

ABSTRAK

Munawaroh Kamilatun Nisa : Pengembangan Lembar Kerja Berbasis Proyek pada Pembuatan Minuman Probiotik Kefir Tajin Beras Hitam (*Oryza sativa L. indica*)

Penelitian ini dilatarbelakangi oleh pentingnya bahan ajar berupa lembar kerja berbasis proyek sebagai alternatif dalam praktikum mata kuliah Kimia Fermentasi, khususnya pada materi pemanfaatan metode fermentasi untuk menghasilkan produk bernilai ekonomis tinggi. Penelitian ini bertujuan untuk mendeskripsikan tampilan lembar kerja, hasil uji validasi oleh dosen ahli, respon mahasiswa sebagai pengguna, serta menganalisis hasil optimasi minuman probiotik kefir tajin beras hitam. Subjek penelitian melibatkan dosen sebagai validator serta 10 mahasiswa yang telah menempuh mata kuliah Kimia Fermentasi sebagai responden uji kelayakan. Prosedur penelitian menggunakan metode Design Based Research (DBR) yang meliputi tahap analisis, perancangan, dan pengembangan. Karakterisasi produk dilakukan melalui uji organoleptik, pH, kadar alkohol, kadar asam laktat, dan aktivitas antioksidan. Hasil penelitian menunjukkan bahwa lembar kerja memperoleh nilai validasi sebesar r_{hitung} 0,894 dari dosen ahli dengan kategori valid. Sementara itu, uji kelayakan oleh mahasiswa menunjukkan persentase sebesar 95,5% dengan kategori sangat layak. Dengan demikian, tampilan lembar kerja sesuai dengan karakteristik dan tahapan pembelajaran berbasis proyek serta dapat digunakan secara efektif pada mata kuliah Kimia Fermentasi.

Kata kunci: Lembar kerja berbasis proyek, DBR, kimia fermentasi, kefir tajin beras hitam

ABSTRACT

Munawaroh Kamilatun Nisa : *Development of Project-Based Worksheets on the Production of Kefir Black Rice Tajine Probiotic Drink (Oryza Sativa L, Indicia)*

This research is motivated by the importance of project-based worksheets as an alternative teaching material in the practicum of the Fermentation Chemistry course, particularly on the topic of utilizing fermentation methods to produce high economic value products. The purpose of this study is to describe the design of the worksheet, the results of validation by expert lecturers, student responses as users, and to analyze the optimization of probiotic beverage kefir made from black rice starch. The research subjects involved lecturers as validators and 10 students who had taken the Fermentation Chemistry course as respondents for the feasibility test. The research procedure employed the Design-Based Research (DBR) method, which included the stages of analysis, design, and development. Product characterization was carried out through organoleptic tests, pH measurement, alcohol content, lactic acid levels, and antioxidant activity. The results showed that the worksheet obtained a validation score of $r_{\text{count}} 0.894$ from expert lecturers, categorized as valid. Meanwhile, the feasibility test by students indicated a percentage of 95.5% in the "highly feasible" category. Therefore, the developed worksheet aligns with the characteristics and stages of project-based learning and can be effectively used in the Fermentation Chemistry course.

Keywords: Project-based worksheet, DBR, fermentation chemistry, black rice kefir.

