

Phytochemical, antioxidant and antibacterial activities of two kinds of Sabah Zingiberaceae

ABSTRACT

Free radical is a byproducts of biochemical processes that happen in human body. In order to overcome this free radicals damage, antioxidant functions as a molecule that would interact safely to free radicals and terminate the current reaction before further damage is happening. Two choices of antioxidants are available which are natural and synthetic but natural are more preferable because synthetic might cause toxicity and higher cost. The common natural source of antioxidants are medicinal plants and herbs. Due to this, two medicinal plants, *Alpinia galangal* and *Kaempferia galanga*, from Zingiberaceae family is chosen to study the phytochemical constituents and antioxidant and antibacterial activities of different crude extracts; hexane, ethyl acetate and methanol, from dried rhizomes. These two species of Zingiberaceae were collected specifically in Beaufort, Sabah. The crude extracts were obtained by maceration process by using low polarity to high polarity solvent. Phytochemical studies were done. Antioxidant and antimicrobial activities were determined by using DPPH assay and Agar Disc-Diffusion assay, respectively. Results for phytochemical screening for both plants shows that methanol extracts has the following phytochemical properties; saponins, phenols, flavonoids, tannins, steroid and terpenoid. All of the crude extract tested showed that absorbance increase in accordance with the increasing of sample concentration. Both of the plant shows the antioxidant activity as follow order of crude extract: methanol > ethyl acetate > hexane. Four bacteria strain has been tested for antibacterial activity for both plants which are *S. aureus*, *B. Cereus*, *S. thyphimurium* and *V. Cholerae*. For both plant, the non-polar extracts (hexane) exhibits greater antibacterial activity than that of polar extracts (ethyl acetate). However, there was no antibacterial activity observed in methanol extract for both plant. Overall, *A. galanga* and *K. galanga* could serve as potential sources of antibacterial and antioxidant agent.