

OPTIMASI MEDIUM FERMENTASI AMPAS KELAPA MENGUNAKAN *Rhizopus microsporus* UICC539 SEBAGAI PAKAN AYAM ALTERNATIF

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INTISARI

Peningkatan kebutuhan daging ayam broiler sebagai sumber protein menuntut ketersediaan pakan yang bergizi dan terjangkau. Namun, tingginya biaya pakan komersial menjadi kendala utama bagi peternak. Oleh karena itu, diperlukan pemanfaatan bahan yang murah dan melimpah sebagai pakan ayam alternatif. Penelitian sebelumnya menunjukkan keberhasilan fermentasi ampas kelapa menggunakan *Mucor irregularis* dalam meningkatkan kadar protein kasar pakan ayam. Berdasarkan hal tersebut, penelitian ini bertujuan untuk mengoptimasi medium fermentasi ampas kelapa menggunakan *Rhizopus microsporus* UICC539 dengan variabel kadar air, glukosa, dan *yeast extract* untuk meningkatkan kadar protein kasar pakan ayam. Metode yang digunakan adalah *Solid-State Fermentation* (SSF) dengan *Box-Behnken Design* (BBD) berbasis *Response Surface Methodology* (RSM). Analisis data dilakukan dengan *software* Minitab 21 meliputi uji Analisis Variansi (ANOVA), kesesuaian model, persamaan regresi, grafik *contour plot* dan *surface plot*, optimasi desain RSM, dan *T-test*. Hasil penelitian menunjukkan bahwa kondisi optimal medium fermentasi adalah kadar air 85,46%; glukosa 1,94g/L; dan *yeast extract* 5,96g/L yang menghasilkan kadar protein kasar 8,86%. Kesimpulan dari penelitian ini yaitu optimasi medium fermentasi ampas kelapa menggunakan *Rhizopus microsporus* UICC539 mampu meningkatkan kadar protein kasar ampas kelapa dari 6,51% menjadi 8,86%. Saran yang dapat diberikan yaitu perlunya pengkajian ulang titik optimum dan variasi faktor penelitian, serta uji penerapan pakan pada ternak ayam.

Kata Kunci: Ampas kelapa, Optimasi, Pakan ayam alternatif, *Rhizopus microsporus*, *Solid State Fermentation*

OPTIMIZATION OF COCONUT PULP FERMENTATION MEDIUM USING *Rhizopus microsporus* UICC539 AS AN ALTERNATIVE CHICKEN FEED

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ABSTRACT

*The increasing demand for broiler chicken meat as a source of protein requires the availability of nutritionally adequate and affordable feed. However, the high cost of commercial poultry feed remains a major constraint for farmers. Therefore, the utilization of low-cost and abundant materials as alternative poultry feed is necessary. Previous studies have demonstrated that the fermentation of coconut dregs using *Mucor irregularis* successfully increased the crude protein content of poultry feed. Based on these findings, this study aimed to optimize the fermentation medium of coconut dregs using *Rhizopus microsporus* UICC539 by varying moisture content, glucose, and yeast extract to enhance the crude protein content of poultry feed. The method employed was solid-state fermentation (SSF) using a Box–Behnken Design (BBD) based on Response Surface Methodology (RSM). Data analysis was performed using Minitab 21, including analysis of variance (ANOVA), model adequacy evaluation, regression equations, contour and surface plots, RSM optimization, and t-test analysis. The results indicated that the optimal fermentation conditions were a moisture content of 85.46%, glucose concentration of 1.94 g/L, and yeast extract concentration of 5.96 g/L, resulting in a crude protein content of 8.86%. In conclusion, optimization of the coconut dregs fermentation medium using *Rhizopus microsporus* UICC539 effectively increased the crude protein content of coconut dregs from 6.51% to 8.86%. It is recommended that further studies re-evaluate the optimum conditions and factor variations, as well as conduct direct feeding trials on poultry.*

Keywords: Alternative chicken feed, Coconut pulp, Optimization, Rhizopus microsporus, Solid State Fermentation