

INTISARI

Sintesis senyawa 2,5-*bis*(4-hidroksibenzilidin)siklopentanon dari *p*-hidroksibenzaldehid dan siklopentanon dengan katalis asam sulfat telah dilakukan. Asam sulfat, suatu asam diprotik yang bersifat higroskopis diperkirakan dapat digunakan sebagai katalis dalam sintesis 2,5-*bis*(4-hidroksibenzilidin)siklopentanon.

Penelitian ini merupakan penelitian eksploratif deskriptif non analitik dengan parameter penelitian berupa keberhasilan sintesis 2,5-*bis*(4-hidroksibenzilidin)siklopentanon. Penelitian ini dilakukan dengan mereaksikan 0,06 mol *p*-hidroksibenzaldehid dan 0,03 mol siklopentanon dalam pelarut metanol dengan katalis asam sulfat. Analisis hasil penelitian dilakukan secara kualitatif meliputi uji organoleptis, uji kelarutan, pemeriksaan senyawa hasil sintesis dengan kromatografi lapis tipis (KLT), pemeriksaan titik lebur, elusidasi struktur senyawa hasil sintesis dengan spektroskopi inframerah (IR), spektroskopi resonansi magnetik inti proton ($^1\text{H-NMR}$) dan karbon-13 ($^{13}\text{C-NMR}$). Sedangkan analisis hasil penelitian secara kuantitatif dilakukan dengan perhitungan rendemen senyawa hasil sintesis.

Hasil penelitian menunjukkan bahwa senyawa hasil sintesis berupa serbuk kuning, berbau khas, berasa khas (“getir”). Titik lebur senyawa hasil sintesis $>300^\circ\text{C}$. Pemeriksaan dengan KLT menunjukkan bercak senyawa hasil sintesis yang mempunyai $R_f=0,73$, berbeda dengan *p*-hidroksibenzaldehid dengan $R_f=0,84$. Elusidasi struktur dengan spektroskopi IR, spektroskopi $^1\text{H-NMR}$, dan spektroskopi $^{13}\text{C-NMR}$ menunjukkan spektra yang diidentifikasi sebagai senyawa yang memiliki struktur 2,5-*bis*(4-hidroksibenzilidin)-siklopentanon menghasilkan rendemen sebesar 10,64%.

ABSTRACT

2,5-*bis*(4-hydroxybenzilidene)cyclopentanone has been synthesized from *p*-hydroxybenzaldehyde and cyclopentanone using sulfuric acid as a catalyst. Presumably, sulfuric acid, a diprotic acid can be used as a catalyst in synthesizing 2,5-*bis*(4-hydroxybenzilidene)cyclopentanone.

The research could be classified as the descriptive explorative non-analytic research with the success of synthesizing of 2,5-*bis*(4-hydroxybenzilidene)-cyclopentanone as the parameter. The research was done by reacting 0,06 mol *p*-hydroxybenzaldehyde and 0,03 mol cyclopentanone in methanol solution with sulfuric acid as a catalyst. The analysis was occupied with two ways, they were qualitative and quantitative. The qualitative analysis was done in a series of test. They were organoleptic test, solubility test, thin layer chromatography (TLC) test, melting point estimation, elucidation of synthesized compound with infra red (IR) spectroscopy, proton nuclear magnetic resonance ($^1\text{H-NMR}$) and carbon-13 nuclear magnetic resonance ($^{13}\text{C-NMR}$) spectroscopy. The quantitative analysis was done by estimating the yield of synthesized compound.

The research result showed that synthesized compound was a yellowish powder, specified odor, tasteless but it has specified effect on tongue. The melting point of synthesized compound was more than 300°C. The TLC test showed that synthesized compound has an R_f as much as 0,73 which was different with *p*-hydroxybenzaldehyde that was 0,84. The IR, $^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ spectra showed that the synthesized compound was 2,5-*bis*(4-hydroxybenzilidene)-cyclopentanone with yield for about 10,64%.

Key words: synthesis, sulfuric acid, 2,5-*bis*(4-hydroxybenzilidene)cyclopentanone