

## ABSTRAK

**MIFTAH ARINA HARAHAHAP.** Pengembangan Buku Berbasis Riset, Budidaya Sayuran *Brassica* Hidroponik pada Mata Kuliah Fisiologi Tumbuhan di Universitas Negeri Medan. Tesis. Medan: Program Pascasarjana Universitas Negeri Medan, November 2019.

Penelitian ini bertujuan untuk menghasilkan buku referensi berbasis riset, budidaya sayuran *Brassica* hidroponik yang layak digunakan pada mata kuliah fisiologi tumbuhan di Universitas Negeri Medan. Kelayakan dan uji coba produk diperoleh berdasarkan hasil validasi: (1) dua orang ahli materi; (2) dua orang ahli desain instruksional pembelajaran; (3) satu orang ahli *layout*; (4) satu orang penilaian dosen pengampu mata kuliah Fisiologi Tumbuhan dan; (5) lima puluh empat orang penilaian mahasiswa Biologi Universitas Negeri Medan. Penelitian dilaksanakan di Universitas Negeri Medan pada bulan Agustus 2017 s/d April 2019. Penelitian ini merupakan penelitian dan pengembangan (*R&D*) mengadaptasi model 4D Thiagarajan. Namun pada penelitian ini hanya dilaksanakan sampai tahap *development*. Hasil penelitian menunjukkan bahwa: (1) validasi konten/materi dinilai berdasarkan kesesuaian materi, keakuratan dan kemutakhiran materi, kelayakan penyajian, kelayakan bahasa, dan efek bagi pembelajaran memiliki nilai rata-rata 91% (sangat baik); (2) validasi desain instruksional pembelajaran dinilai berdasarkan kesesuaian materi, kelayakan bahasa, efisiensi bagi pembelajaran, dan penilaian produk memiliki nilai rata-rata 89% (sangat baik); (3) validasi *layout* buku dinilai berdasarkan ukuran buku referensi, desain sampul, dan desain isi buku memiliki nilai rata-rata 89% (sangat baik); (4) Penilaian/ tanggapan dosen pengampu dinilai berdasarkan tampilan dan kebahasaan buku, penguasaan konsep, dan motivasi belajar memiliki nilai 82% (sangat baik); (5) Penilaian/tanggapan mahasiswa pada uji perorangan sebesar 89% (sangat baik), uji kelompok sedang sebesar 89% (sangat baik), dan uji lapangan terbatas sebesar 86% (sangat baik). Rata-rata skor penilaian/ tanggapan mahasiswa secara keseluruhan sebesar 88% (sangat baik). Sehingga buku referensi berbasis riset, budidaya sayuran *Brassica* hidroponik dapat digunakan sebagai buku tambahan/ pendamping/ pendukung buku ajar utama pada pembelajaran fisiologi tumbuhan.

Kata kunci : berbasis riset, buku referensi, fisiologi tumbuhan, hidroponik, pengembangan

## ABSTRACT

**MIFTAH ARINA HARAHAP.** Development of Research Based Book, Hydroponic *Brassica* Vegetables Cultivation in Plant Physiology Course at Universitas Negeri Medan. Thesis. Medan: Postgraduate School of Universitas Negeri Medan, November 2019.

This research was conducted to create reference book that based on research of hydroponic *Brassica* vegetables cultivation, which feasible to use in plant physiology course in Universitas Negeri Medan. Product feasibility and trial was obtain from validation result by: (1) two content validators; (2) two experts in learning instructional design; (3) layout expert; (4) plant physiology lecture; (5) Fifty four of Biology students response in Universitas Negeri Medan. This research was held at Universitas Negeri Medan in August 2017 to April 2019. The type of this research was research and development (*R&D*) adapting 4-D Thiagarajan's Model, but limited until development step. The results were: (1) content validation result (content feasibility, accuracy and novelty, content display feasibility, language feasibility and effect on learning) had 91% mean scores (very good); (2) learning instructional design result (content feasibility, language feasibility, efficiency in learning) had 89% mean scores (very good); (3) layout validation result (size, cover design, content design) had mean scores 89% (very good); (4) lecture response on book display, language aspect, concept mastery, learning motivation was 82% (very good); (5) student's response on overall book in individual trial was 89% (very good), small group trial was 89% (very good), in limited group trial was 86% (very good), and average scores of student's response in all trials was 88% (very good). All results indicated that reference book that based on research of hydroponic *Brassica* vegetables cultivation was feasible to use as additional or complementary book beside main handbook in plant physiology course.

Keywords: development, hydroponic, plant physiology, reference book, research based,

