PERKULIAHAN KIMIA BAHAN MAKANAN MEMUAT ASPEK FUNGSIONAL DAN KEAMANAN PANGAN BUDAYA LOMBOK UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR KRITIS MAHASISWA

DISERTASI

Diajukan untuk memenuhi sebagian syarat memperoleh gelar Doktor Kependidikan dalam bidang Pendidikan Ilmu Pengetahuan Alam

Oleh
NOVA KURNIA
NIM. 1402709

PROGRAM STUDI PENDIDIKAN ILMU PENGETAHUAN ALAM
SEKOLAH PASCASARJANA
UNIVERSITAS PENDIDIKAN INDONESIA
2021

Perkuliahan Kimia Bahan Makanan
Memuat Aspek Fungsional dan Keamanan Pangan Budaya Lombok
untuk Meningkatkan Keterampilan Berpikir Kritis Mahasiswa

Oleh
Nova Kurnia

S.Pd IKIP Mataram, 2010
M.Pd Universitas Mataram, 2013

Sebuah Disertasi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Doktor Pendidikan (Dr.) pada Fakultas Pendidikan Matematika dan IPA

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LEMBAR PENGESAHAN DISERTASI

PERKULIAHAN KIMIA BAHAN MAKANAN MEMUAT ASPEK FUNGSIONAL DAN KEAMANAN PANGAN BUDAYA LOMBOK UNTUK MENINGKATKAN KETERAMPILAN BERPIKIR KRITIS MAHASISWA

Disetujui dan disahkan oleh Tim Promotor

Promotor

Prof. Dr. Liliasari, M.Pd.
NIP. 920191119490927201

Co-Promotor

Dr. Dede Robiatul Adawiyah, M.Si.
NIP. 196805051992032002

Anggota

Dr. Florentina Maria Titin Supriyanti, M.Si.
NIP. 195810141986012001

Mengetahui,
Ketua Program Studi Pendidikan IPA Sekolah Pascasarjana

Dr. Hj. Ida Kaniawati, M.Si.
NIP. 196807031992032001

PERNYATAAN KEASLIAN DISERTASI

Dengan ini saya menyatakan bahwa disertasi dengan judul **Perkuliahan Kimia Bahan Makanan Memuat Aspek Fungsional dan Keamanan Pangan Budaya Lombok untuk Meningkatkan Keterampilan Berpikir Kritis Mahasiswa** ini, beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku di masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung resiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Juli 2021

Nova Kurnia

NIM. 1402709

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Disertasi ini berisi rangkaian Perkuliahan Kimia Bahan Makanan yang di dalamnya terdapat aktivitas proyek keamanan pangan dan proyek pangan fungsional sebagai topik baru yang relevan dengan isu dan tantangan kehidupan saat ini. Diharapkan melalui perkuliahan ini mampu meningkatkan keterampilan berpikir kritis mahasiswa calon guru kimia di tengah kompleksitasnya segala permasalahan hidup terutama kaitannya dengan pangan sebagai kebutuhan dasar. Selain itu, perkuliahan ini juga memanfaatkan budaya sehari-hari berupa pangan Lombok dan bahan lokal sekitar sebagai sumber belajar kimia bahan pangan terutama mempelajari aspek fungsional dan keamanannya. Melalui program perkuliahan ini, mahasiswa tidak hanya belajar tentang proses perubahan pada pangan yang berkaitan dengan aspek keamanan dan fungsional yang dihasilkannya, tetapi juga merevitalisasi kebudayaannya dalam pangan yang selama ini dikonsumsi saja.

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Penulis

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ABSTRAK

Isu terkini dalam dunia pangan terkait aspek keamanan dan kesehatan merupakan tantangan yang serius bagi masyarakat belum terfasilitasi dalam perkuliahan Kimia Bahan Makanan. Tujuan penelitian ini adalah menghasilkan perkuliahan kimia bahan makanan yang memuat aspek fungsional dan keamanan pangan budaya Lombok untuk meningkatkan keterampilan berpikir kritis mahasiswa calon guru kimia. Desain penelitian yang digunakan yaitu *mixed methods* dengan *embedded experimental model*. Subyek penelitian dalam penelitian ini adalah 16 orang mahasiswa pendidikan kimia pada salah satu perguruan tinggi di Kota Mataram. Instrumen penelitian berupa tes uraian, lembar kerja mahasiswa dan angket. Analisis data menggunakan uji beda dan n-gain antara hasil *pre-test* dan *post-test* dari keterampilan berpikir kritis dan penguasaan konsep kimia bahan makanan. Berdasarkan hasil penelitian, terdapat perbedaan antara hasil *pre-test* dan *post-test* baik pada keterampilan berpikir kritis (*Asymp. Sig. (2-tailed)* sebesar 0,000 < 0,05) maupun penguasaan konsep (12,418(t_{hitung}) > 1,753(t_{tabel})). Peningkatan keterampilan berpikir kritis mahasiswa dan penguasaan konsep kimia bahan makanan pada kategori sedang (rerata n-gain berturut-turut 0,52 dan 0,56). Keterampilan berpikir kritis mahasiswa dengan n-gain tertinggi (0,79) pada indikator memberikan penjelasan lanjut dan n-gain terendah (0,45) pada indikator membangun keterampilan dasar. Adapun penguasaan konsep dengan n-gain tertinggi (0,69) diperoleh pada topik keamanan pangan dan terendah (0,34) pada topik karbohidrat dalam pangan. Perkuliahan kimia bahan makanan yang dihasilkan memiliki tiga karakteristik yaitu adanya aktivitas *hands-on* dalam bentuk proyek keamanan pangan dan pangan fungsional, topik baru yang relevan dengan isu terkini, dan pemanfaatan budaya pangan Lombok sebagai sumber pembelajaran. Mahasiswa memberikan tanggapan positif terhadap program perkuliahan kimia bahan makanan yang dikembangkan.

Kata kunci : kimia bahan makanan, pangan fungsional, keamanan pangan, budaya Lombok

FOOD CHEMISTRY COURSE CONTAIN FUNCTIONAL AND FOOD SAFETY ASPECTS OF LOMBOK CULTURE TO IMPROVE STUDENT'S CRITICAL THINKING SKILL

ABSTRACT

Current issues in the world of food related to safety and health aspects is serious challenge for people that has not been facilitated in food chemistry course. The purpose of this study was to produce a food chemistry course that contain food functional and safety aspect of Lombok culture to improve critical thinking skills of pre-service chemistry teachers. The research design used is mixed methods with an embedded experimental model. The research subjects in this study were 16 pre-service chemistry teachers at a university in Mataram city. The research instruments were essay tests, student worksheets and questionnaires. For data analysis used average n-gain and paired sample t-test difference between indicators of critical thinking skills and concept mastery of food chemistry. Based on the research results, there is a difference between the pre-test and post-test results both in critical thinking skills (Asymp. Sig. (2-tailed) of 0,000 < 0,05) and in mastery of concepts (12,418 (t_{count}) > 1,753 (t_{tabel})). The improvement of students' critical thinking skills and concept mastery of food chemistry was in the medium category (average n-gain 0,52 and 0,56 respectively). Students' critical thinking skills with the highest n-gain (0,69) on indicator advance clarification and the lowest n-gain (0,45) on indicators of basic skills. The concepts mastery with the highest n-gain (0,69) was obtained on food safety concept and the lowest (0,34) was on carbohydrates concept in food. The Food Chemistry course have three characteristics, i.e. the presence of hands-on activities through food safety and functional food projects, as new topics that relevant to current issues, and the use of Lombok culture as a source of learning. Students give positive response to the Food Chemistry course.

Keywords: food chemistry course, functional food, food safety, Lombok culture

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