ABSTRACT

CHARACTERIZATION OF FUNGAL BIOMASS *Rhizopus oligosporus* IN VARIATIONS OF C/N RATIO

By

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The projected 50 percent increase in the global population, combined with growth in the global, is expected to lead to a more than 50 percent increase in food demand by 2050, with global demand for animal protein nearly doubling. Additionally, protein derived from plants and animals significantly contributes to greenhouse gas emissions and heavily relies on agricultural land. Notably, the livestock sector has a significant impact on greenhouse gas emissions and requires 30 percent of land use for grazing and feed crops. Recent research has focused on producing alternative protein sources that minimize environmental damage, such as single-cell protein foods like mycoprotein. Filamentous fungi have the advantage of being able to grow on various types of media including from food-safe agro-industrial liquid waste. Utilizing tapioca waste, soybean boiling water and others as substrates for filamentous fungi production has the potential to reduce waste and make use of available resources The research method employed a factorial Completely Randomized Design (CRD) with 4 treatments and 3 replications, specifically C/N ratios of 2/1, 4/1, 6/1, and 8/1 of medium growth.The data were processed using analysis of variance (ANOVA) at a 5% significance level, followed by Duncan's Multiple Range Test (DMRT) for further analysis.C/N ratio affected the biomass yield, in which the highest yield was obtained at C/N ratio of C/N 2:1 and C/N 8:1 (0.275 g/L and 0.180 g/L) but are not significantly different from the C/N 4:1 and 6:1 (0.211 g/L and 0.208 g/L). C/N ratio had influence on protein and fiber content. that is C/N 2:1 15.78% and C/N 8:1 11.53% and crude fiber content C/N 2:1 5.89% and C/N 8:1 8.63%.Although C/N ratio affected the chewiness, hardness and cohesiveness of the sample according to texture profile analyzer, however this difference was not detected by panelist of sensory test

Keywords : Biomass,C/N Ratio,Protein,Texture