Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

PHYTOCHEMICAL CONTENTS AND EFFECTIVENESS OF CYMBOPOGON NARDUS EXTRACTS INHIBIT THE GROWTH OF STAPHILOCOCCUS AUREUS, AND ESCHERICHIA COLI

Rachmaniyah Rachmaniyah*, Rusmiati Rusmiyati

Department of Environmental Health, Poltekkes Kemenkes Surabaya, Surabaya, East Java, Indonesia

Abstract

Many bacteria can cause both communicable and non-communicable diseases. The aim of this study was to examine the phytochemical content and ability of Cympobogon nardus to inhibit the growth of Coli and Staphilococcus aureus bacteria. A laboratory experiment was conducted to examine the extract of Cymbopogon nardus' ability to inhibit Escherichia coli and Staphylococcus aureus in vitro. Using the maceration process and 96% ethanol, antibacterial testing of the Cymbopogon nardus extract was done at concentrations of 5%, 10%, 20%, and 40% to investigate the growth of Escherichia coli and Staphilococcus aureus. The medium used was MHA, which had previously been inoculated with the test microbes (Staphylococcus aureus ATCC 25923 and Escherichia coli ATCC 25922), and the results obtained were compared with those of the control group. Some of the phytochemicals present in C. nardus were flavonoids, alkaloids, saponins, phenols, quinones, steroids, and citronenolm geraniol. Cymbopoghon ethanol extract levels tested using the well method, namely 5%, 10%, 20%, and 40%, obstructed the growth of E. coli with average diameter of the inhibition zone, respectively, namely 5.22 mm, 6.32 mm, 6, 7, and 6.63 mm. Cympobogon Nardus Concentrations of 20% and 40% could inhibit the growth of Staphylococcus aureus bacteria with an average diameter of the inhibition zone respectively, namely 7.55 mm, 6.2 mm. Cympobogon nardus contains phytochemicals that allow it to help inhibit bacteria and has proven to be very effective in inhibiting the growth of Escherichia coli and Staphylococcus aureus bacteria.

Key words: cymbopogon nardus, escherichia coli, inhibition of bacterial growth, phytochemical test, staphylococcus aureus

Received: January, 2024; Revised final: April, 2024; Accepted: April, 2024

* Author to whom all correspondence should be addressed: e-mail: rachmaniyah78@gmail.com , Phone: +62 818 0304 6575