

ABSTRACT

Typhoid fever is a disease that infects the digestive system in the small intestine, caused by *Salmonella typhi* bacteria that enter the human body through contaminated food and drinks. The prevalence of typhoid fever in Indonesia reaches 80%, with the highest transmission occurring among children and adults. The percentage of patients aged 12-30 years is 70-80%, while those aged 30-40 years account for 10-20%, and those over 40 years old make up only 5-10%. This study utilizes basil leaves (*Ocimum basilicum*) and red ginger (*Zingiber officinale*) to develop Oral Dissolving Film (ODF) as an alternative solution to the common issues faced by elderly individuals and children in taking oral medications such as capsules or tablets. Basil leaves contain active compounds such as saponins, alkaloids, tannins, and flavonoids, which exhibit antibacterial activity. Meanwhile, red ginger contains shogaol, zingiberol, and zingiberen, which provide a refreshing sensation when incorporated into the product. The objective of this study is to evaluate the antibacterial effectiveness of basil leaves and red ginger against *Salmonella typhi* in the form of ODF. The *in silico* study revealed the highest affinity energy in basil (methyl trans-cinnamate) at -6.3 kcal/mol and in ginger (8-shogaol) at -7.8 kcal/mol, which closely approaches the affinity of the native ligand (ATP) at -11.00 kcal/mol. The *in vitro* study resulted in the best ODF formulation (F3), characterized by 551 folds in the folding endurance test, a pH of 6, a weight of 0.123 ± 0.009 g, a thickness of 0.264 ± 0.005 mm, and a disintegration time of 17.75 seconds. The ODF exhibited antibacterial activity against *Salmonella typhi*, with a clear zone diameter of 0.3 mm for the ODF and 0.65 mm for the extract. Additionally, the IC₅₀ value for the antioxidant activity of basil leaf extract was 8.61 ppm, while red ginger had an IC₅₀ value of 2.5 ppm.

Keywords: *Salmonella typhi*, Basil Leaves, Red Ginger, ODF.