EXPLORING THE ANTIOXIDANT CAPACITY OF SYZYGIUM AROMATICUM FLOWER EXTRACT AS A NATURAL THERAPEUTIC AGENT

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Background: Dental pain is one of the most prevalent oral health problems experienced globally, including in Indonesia. According to the Indonesian Health Survey (SKI) 2023, dental caries and toothache account for approximately 43.6% of dental disorders in the country. Clove (*Syzygium aromaticum*), an indigenous plant of Indonesia, is known to contain bioactive compounds with antibacterial activity, particularly against gram-negative bacteria. Moreover, clove flower extract has been reported to exhibit natural antioxidant properties that may protect against oxidative damage. This study aimed to evaluate the antioxidant activity of clove flower extract (*Syzygium aromaticum*).
Methods: This experimental laboratory study employed a *post-test only* design. Antioxidant activity was assessed using the DPPH free radical scavenging assay, with quercetin serving as the positive control.
Results: The results demonstrated that clove flower extract exhibited an IC_{50} value of 6.020 ppm, while quercetin showed an IC_{50} of 5.485 ppm. These findings indicate that clove flower extract possesses significant antioxidant activity, though slightly lower than that of quercetin.
Conclusion: Clove flower extract (*Syzygium aromaticum*) demonstrates promising antioxidant potential. Its bioactive constituents, including eugenol, flavonoids, tannins, terpenoids, and alkaloids, contribute to its ability to scavenge free radicals. This natural antioxidant source may be further explored for applications in healthcare, particularly in dentistry, to prevent oxidative damage.
Keywords: *Syzygium aromaticum*, clove flower extract, antioxidant, DPPH, IC_{50}.