

Optimasi fermentasi asam kojat oleh galur mutan *Aspergillus flavus* NTGA7A4UVE10

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Abstrak

Asam kojat (5-hidroksi-2-(hidroksimetil)-1,4-piron) adalah metabolit sekunder yang banyak diproduksi oleh spesies jamur dari genus *Aspergillus*, dan *Penicillium* melalui proses fermentasi aerob. Penelitian ini bertujuan untuk memperoleh karakterisasi kebutuhan asam amino yang optimum, serta meningkatkan produktivitas fermentasi asam kojat oleh galur mutan *Aspergillus flavus* NTGA7A4UVE10 melalui optimasi aerasi. Variasi medium fermentasi dibuat dengan kombinasi lima asam amino, kemudian medium dengan asam amino terpilih dibandingkan dengan medium fermentasi minimum dan medium dengan yeast extract. Untuk optimasi aerasi digunakan volume medium 100 ml dalam Erlenmeyer 250 ml, dan volume medium 300 ml, 400 ml serta 500 ml dalam Erlenmeyer 1000 ml. Hasil optimasi medium menunjukkan bahwa medium dengan asam amino L-Arginine HCl menghasilkan konsentrasi asam kojat tertinggi yaitu 7,9283 g/L. Namun konsentrasi ini masih lebih rendah dibandingkan penggunaan medium dengan yeast extract. Optimasi aerasi menunjukkan bahwa aerasi terbaik yaitu volume 100 ml dalam Erlenmeyer 250 ml dengan konsentrasi asam kojat 7,9283 g/L.

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Kojic acid (5-hidroxy-2-(hidroxymethyl)-1,4-pyrone) is secondary metabolite which produced in high amount by fungus species from genus *Aspergillus* and *Penicillium* through aerobic fermentation process. The aim of this study was to find characterization of optimum amino acid need and to increase productivity of kojic acid fermentation by mutant strain *Aspergillus flavus* NTGA7A4UVE10 by means of aeration optimization. In this study, fermentation medium variation was made with combination from five different amino acids, then the amino acid chosen was compared with minimum fermentation medium and fermentation medium that use yeast extract. Medium volume of 100 ml in 250 ml Erlenmeyer, medium volume of 300 ml, 400 ml and 500 ml in 1000 ml Erlenmeyer was used for the optimization of aeration. The highest production of kojic acid was showed in medium that use amino acid, L-arginine HCl, that was 7,9283 g/L. But this concentration lower than using medium with yeast extract. The optimization of aeration show that the best aeration is medium volume of 100 ml in 250 ml Erlenmyer, that produce 7,9283 g/L of kojic acid.