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ABSTRACT

Background: Nosocomial infection is a hospital-acquired infection that can cause various severe diseases. The main bacteria that causes nosocomial infection is Pseudomonas aeruginosa multiresistant (PAMR). The Rambutan leaf (Nephelium lappaceum) is known to have antibacterial activity because it is suspected to have the content of flavonoids, polyphenols, and tannins. Aims and Objectives: This research was conducted to determine the antibacterial activity, minimum inhibitory concentration (MIC), and minimum bactericidal concentration (MBC) of the extract and the most active fraction. Materials and Methods: The research was started by extraction and then fractioned by liquid-liquid extraction to obtain ethyl acetate, water, and n-hexane fraction. After that, antibacterial activity was carried out by the agar diffusion method, and the value of MIC and MBC was determined by the microdilution method. Results: The result showed that ethanol extract, ethyl acetate fraction, and water fraction of the Rambutan leaf had antibacterial activity against PAMR, of which the ethyl acetate fraction was the most active fraction. The value of MIC and MBC of the extract and ethyl acetate fraction was in a concentration 2.5% w/v and 5% w/v against PAMR. Conclusions: The antibacterial activity of this extract and fractions against PAMR was probably derived from flavonoids, polyphenols, saponins, and tannins.

KEY WORDS: Nosocomial Infection; Nephelium lappaceum; Antibacterial; Pseudomonas aeruginosa Multiresistant

INTRODUCTION

Nosocomial infection is hospital-acquired infection that can cause various severe disease, such as pneumonia, urinary tract infections, gastroenteritis, and puerperal sepsis.[1] This can occur due to the lack of hygiene in the hospital environment. Nosocomial infections can be caused by bacteria, viruses, and fungi.[2] One of the main bacteria that had resistance to antibiotics on nosocomial infections is Pseudomonas aeruginosa.[1] P. aeruginosa multiresistant (PAMR) is P. aeruginosa, which has been resistant to various antibiotics, such as seftazidime of 34.7%, sefepime 27.7%, piperasilin-tazobactam 36.9%, imipenem 27.2%, and ciprofloxacin 30.1%.[3,4] Antibiotic resistance can occur due to the use of antibiotics that are not rational. Clinical treatment using broad-spectrum antibiotics regularly is a common factor causing changes in patterns of bacterial infections and the patterns of bacterial resistance to various antibiotics. Antibiotic resistance leads to increase mortality and morbidity in hospitals. To overcome this, it is necessary to research the antibacterial activity of the active compounds contained in the natural materials.

Indonesia is an archipelagic country with a variety of biodiversity. Various kinds of plants can thrive in Indonesia. One of the plants that is commonly found is Rambutan (Nephelium lappaceum L.). Conventionally, people use...