

DERIVATISASI α -PINENA : SINTESIS SENYAWA ORGANONITROGEN DAN KAJIAN POTENSINYA SEBAGAI KANDIDAT OBAT

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ABSTRAK

α -Pinena merupakan senyawa mayor dalam minyak terpening yang dapat dikembangkan sebagai *starting material* untuk mensintesis senyawa-senyawa organonitrogen yang memiliki potensi sebagai bahan obat melalui sifat-sifat biologis dan fisiologisnya. Perubahan α -pinena menjadi senyawa organonitrogen dapat dilakukan melalui reaksi adisi terhadap gugus alkenanya melalui reaksi Ritter menggunakan pereaksi asetonitril atau benzonitril. Penataan ulang karbokation yang terjadi dalam reaksi tersebut mengarahkan pada produk reaksi yang bervariasi.

Reaksi α -pinena dengan asetonitril menghasilkan senyawa-senyawa *N*-[1-Metil-1-(4-metil-sikloheks-3-enil)-etil]-asetamida, *N*-(1,5-Dimetil-1-vinil-heks-4-enil)-asetamida dan *N*-(2,6,6-Trimetil-bisiklo[3.1.1]hept-2-il)-asetamida. Sedangkan reaksi α -pinena dengan benzonitril menghasilkan senyawa-senyawa *N*-(1,5-Dimetil-1-vinil-heks-4-enil)-benzamida dan *N*-[1-Metil-1-(4-metil-sikloheks-3-enil)-etil]-benzamida. Produk reaksi dengan bahan dasar benzonitril ($LC_{50} = 203,86$ ppm) mempunyai toksisitas lebih tinggi daripada produk reaksi berbahan dasar asetonitril ($LC_{50} = 504,80$ ppm) berdasarkan uji *Brine Shrimp Lethality Test* (BSLT).

Kata kunci: Senyawa organonitrogen, reaksi Ritter, penataan ulang karbokation.

ABSTRACT

α -Pinene is the major compound in oil of turpentine that can be developed as the starting material to synthesize compounds that have potential as organonitrogen ingredients through biological and physiological properties. Changes α -pinene into organonitrogen compounds can be carried out via addition reactions to the alkene group through Ritter reaction using acetonitrile or benzonitrile reagent. Carbocation rearrangement that occurs in reaction to direct the reaction products varies.

α -Pinene reaction with acetonitrile to produce the compounds *N*-[1-Methyl-1-(4-methyl-cyclohex-3-enyl)-ethyl]-acetamide, *N*-(1,5-Dimethyl-1-vinyl-hex-4-enyl)-acetamide and *N*-(2,6,6-trimethyl-bicyclo[3.1.1] hept-2-yl)-acetamide. While α -pinene reactions with benzonitrile to produce the compounds of *N*-(1,5-Dimethyl-1-vinyl-hex-4-enyl)-benzamide and *N*-[1-Methyl-1-(4-methyl-cyclohex-3-enyl)-ethyl]-benzamide. Reaction products with ingredients benzonitrile ($LC_{50} = 203.86$ ppm) has a higher toxicity than acetonitrile-based reaction product ($LC_{50} = 504.80$ ppm) based on the test *Brine Shrimp Lethality Test* (BSLT).

Key word: Organonitrogen compounds, Ritter reaction, carbocation rearrangement.