

The phytochemical content and antimicrobial activities of Malaysian *Calophyllum canum* (stem bark)

Abstract :

Recently there was huge increase in using of 'herbal products'. These can be defined as plants, parts of plants or extracts from plants that are used for curing disease. However, *Calophyllum* species is a tropical plant and it has been used in traditional medicine, the limitation in safety and effectiveness information could lead to serious health problems. Providing information for communities by evaluating the phytochemical contents, antioxidant, antimicrobial and cytotoxic activities will improve the therapeutic values. Three main *Calophyllum canum* fractions (none - high polar) were tested to find out the phenolic, flavonoid, flavonol content, DPPH radical scavenging, reducing power and chelating iron ions. Also were tested against *Bacillus cereus*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Candida albicans*, and *Cryptococcus neoformans*. In addition, cytotoxic activity was assayed against lung cancer A549 cell line. The methanol fraction showed no bioactivity but achieved the highest amount of phenolic, flavonol and flavonoid contents, also it showed a significant result as antioxidant, reducing power and chelating agent. The n-hexane fraction achieved the minimum inhibitory concentration (MIC) value 12.5 $\mu\text{g. mL}^{-1}$ against *B. cereus* while the MIC value for DCM fraction was 25 $\mu\text{g. mL}^{-1}$. The DCM fraction was more active against *S. aureus* where the result was 50 $\mu\text{g. mL}^{-1}$ while the n-hexane fraction was 100 $\mu\text{g. mL}^{-1}$. The three main fractions have shown no activity against gram negative bacterial and fungal. The n-hexane and DCM fractions have shown cytotoxicity against lung cancer cell line; the 50% inhibition concentration (IC(50)) was 22 ± 2.64 and 32 ± 3.78 $\mu\text{g. mL}^{-1}$ respectively. The results were statistically significant ($P < 0.05$). Among the results, *C. canum* fractions proved to be effective against gram positive bacterial and anti-proliferation activity. Also it showed antioxidant activity as well. The results provided beneficial information for communities as well as can help to search for alternative drugs, and will contribute to establish safe and effective use of phytomedicines in the treatment of diseases.