**

The Study on the Antibacterial Properties of White Crane Flower leaves (*Rhinacanthus nasutus* (L.) Kurz), Guava Leaves (*Psidium guajava* (L.)), and Yellow Poinciana leaves (*Peltophorum pterocarpum* (DC.) K.Heyne) crude extracts in inhibiting Facial Bacteria. The objectives of this study were 1) to study the effectiveness of Thai herbs (White Crane Flower leaves (*Rhinacanthus nasutus* (L.) Kurz), Guava Leaves (*Psidium guajava* (L.)), and Yellow Poinciana leaves (*Peltophorum pterocarpum* (DC.) K.Heyne)) in inhibiting facial bacteria, 2) to identify the specific types of bacteria on the face, 3) to investigate the properties of each herb in inhibiting the growth of facial bacteria and 4) to provide guidelines for future studies. The experiment was divided into 4 sections as follows: Section 1, to prepare the culture medium. Nutrient agar (NA) was mixed and boiled with distilled water (23 grams of NA per 1 liter of distilled water) and poured into an Erlenmeyer flask. Then, the mixed culture medium and experimental equipment were autoclaved for 20 minutes at 121 degrees Celsius (15 psi). After autoclaving, they were sterilized in a Laminar Flow Clean Bench using ultraviolet (UV) light for 20 minutes. The culture medium was then poured into Petri dishes and allowed to solidify into agar (NA). Section 2, to prepare the bacteria cultures. Swabs were taken from the nasal sulcus of a 17-year-old person and the bacterial culture density was increased using the spread-plate technique. The streak-plate technique was then used to differentiate each colony. Section 3, to identify the specific types of bacteria on the face. This was done by using the gram-staining method with Gram's Crystal Violet Solution, Gram's Iodine Solution, 95% Ethyl Alcohol and Gram's Safranin Solution respectively. Section 4, to investigate the properties of each herb in inhibiting the growth of facial bacteria. Thai herbs (White Crane Flower leaves (*Rhinacanthus nasutus* (L.) Kurz), Guava Leaves (*Psidium guajava* (L.)), and Yellow Poinciana leaves (*Peltophorum pterocarpum* (DC.) K.Heyne)) were extracted into crude extracts using 95% Ethyl Alcohol for 15 minutes. The disc diffusion test was used to measure the zone of inhibition (ZOI).

The results showed that in section 1, Nutrient Agar (NA) has essential nutrients and appropriate factors such as pH value, non-toxicity, and being free from contamination, allowing bacteria to grow potently. In section 2, there are three strains of bacteria used for subculturing, and using the streak-plate technique allows single colonies to grow. In section 3, Gram-positive bacteria (*Staphylococcus* sp.) appeared in the gram-staining methods. In section 4, Observation of the zone of inhibition (ZOI) indicates that Guava leaves have the most effective properties, with a diameter of ZOI between 1.5-2.0 centimeters, whereas the White Crane Flower leaves and the Yellow Poinciana leaves cannot inhibit the growth of facial bacteria. These findings elevate the importance of Thai herbs and to be guidelines for cosmeceutical studies.

**Keywords:** White Crane Flower leaves, Guava Leaves, Yellow Poinciana leaves, Spread-plate techniques, Streak-plates techniques, gram-staining method, disc diffusion test, zone of inhibition