

ABSTRAK

Siti Hafizah Al Khairiyah Bintang. Pengembangan Buku Penuntun Praktikum Kultur Jaringan Berbasis Riset Induksi Kalus Manggis (*Garcinia Mangostana L.*) In Vitro. Program Pascasarjana Universitas Negeri Medan, 2018.

Penelitian ini bertujuan untuk mengetahui kelayakan buku panduan praktikum kultur jaringan berbasis riset induksi kalus manggis (*Garcinia mangostana L.*) secara in vitro dengan pemberian zat pengatur tumbuh. Subjek dalam penelitian ini adalah (1) satu orang dosen ahli materi, (2) satu orang dosen ahli desain pembelajaran, (3) satu orang dosen ahli desain layout buku, (4) satu orang dosen pengampu matakuliah kultur jaringan dan mahasiswa jurusan Biologi Universitas Negeri Medan. Penelitian ini merupakan penelitian pengembangan dengan model ADDIE modifikasi dengan 5 tahap yaitu *Analysis, Design, Development, Implementation dan Evaluation*. Hasil penelitian menunjukkan bahwa (1) penilaian dua orang dosen ahli materi berdasarkan kelayakan isi, kelayakan penyajian dan keterbacaan diperoleh skor atau persentase 91.51% dengan kriteria sangat baik, (2) penilaian dosen ahli desain pembelajaran berdasarkan kesesuaian materi, sistematika penyampaian materi, efisiensi buku kultur jaringan dan kebahasaan diperoleh skor persentase 94.47% dengan kriteria sangat baik, (3) penilaian oleh dosen ahli desain layout buku berdasarkan ukuran buku, desain sampul dan desain isi buku diperoleh skor persentase 93.22% dengan kriteria sangat baik, (4) penilaian oleh dosen pengampu matakuliah kultur jaringan diperoleh skor persentase 94% dengan kriteria sangat baik dan (5) penilaian oleh mahasiswa termasuk kriteria sangat baik yang terdiri dari uji coba perorangan diperoleh skor persentase 88.66%, uji coba kelompok kecil diperoleh skor persentase 90.28%, uji coba kelompok lapangan diperoleh skor persentase 91.23%, nilai *N-Gain* kelas eksperimen memiliki rata-rata persentase sebesar 60.57 yang berarti skor tersebut menempati kategori cukup efektif, sementara, nilai *N-Gain* kelas kontrol memiliki rata-rata persentase sebesar 52,96 % dan Uji hipotesis posttest pada kelas kontrol dan eksperimen diketahui $t_{hitung} = 4,55$. Sementara itu $t_{tabel} = 1,69$. Sehingga dapat disimpulkan bahwa buku panduan praktikum kultur jaringan berbasis riset yang dikembangkan telah layak menurut dosen ahli materi, desain pembelajaran, desain layout buku, dosen pengampu matakuliah kultur jaringan dan mahasiswa sehingga buku kultur jaringan berbasis riset pada topik induksi kalus manggis (*Garcinia mangostana L.*) secara in vitro dengan pemberian zat pengatur tumbuh dapat digunakan sebagai buku panduan praktikum bagi dosen, mahasiswa, pembaca secara umum dan peneliti yang tertarik dibidang kultur jaringan.

Kata kunci: Pengembangan, buku panduan praktikum, riset, induksi kalus manggis (*Garcinia mangostana L.*), in vitro

ABSTRACT

Siti Hafizah Al Khairiyah Bintang. Development of a Tissue Culture Practicum Guide Book Based on Mangosteen Callus Induction (*Garcinia Mangostana L.*) In Vitro Research. Postgraduate Program, Universitas Negeri Medan, 2018.

The aim of this study was to determine the feasibility of a tissue culture practical manual based on research on callus induction of mangosteen (*Garcinia mangostana L.*) in vitro with the administration of growth regulators. The subjects in this study were (1) one material expert lecturer, (2) one learning design expert lecturer, (3) one book layout design expert lecturer, (4) one lecturer in tissue culture course and students majoring in University Biology, Medan State. This research is a development research with modified ADDIE model with 5 stages, namely Analysis, Design, Development, Implementation and Evaluation. The results showed that (1) the assessment of two material expert lecturers based on the feasibility of content, presentation feasibility and readability obtained a score or percentage of 91.51% with very good criteria, (2) the assessment of learning design expert lecturers based on material suitability, systematic delivery of material, book deficiency tissue culture and linguistics obtained a percentage score of 94.47% with very good criteria, (3) an assessment by an expert lecturer on book layout design based on book size, cover design and book content design obtained a percentage score of 93.22% with very good criteria, (4) assessment by lecturers Tissue culture course instructors obtained a percentage score of 94% with very good criteria and (5) the assessment by students including very good criteria consisting of individual trials obtained a percentage score of 88.66%, small group trials obtained a percentage score of 90.28%, field group trials obtained a percentage score of 91.23%, the N-Gain value of the experimental class has have an average percentage of 60.57 which means that the score is in the quite effective category, meanwhile, the N-Gain value for the control class has an average percentage of 52.96% and the posttest hypothesis test in the control and experimental classes is known to have $t_{count} = 4.55$. Meanwhile $t_{table} = 1.69$. So it can be concluded that the research-based tissue culture practicum guide that was developed was feasible according to material expert lecturers, learning designs, book layout designs, lecturers in tissue culture courses and students so that the research-based tissue culture book on the topic of callus induction of mangosteen (*Garcinia mangostana L.*) in vitro with the provision of growth regulators can be used as a practical guide book for lecturers, students, readers in general and researchers who are interested in the field of tissue culture.

Keywords: Development, practical guide book, research, callus induction of mangosteen (*Garcinia mangostana L.*), *in vitro*