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Isolation and Antibacterial Activity of Endophytic Bacteria Isolates from Gambir (*Uncaria gambir* (Hunter) Roxb.)

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Abstract : A study on isolation and antibacterial activity of endophytic bacteria of gambir (*Uncaria gambir* (Hunter) Roxb.), along with its antibacterial extract activity test on clinical pathogenic bacteria has been conducted. Isolation of gambir endophytic bacteria was done in nutrient agar incubated at ambient temperature for 48 hours. Samples of gambir leaves and root was used for source of endophytic bacteria. Bacterial isolate was propagated using Mueller Hinton Agar. Bacterial culture was extracted using methanol as solvent. To test methanol extract activity of bacterial isolates, concentration of 20, 40, 60, 80, and 100% (v/v) were used in paper disc. Pathogenic bacterial isolates such as *Escherichia coli*, *Streptococcus mutans*, and *Staphylococcus aureus* were used for antibacterial test. Inhibition zone formed around paper disc indicated antibacterial extract activity against the bacteria. Endophytic bacterial isolates of gambir was identified using Vitek Compact 2.0[®] based on biochemical test. Isolates SO02 and SO03 showed relatively higher antibacterial activity, with inhibition zone of 17 and 30 mm, respectively. Methanol extract of SO02 showed to have higher activity of >10 mm at 100% of extract concentration, compared to that of SO03 which only showed <10 mm) against *E. coli*. High inhibition against *S. mutans* and *S. aureus* was obtained at of 60%. Chemical identification found that methanol extract of SO02 and SO03 showed to have flavonoid and tanning group. Bacterial identification showed that SO02 and SO03 were closely related to *Enterobacter cloacae* and *Gemella morbillorum* with similarity of 98 and 86%, respectively. However, accurate species of these two isolates should be determined.

Keywords : Antibacterial activity, *Enterobacter cloacae*, flavonoid, *Gemella morbillorum*, tannin, *Uncaria gambir*.

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