

**PERTUMBUHAN TANAMAN TRANSFORMAN**  
***Phalaenopsis amabilis* (L.) Blume PEMBAWA GEN 35S::AtRKD4**  
**SECARA EX VITRO**

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**INTISARI**

Anggrek *Phalaenopsis amabilis* (L.) Blume adalah bunga nasional Indonesia. Perbanyak anggrek melalui embriogenesis somatik dan transformasi genetik menggunakan gen embrio *Arabidopsis thaliana* RWP-RK Domain-containing4 (*AtRKD4*) dari tanaman model *Arabidopsis thaliana* mampu meningkatkan jumlah produksi. Tujuan dari penelitian ini adalah mendeteksi integrasi gen 35S::AtRKD4 pada genom anggrek *P. amabilis* transforman pembawa gen 35S::AtRKD4 dan membandingkan pertumbuhan anggrek *P. amabilis* transforman pembawa gen 35S::AtRKD4 dengan *P. amabilis* non-transforman pada lingkungan *ex vitro*. Pengukuran pertumbuhan tanaman meliputi kecepatan pertumbuhan, jumlah daun, panjang daun, lebar daun, jumlah akar, panjang akar dan diameter akar. Data dianalisis menggunakan Microsoft Excel 2010 dan SPSS Statistics 26. Deteksi insersi transgen pada genom tanaman dilakukan dengan isolasi total DNA genom dengan *Cetyltrimethyl Ammonium Bromide* (CTAB). DNA Genom tanaman diamplifikasi dengan *Polymerase Chain Reaction* (PCR) menggunakan primer spesifik *AtRKD4* dan primer gen *HPT*, serta primer gen *ACTIN* sebagai kontrol internal. Hasil penelitian ini menunjukkan bahwa gen *AtRKD4* (198 bp) teramplifikasi pada genom anggrek *P. amabilis* transforman pembawa gen 35S::AtRKD4 dan tidak terdapat perbedaan pertumbuhan dan fenotipe yang signifikan antara anggrek *P. amabilis* transforman pembawa gen 35S::AtRKD4 dengan *P. amabilis* non-transforman pada lingkungan *ex vitro*.

**Kata kunci:** Anggrek, *Arabidopsis*, *AtRKD4*, *Phalaenopsis amabilis* (L.) Blume

**THE GROWTH OF *Phalaenopsis amabilis* (L.) Blume TRANSFORMANT  
ORCHID PLANT CARRYING 35S::*AtRKD4* GENE  
IN *EX VITRO* CONDITIONS**

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**ABSTRACT**

*Phalaenopsis amabilis* (L.) Blume orchid is Indonesian national flower. Somatic embryogenesis and genetic transformation of the model plant *Arabidopsis thaliana* embryo gene *Arabidopsis thaliana* RWP-RK Domain-containing4 (*AtRKD4*) can increase *P. amabilis* crop production. Objectives of this research were to detect the integration of the 35S::*AtRKD4* gene in the genome of the *P. amabilis* transformant carrying 35S::*AtRKD4* and to compare the growth of *P. amabilis* transformant carrying 35S::*AtRKD4* with *P. amabilis* non-transformant under *ex vitro* conditions. Measurement of plant growth included life sustainability, total number of leaves, leaf length, leaf width, total number of roots, root length and root diameter. Data were analyzed using Microsoft Excel 2010 and SPSS Statistics 26. DNA isolation from the genome was carried out using *Cetyltrimethyl Ammonium Bromide* (CTAB). DNA was amplified by *Polymerase Chain Reaction* (PCR) using specific primers *AtRKD4*, *HPT* and *ACTIN*. The results showed the *AtRKD4* genes (198 bp) was amplified from *P. amabilis* transformant carrying 35S::*AtRKD4*. This proves that transgenes have been integrated into the *P. amabilis* transformant carrying 35S::*AtRKD4* genome and function normally and plant forms unchanged as in non-transformant plants. There is a stable phenotype with no change in growth and development of plants between *P. amabilis* transformant carrying 35S::*AtRKD4* and *P. amabilis* non-transformant under *ex vitro* conditions.

**Keywords:** *Arabidopsis*, *AtRKD4*, Orchid, *Phalaenopsis amabilis* (L.) Blume