INTISARI

Parasetamol merupakan obat analgesik antipiretik paling populer dan paling banyak digunakan di dunia. Di Indonesia, parasetamol menempati urutan pertama angka konsumsi analgesik tertinggi. Angka ketergantungan bahan baku impor parasetamol mencapai 96% sehingga diperlukan usaha kemandirian bahan baku obat parastamol. Produksi parasetamol terkendala pada ketersediaan bahan baku *p*-aminofenol. Salah satu jalur sintesis *p*-aminofenol terpendek dilakukan melalui dua tahap yang dimulai dari reduksi nitrobenzen dan dilanjutkan dengan penataan ulang Bamberger. Untuk itu perlu dilakukan optimasi sintesis *p*-aminofenol agar diperoleh rendemen yang tinggi dengan biaya yang minimal.

Optimasi tahap reduksi nitrobenzen dilakukan dengan melihat efek sonikasi; variasi rasio mol Zn : nitrobenzen; dan variasi waktu reaksi. Tahap optimasi penataan ulang Bamberger dilakukan dengan melihat efek variasi rasio mol asam sulfat : β-fenilhidroksilamin; dan variasi waktu reaksi.

Optimasi sintesis reduksi nitrobenzen tertinggi diperoleh melalui metode sonikasi dengan perbandingan Zn : nitrobenzen 2:1 di menit ke-30 dengan % rendemen relatif β-fenilhidroksilamin sebesar 86,92% dan konfirmasi senyawa target dibuktikan dengan analisis uji organoleptis, titik lebur, KLT, spektroskopi IR, dan LC-MS. Sintesis penataan ulang Bamberger optimal diperoleh dari metode perbandingan mol asam sulfat : β-fenilhidroksilamin 3,65:1 menghasilkan % rendemen relatif *p*-aminofenol sebesar 88,61% dan konfirmasi senyawa target dibuktikan dengan analisis uji organoleptis, KLT, dan spektroskopi IR.

Kata kunci : *parasetamol, p-aminofenol, reduksi nitrobenzen, penataan ulang Bamberger, optimasi sintesis p-aminofenol*

ABSTRACT

Paracetamol is the most popular and the most widely used analgesic antypiretic drugs around the world. In Indonesia, paracetamol ranks the highest consumption of analgesic. The dependency ratio of imported paracetamol raw material amounts to 96%, so it needs to take the independence effort of raw material of paracetamol drugs. The production of paracetamol is constrained by the availability of para-aminophenol raw materials. One of the shortest para-aminophenol synthesis conducted on two stages starting from the reduction of nitrobenzene and followed by Bamberger's rearrangement. Therefore, it is necessary to optimize para-aminophenol synthesis in order to obtain high rendement with minimal cost.

The optimization of nitrobenzene reduction stage conducted by looking at the sonication effect; variation of Zn mole ratio : nitrobenzene; and reaction time variation. The optimation stage of Bamberger's rearrangement conducted by looking at the effect of variation of sulfuric acid mole ratio : beta-fenilhidroksilamin; and reaction time variation.

The best optimation of nitrobenzene reduction synthesis is obtained through sonication method with ratio Zn : nitrobenzene 2:1 in the 30th minute with percentage relative rendement beta fenilhidroksilamin of 86,92% and the confirmation of target compound proved by organoleptic analysis test, melting point, TLC, IR, and LC-MS. The best optimation of Bamberger rearanggement synthesis is obtained from method of mole ratio of sulfuric acid : beta-phenyl hydroxylamine 3,65:1 produce percentage relative rendement para-aminophenol of 88.61% and the confirmation of target compoud proved by organoleptic analysis test, TLC, and IR.

Keywords : *paracetamol, para-aminophenol, nitrobenzene reduction, Bamberger rearrangement, optimation of para-aminophenol synthesis*