

## ABSTRAK

Penelitian ini tentang studi potensi ekstrak *Elephantopus scaber* sebagai pencuci buah dan sayur yang bertujuan untuk mengetahui sifat antibakteri *Elephantopus scaber* terhadap *E.coli* (gram negatif). Pengujian antibakteri dilakukan dengan metode *agar disk* dengan konsentrasi ekstrak 15,000, 12,500, 10,000, 7,500, 5,000 dan 2,500ppm dan digunakan terhadap *E.coli*. Hasil penelitian *in vitro* akan didukung juga dengan tes fitokimia dan penambatan molekul. Dari hasil penelitian diperoleh *zone of inhibition* sebesar 13mm pada 15,000ppm sampai 7,500ppm, 11mm pada 5,000ppm dan 9mm pada 2,500ppm. Uji fitokimia menunjukkan kandungan flavonoid, saponin, steroid dan tannin. Penambatan molekul terhadap 7 turunan flavonoid yang ada di *Elephantopus scaber* dengan protein *DNA Gyrase* (PDB: 6rku). Hasil menunjukkan Luteolin (-4.64 kkal/mol), Quercetin-7-olate (-4.50 kkal/mol) dan Quercetin (-3.93 kkal/mol) mempunyai *binding energy* terkuat. Ini membuat *Elephantopus scaber* menghambat kerja DNA Gyrase yang berarti menghambat replikasi *E.coli*. Kata kunci: *Elephantopus scaber*, *E.coli*, antibakteri, *molecular docking*, *DNA Gyrase*

## ABSTRACT

This research is about the study of the potential of *Elephantopus scaber* extract as a fruit and vegetable wash which aims to determine the antibacterial properties of *Elephantopus scaber* against *E.coli* (gram-negative). Antibacterial testing was carried out using the agar disk method with extract concentrations of 15,000, 12,500, 10,000, 7,500, 5,000 and 2,500ppm and was used against *E.coli*. The results of *in vitro* studies will also be supported by phytochemical tests and molecular docking. It is seen there is a zone of inhibition of 13mm for 15,000ppm to 7,500ppm, 11mm for 5,000ppm and 9mm for 2,500ppm. Phytochemical tests showed the presence of flavonoids, saponins, steroids and tannins. Molecular docking of 7 flavonoid derivatives present in *Elephantopus scaber* with DNA Gyrase protein (PDB: 6rku). The results showed that Luteolin (-4.64 kcal/mol), Quercetin-7-olate (-4.50 kcal/mol) and Quercetin (-3.93 kcal/mol) had the strongest binding energy. This makes *Elephantopus scaber* inhibit the work of DNA Gyrase which means it inhibits the replication of *E.coli*. Keywords: *Elephantopus scaber*, *E.coli*, antibacterial, molecular docking, DNA Gyrase