

Phytochemical analysis, anti-bacterial and anti-biofilm of mangrove-associated *Hibiscus tiliaceus* extracts and fractions against *Pseudomonas aeruginosa*/ Yosie Andriani, Habsah Mohammad, Kesaven Bhubalan, Muhammad Iqmal Abdullah, Hermansyah Amir.

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Abstrak

ABSTRAK

The search for novel biological activities from plant-based natural products is gaining traction due to the high abundance and accessibility of the plants, with consequent lower cost for discovery, and lesser side effects and toxicity on human health and the environment. This study focused on the phytochemical analyses and the potency of mangrove-associated *Hibiscus tiliaceus* extracts and fractions as anti-bacteria and anti-biofilm agents against *Pseudomonas aeruginosa*. The bacterial strain contributes towards biofilm formation of various infectious diseases such as cystic fibrosis in lung, and causes blockage in urinary catheter. It is also an initiator of biofouling in shipping and maritime facilities. The methanol extracts of each part of fruits, leaves, and twigs were fractionated into chloroform, ethyl acetate, and methanol fractions using column chromatography. Crystal violet assay was carried out for anti-biofilm activity in a 96 well-plate to evaluate the bacterial inhibition and biofilm formation. Phytochemical analyses suggested the presence of protein, carbohydrate, phenols, tannin, flavonoids, saponins, glycoside, steroids, terpenoids, and alkaloids in *Hibiscus tiliaceus*. The strongest anti-bacterial and anti-biofilm activities were exhibited by the chloroform fraction of fruits (HFC), the methanol crude of fruits (HFMc), methanol fraction of fruits (HFM), and chloroform fraction of twig (HTC) showed more than 80% inhibition as compared to the control. The results suggested that *Hibiscus tiliaceus* had a good potential to be developed as anti-bacterial and anti-biofilm agents.