

Evaluation of efficacy of *Parkia speciosa* Hassk. Pericarps methanolic extract as a potential antibacterial agent

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ABSTRACT

Introduction: The persistent development of resistant strains of bacteria, which has resulted in antibiotic resistance, is a concerning situation. As a result, there is a high demand for the development of novel antibacterial agents, such as those derived from herbal medicine. *Parkia speciosa* Hassk. (*P. speciosa* Hassk.) is a plant commonly eaten by Malaysians, but its use in traditional medicine, particularly the pericarp, is limited. **Materials and methods:** The extract of *P. speciosa* Hassk. pericarps prepared with methanol as an extraction solvent was tested for antimicrobial activity and phytochemical compounds. The pericarps were dried and ground into powder before being immersed in methanol for about 24 days using the exhaustive method. *Staphylococcus aureus*, *Bacillus cereus*, *Salmonella typhimurium*, and *Escherichia coli* were used to test the extract against the selected bacterial strains. The antimicrobial activities were assessed using the agar diffusion and broth microdilution techniques. Antimicrobial susceptibility (AST), minimal inhibitory concentration (MIC), and minimal bactericidal concentration (MBC) were tested at concentrations of 1000, 500, 250, 125, 62.5, 31.25, 15.62, 7.81, 3.90, 1.90, and 0.9 mg/ml. **Results and conclusion:** The best inhibitory effects were observed against *S. aureus* and *B. cereus*, with no inhibitory effects observed against *S. typhimurium* and *E. coli*. The MIC and MBC values of *P. speciosa* Hassk. Pericarps extract against *S. aureus* were 7.8 mg/ml, while the MIC and MBC values of *B. cereus* were 1.9 mg/ml. The presence of alkaloids, glycosides, flavonoids, tannins, and amino acids in the extract, which are responsible for the antibacterial activity, was demonstrated by qualitative phytochemical analysis using standard protocols. The study demonstrated that a methanolic extract of *P. speciosa* pericarps has the potential to be used as an antibacterial agent. The preliminary antimicrobial activity testing revealed that *S. aureus* and *B. cereus* were more susceptible than *S. typhimurium* and *E. coli*. The presence of one or more of the detected phytochemical compounds within the extract could explain the medicinal activities.