

## ABSTRAK

**Latar Belakang** : Infeksi pneumonia merupakan penyakit yang masih menjadi masalah yang cukup serius di Indonesia, penyebab utamanya adalah bakteri *Klebsiella pneumoniae*. Salah satu pengobatan infeksi ini adalah dengan mengkonsumsi antibiotik. Namun, penggunaan yang berlebihan dapat mengakibatkan resistensi bakteri terhadap antibiotik dan mengurangi manfaat dari antibiotik tersebut. Hal ini dapat diatasi dengan beralih menggunakan bahan alami sebagai alternatif pengobatan. Bahan alami yang dapat digunakan sebagai obat adalah kenikir (*Cosmos caudatus* Kunth.) dan kemangi (*Ocimum basilicum*) karena mengandung senyawa antibakteri salah satunya minyak atsiri.

**Tujuan Penelitian** : untuk mengetahui perbedaan daya hambat minyak atsiri daun kenikir (*Cosmos caudatus* Kunth.) dan minyak atsiri daun kemangi (*Ocimum basilicum*) terhadap pertumbuhan *Klebsiella pneumoniae*.

**Metode Penelitian** : Jenis penelitian ini adalah eksperimen murni dengan desain penelitian *Post test Only Control Grup Design*. Subjek penelitian ini adalah biakan bakteri *Klebsiella pneumoniae* ATCC 33495 berumur 1x24jam yang diinkubasi pada suhu 37°C. Obyek penelitian ini adalah minyak atsiri daun kenikir dan minyak atsiri daun kemangi dalam berbagai varian konsentrasi yakni 20%, 40%, 60%, 80%,100%. Uji daya hambat antibakteri menggunakan metode difusi sumuran. Data hasil pengukuran zona hambat minyak atsiri daun kenikir dan minyak atsiri daun kemangi dalam berbagai variasi konsentrasi dilakukan uji *One Way Anova* dan *Post Hoc LSD* untuk mengetahui konsentrasi optimum pada masing-masing minyak atsiri. Data hasil pengukuran zona hambat pada konsentrasi optimum diperoleh sebanyak 30 data, kemudian data dianalisis dengan uji *Independent Sample T-Test*.

**Hasil Penelitian** : Rerata hasil zona hambat minyak atsiri daun kenikir pada konsentrasi optimum 100% adalah 17,13 mm. Sementara rerata hasil zona hambat minyak atsiri daun kemangi pada konsentrasi optimum 100% adalah 15,34 mm. Hasil yang diuji dengan uji *Independent Sample T-Test* menunjukkan nilai signifikansi sebesar 0,003 ( $p < 0,05$ ) yang berarti ada perbedaan daya hambat minyak atsiri daun kenikir (*Cosmos caudatus* Kunth.) dan minyak atsiri daun kemangi (*Ocimum basilicum*) terhadap pertumbuhan *Klebsiella pneumoniae*.

**Kesimpulan** : Ada perbedaan daya hambat minyak atsiri daun kenikir (*Cosmos caudatus* Kunth.) dan minyak atsiri daun kemangi (*Ocimum basilicum*) terhadap pertumbuhan *Klebsiella pneumoniae*.

**Kata Kunci** : *Klebsiella pneumoniae*, minyak atsiri daun kenikir, minyak atsiri daun kemangi, diameter zona hambat

## ABSTRACT

**Background** : Pneumonia infection is a disease that is still a serious problem in Indonesia, the main cause of this infection is the bacterium *Klebsiella pneumoniae*. One of the treatments for this infection is by consuming antibiotics. However, over use can caused bacterial resistance to antibiotics and thus reduce the benefits of these antibiotics. This can be overcome by switching to using natural materials as an alternative treatment. Natural materials that can be used as medicine are kenikir (*Cosmos caudatus* Kunth.) and basil (*Ocimum basilicum*) because they contain antibacterial compounds, one of which is essential oils.

**Research Objective** : to determine the differences in the inhibition of essential oils of kenikir leaves (*Cosmos caudatus* Kunth.) and essential oilsof basil leaves (*Ocimum basilicum*) on the growth of *Klebsiella pneumoniae*.

**Research Method** : This type of research is a True Experimental research design with Post test Only Control Group Design. The subject of this research was the culture of *Klebsiella pneumoniae* ATCC 33495 aged 1x24 hours that incubated at 37°C. The object of this research are essential oil of kenikir leaf and essential oil of basil leaf in various concentrations of 20%, 40%, 60%, 80%, 100%. The inhibition test used the well diffusion method. Inhibition zone measurement data from essential oils of kenikir leaves and essential oils of basil leaves in various concentrations were analyzed by the One Way ANOVA and Post Hoc LSD tests to determine the optimum concentration of each essential oils. The data from the measurement of the inhibition zone results at the optimum concentration obtained 30 data, then the data were analyzed using Independent Sample T-Test.

**Results** : The average results of inhibition zone inhibiton zone of kenikir leaves essential oils at the optimum concentration 100% was 17,13 mm. Meanwhile the average results of inhibition zone inhibiton zone of basil leaves essential oils at the optimum concentration 100% was 15,34 mm. The results tested with the Independent Sample T-Test showed a significance value of 0,003 ( $p < 0,05$ ), which means that there were differences in the inhibition essential oils of kenikir leaves (*Cosmos caudatus* Kunth.) and essential oils of basil leaves (*Ocimum basilicum*) on the growth of *Klebsiella pneumoniae*.

**Conclusion** : There are differences in the inhibition essential oils of kenikir leaves (*Cosmos caudatus* Kunth.) and essential oils of basil leaves (*Ocimum basilicum*) on the growth of *Klebsiella pneumoniae*.

**Keywords** : *Klebsiella pneumoniae*, essential oils of kenikir leaves, essential oils of basil leaves, inhibition zone diameter

