ABSTRAK

Theresia Novianti Marpaung, NIM. 4213510003 (2026). Orientasi Substitusi Elektrofilik Nitrasi Metil Salisilat Gandapura dengan Katalis Asam Sulfat.

Telah dilakukan kajian orientasi reaksi nitrasi terhadap metil salisilat dari minyak gandapura (*Gaultheria Procumbens*) dengan katalis asam sulfat. Reaksi nitrasi merupakan substitusi elektrofilik yang orientasinya tergantung gugus yang terikat pada cincin benzena. Gugus (-OH) merupakan aktifasi dan orientasi orto posisi nomor 3 dan para posisi nomor 5, sedangkan gugus metil ester (-$COOCH_3$) merupakan pengarah meta yaitu posisi cincin nomor 3 dan 5. Hasil nitrasi adalah kristal putih yang mengindikasikan bahwa senyawanya relatif murni dengan titik lebur 100-109°C. Berdasarkan spektra FTIR terkonformasi telah terjadi reaksi nitrasi dengan munculnya serapan khas nitrat (NO_2^+) pada pita 1538 cm^{-1}. Selajutnya berdasarkan data ^{1}H-NMR menunjukkan bahwa reaksi nitrasi menghasilkan produk Metil 2-hidroksi-3-nitrobenzoat dengan rumus molekul $C_8H_7NO_5$. Massa produk hasil reaksi yang diperoleh setelah proses pemurnian sebanyak 5,758 gram.

Kata Kunci: Katalis asam, metil salisilat, nirtasi, dan orientasi.

ABSTRACT

Theresia Novianti Marpaung, NIM. 4213510003 (2026). ***Orientation of Electrophilic Substitution Nitration of Methyl Salicylate Gandapura with Sulfuric Acid Catalyst.***

A study has been conducted on the orientation of the nitration reaction of methyl salicylate from wintergreen oil (Gaultheria Procumbens) with sulfuric acid catalyst. The nitration reaction is an electrophilic substitution whose orientation depends on the group attached to the benzene ring. The (-OH) group activates and orients the ortho position at number 3 and the para position at number 5, while the methyl ester group (-COOCH^3) directs the meta position, which is ring positions 3 and 5. The result of nitration is a white crystal, indicating that the compound is relatively pure with a melting point of 100-109°C. Based on the FTIR spectrum, it was confirmed that a nitration reaction had occurred with the appearance of a characteristic nitrate ($NO2^+$) absorption at 1538 cm^{-1}. Furthermore, based on the ^{1}H-NMR data, it was shown that the nitration reaction produced 2-Hydroxy-3-Nitrobenzoic acid methyl ester with the molecular formula $C_8H_7NO_5$. The mass of the reaction product obtained after the purification process was 5.758 grams.

Keywords*: Acid catalyst, methyl salicylate, nitration, and orientation.*