STUDI REAKSI DEHIDRASI PATCHOULI ALKOHOL DENGAN KATALIS HOMOGEN DAN HETEROGEN

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INTISARI

Penelitian tentang reaksi dehidrasi kristal patchouli alkohol dengan katalis homogen dan heterogen telah dilakukan. Penelitian ini bertujuan untuk mempelajari pengaruh katalis homogen (H_2SO_4 dan H_3PO_4) serta heterogen (zeolit teraktivasi asam) dalam reaksi dehidrasi patchouli alkohol. Reaksi dehidrasi dilakukan melalui pemanasan patchouli alkohol dengan katalis H_2SO_4 98%, H_3PO_4 85%, atau zeolit teraktivasi asam dalam pelarut etanol selama 3 jam. Produk dikarakterisasi dengan menggunakan alat *Fourier Transform-Infrared* (FT-IR) *Spectrometer* dan *Gas Chromatography Mass Spectrometer* (GC-MS).

Reaksi dehidrasi patchouli alkohol dengan katalis homogen H_2SO_4 dan H_3PO_4 menghasilkan β-patchoulena dengan persentase hasil berturut-turut sebesar 89 dan 61%. Sementara itu, reaksi dehidrasi patchouli alkohol dengan katalis heterogen zeolit teraktivasi asam menghasilkan β-patchoulena dengan persentase hasil sebesar 43%. Hasil penelitian menunjukkan bahwa katalis H_2SO_4 98% lebih efektif dibandingkan H_3PO_4 85% dan zeolit teraktivasi asam dalam sintesis β-patchoulena melalui reaksi dehidrasi patchouli alkohol.

Kata kunci: β-patchoulena, dehidrasi, katalis heterogen, katalis homogen, patchouli alkohol

STUDY OF DEHYDRATION REACTION OF PATCHOULI ALCOHOL WITH HOMOGENEOUS AND HETEROGENEOUS CATALYSTS

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ABSTRACT

Research on the dehydration reaction of patchouli alcohol with homogeneous and heterogeneous catalysts has been conducted. The study was aimed to study the influence of homogeneous catalysts (H_2SO_4 and H_3PO_4) as well as heterogeneous (acid-activated zeolite) on the dehydration reaction of patchouli alcohol. The dehydration was done by heating patchouli alcohol in the presence catalyst of H_2SO_4 98%, H_3PO_4 85%, or acid-activated zeolite in ethanol for 3 h. The products were characterized using the Fourier Transform-Infrared (FT-IR) Spectrometer and Gas Chromatography Mass Spectrometer (GC-MS).

The dehydration reaction of patchouli alcohol with homogeneous catalysts H_2SO_4 and H_3PO_4 produced β-patchoulena in 89 and 61% yield, respectively. Meanwhile, the dehydration of patchouli alcohol with heterogeneous catalysts acid-activated zeolite produced β-patchoulena in 43% yield. The results showed that H_2SO_4 98% catalyst were more effective than H_3PO_4 85% and acid-activated zeolite for the synthesis of β-patchoulena through dehydration of patchouli alcohol.

Keywords: β-patchoulene, dehydration, heterogeneous catalysts, homogeneous catalysts, patchouli alcohol