

Abstract

Background – *Pseudomonas aeruginosa* is one of the major causes of healthcare-associated infections worldwide. With the increasing spread of multidrug-resistant strains of *P. aeruginosa*, there is an urgent need for novel antibiotics to combat this bacteria. Brown seaweed produces several bioactive compounds that can potentially be used as antibiotics. However, research on Indonesian species of brown seaweed is still limited.

Objective – The aim of this project was to evaluate the antibacterial effects of fourteen extracts of Indonesian *Sargassum* seaweed on *Pseudomonas aeruginosa*.

Methodology – Fresh, oven-dried or freeze-dried samples of *Sargassum* spp. from Indonesia were subjected to one of several treatments. Extraction methods were pulverization, boiling, microwave-assisted extraction (MAE), maceration and a combination of maceration with sonication and/or agitation. The solvents used were methanol, ethanol, distilled water, n-hexane, ethyl acetate and acetone. The strain of *Pseudomonas aeruginosa* used was validated using Gram stain, growth at 42°C as well as indole, catalase and motility tests. Extracts were tested against wild-type *Pseudomonas aeruginosa* in a disc diffusion test.

Results and Conclusion – The extracts failed to display any antibacterial activity. Extraction using non-traditional methods such as mass spectrometry or enzyme-assisted extraction might yield better results. It is recommended for future studies to focus on specific bioactive compounds isolated from *Sargassum* to assess its potential as a source for antimicrobials.