

RINGKASAN

Dendrobium lasianthera merupakan salah satu jenis anggrek endemik Indonesia yang memiliki nilai ekonomi tinggi, tetapi populasinya di alam semakin menurun akibat eksploitasi dan degradasi habitat. Penelitian ini bertujuan untuk mengetahui pengaruh jenis media tanam dan warna cahaya LED terhadap pertumbuhan *D. lasianthera* dalam kultur in vitro. Penelitian dilakukan menggunakan *Split-plot* dengan kombinasi empat warna cahaya LED sebagai *main plot*, yaitu C0 (putih), C1 (biru), C2 (merah), dan C3 (biru + merah), serta kombinasi tiga jenis media tanam sebagai *sub-plot*, yaitu M0 (TBOK), M1 (Knudson C), dan M2 ($\frac{1}{2}$ vit + MS). Parameter yang diamati meliputi jumlah tunas, jumlah akar, panjang akar, luas daun, dan jumlah daun. Hasil penelitian menunjukkan bahwa media Knudson C (M1) memberikan pertumbuhan terbaik pada jumlah tunas (1,27 tunas) dan luas daun (6,76 cm²), sedangkan media TBOK (M0) menghasilkan panjang akar terbaik (2,32 cm). Warna cahaya LED putih (C0) menghasilkan luas daun terbesar (5,25 cm²), sedangkan LED biru + merah (C3) memberikan hasil terbaik pada jumlah tunas (0,97 tunas). Hasil uji lanjut *Duncan's Multiple Range Test* (DMRT) menunjukkan bahwa interaksi antara jenis media dan warna cahaya LED berpengaruh nyata terhadap tinggi tanaman, panjang daun, luas daun, dan jumlah akar. Kadar klorofil tertinggi terdapat pada kombinasi cahaya biru+merah dibandingkan pada warna cahaya lain.

SUMMARY

Dendrobium lasianthera is a native Indonesian orchid with significant economic importance, yet its natural population is decreasing as a result of overexploitation and habitat destruction. This study aimed to determine the effect of different culture media and LED light colors on the *in vitro* growth of *D. lasianthera*. The research was conducted using a split-plot design with three types of culture media: M0 (TBOK), M1 (Knudson C), and M2 ($\frac{1}{2}$ vit + MS), combined with four LED light colors: C0 (white), C1 (blue), C2 (red), and C3 (blue + red). The observed parameters included the number of shoots, number of roots, root length, leaf area, and number of leaves. The results showed that Knudson C medium (M1) produced the best growth in terms of the number of shoots (1.27 shoots) and leaf area (6.76 cm²), while TBOK medium (M0) resulted in the longest root growth (2.32 cm). White LED light (C0) produced the largest leaf area (5.25 cm²), while blue + red LED light (C3) resulted in the highest number of shoots (0.97 shoots). The Duncan's Multiple Range Test (DMRT) indicated that the interaction between culture media and LED light color had a significant effect on plant height, leaf length, leaf area, and root number. The highest chlorophyll content was found in the blue + red LED light combination compared to other light colors. This study provides insights into optimizing the *in vitro* propagation of *D. lasianthera* to support conservation efforts and sustainable orchid production.