



Antimicrobials Activity, Antioxidants Activity and Analysis of Active Extract Chemical Compounds Content of Moringa (*Moringa oleifera* Lam.) Leaf

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Abstract: Background : For developing countries the emergence of strains of bacteria resistant to antibiotics in infectious diseases is an important issue. Handling of infectious diseases is not only increasing health care costs, in addition to resulting in increased mortality due to antibiotic required is not available. Antioxidant chemical compounds derived from plants have a great potential in solving the imbalance between oxidative stress with some degenerative diseases are growing rapidly at this time. Moringa (*Moringa oleifera* Lam.) is one of the plants that have chemical compounds are bioactive polyphenols among others. Moringa leaf has been used as a traditional medicine to treat various diseases.

Method : Plant material washed with water, drained and then dried in the drying cabinet. Phytochemical screening carried out on moringa leaf powder simplicia includes examining chemical compounds. Extraction was done by maceration method using an organic solvent based on multilevel polarity, from low to high polarity solvent hexane, ethyl acetate and methanol. Test bacteria used are gram-positive bacteria (*Staphylococcus aureus*) ATCC 25923 and gram-negative bacteria (*Escherichia coli*) ATCC 25922 as well as microscopic fungus (*Candida albicans*) ATCC 10231 by agar diffusion wells method. Testing of antioxidant activity using free radical catching methods using 1,1-diphenyl-2-picrylhydrazil (DPPH) as free radicals. Analysis of chemical compounds carried by thin layer chromatography (TLC). The stationary phase used silica gel. The mobile phase used was hexane: ethyl acetate (7: 3) with visualization agent 50% sulfuric acid in methanol, Liebermann-Bourchard, Dragendorff and 5% iron (III) chloride.

Results : Screening results of Moringa leaf powder simplicia showed positive results of chemical compounds alkaloids, glycosides, anthraquinone glycosides, flavonoids, steroid, tannins and saponins. The test results demonstrate the antimicrobial activity of the three extracts of Moringa leaves provide inhibition against *Staphylococcus aureus* and *Escherichia coli*, but did not provide barriers against microscopic fungus *Candida albicans*. The antioxidant activity of the all extract of Moringa leaves show IC₅₀ < 50 µg/mL and categorizing them very strong antibacterial and the highest antimicrobial activity demonstrated by the methanol extract. The results of chemical analysis for each extract showed chemical compounds alkaloid, steroids and polyphenols.