

## **KUALITAS FISIK DAN FISIOLOGIS BENIH LIMA JENIS *EUCALYPTUS* PENGHASIL MINYAK ATSIRI DI KHDTK WANAGAMA**

Muhammad Azzam Alfatih

### **INTISARI**

Pandemi Covid-19 telah mendorong urgensi kemandirian kesehatan nasional, termasuk dalam pengembangan bahan baku obat berbasis sumber daya alam lokal. Minyak atsiri dari tanaman *Eucalyptus* spp. menjadi perhatian karena kandungan senyawa bioaktif seperti 1,8-*cineole* dan *citronellal* yang berpotensi sebagai antivirus dan antibakteri. K.. H.. D.. T.. K../KHDTK Wanagama, Fakultas Kehutanan UGM memiliki lima spesies *Eucalyptus* penghasil minyak atsiri, yaitu *E. alba*, *E. brassiana*, *E. camaldulensis*, *E. deglupta*, *E. teretricornis*. Namun, kualitas benih dari spesies tersebut belum pernah diuji secara sistematis.

Penelitian ini bertujuan untuk mengevaluasi mutu fisik dan fisiologis benih lima spesies *Eucalyptus* penghasil minyak atsiri di KHDTK Wanagama, yaitu *E. alba*, *E. brassiana*, *E. camaldulensis*, *E. deglupta*, dan *E. teretricornis*. Benih dikoleksi dari Petak 14 pada Mei - Juni 2023 dan ditimbang sebanyak 0,2 gram per spesies dengan tiga ulangan. Pengujian mutu fisik dilakukan melalui pengamatan morfologi benih menggunakan mikroskop digital, sedangkan mutu fisiologis diuji melalui parameter Daya Berkecambah, Kecepatan Berkecambah, dan perkembangan semai. Pengamatan dilakukan setiap tiga hari sekali selama 30 hari. Data dianalisis menggunakan Analisis Varians/ANOVA untuk mengetahui perbedaan antar spesies, dan dilanjutkan dengan uji *D.. M.. R.. T../DMRT* pada taraf kepercayaan 5% jika terdapat perbedaan yang signifikan.

Hasil penelitian menunjukkan bahwa perbedaan jenis *Eucalyptus* memberikan pengaruh yang sangat signifikan terhadap mutu fisik dan fisiologis. Benih dari jenis *E. brassiana* menunjukkan performa terbaik untuk semua variabel pengamatan, yaitu persentase Daya Berkecambah (75,85%), Kecepatan Berkecambah (7,61%), dan tinggi akhir kecambah (3,06 cm). Selain itu, meskipun memiliki jumlah daun kedua tertinggi (6,72 helai), jumlah daun *E. brassiana* tidak berbeda secara signifikan dengan *E. alba* (tertinggi), dengan nilai sebesar 7,58 helai.

Kata Kunci: *Eucalyptus* spp., Minyak atsiri, Mutu benih, Uji Fisik, Uji Fisiologis

## PHYSICAL AND PHYSIOLOGICAL QUALITY OF SEEDS FROM FIVE TYPES OF *EUCALYPTUS* PRODUCING ESSENTIAL OILS IN THE KHDTK WANAGAMA

Muhammad Azzam Alfatih

### **ABSTRACT**

The COVID-19 pandemic has highlighted the urgency of national health independence, including in the development of locally sourced raw materials for medicines. Essential oils from *Eucalyptus* spp. plants have attracted attention due to their bioactive compounds, such as 1,8-cineole and citronellal, which have potential antiviral and antibacterial properties. The Wanagama K.. H.. D.. T.. K.. (KHDTK Wanagama), Faculty of Forestry, Universitas Gadjah Mada (UGM), houses five *Eucalyptus* species that produce essential oils: *E. alba*, *E. brassiana*, *E. camaldulensis*, *E. deglupta*, *E. teretricornis*. However, the quality of seeds from these species has never been systematically tested.

This study aims to evaluate the physical and physiological quality of seeds from five *Eucalyptus* species that produce essential oils at KHDTK Wanagama, namely *E. alba*, *E. brassiana*, *E. camaldulensis*, *E. deglupta*, *E. teretricornis*. Seeds were collected from Plot 14 in May - June 2023 and weighed at 0.2 grams per species with three replicates. Physical quality testing was conducted through seed morphology observation using a digital microscope, while physiological quality was tested through germination rate, germination speed, and seedling development parameters. Observations were conducted every three days for 30 days. Data were analyzed using ANOVA to determine differences between species, followed by the D.. M.. R.. T../DMRT test at a 5% significance level if significant differences were found.

The results of the study indicated that the species differences in *Eucalyptus* gave very significant effects on seeds' physical and physiological quality. Seeds from the *E. brassiana* species showed the best performance on germination rate (75.85%), germination speed (7.61%), and final seedling height (3.06 cm). In addition, despite having the second highest number of leaves (6.72 leaves), the number of leaves of *E. brassiana* was not significantly different from *E. alba* (the highest), with a value of 7.58 leaves.

Keywords: *Eucalyptus* spp., Essential oil, Seed quality, Physical test, Physiological test