

Application of N-tert-butyl Isocyanodichloride in the Synthesis of New Derivatives of 1,3,4-Thiadiazolidines

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Abstract: *N-tert-butyl isocyanodichlorides is one of the important reagents in the synthesis of nitrogen containing acyclic and heterocyclic compounds. N-tert-butyl isocyanodichlorides undergo nucleophilic substitution reactions involving the displacement of both the chlorine atoms and can be potentially useful in the synthesis of various different 5, 6 and 7 membered acyclic and heterocyclic compounds. Synthetic chemistry of N-aryl and alkyl isocyanodichloride with special reference to their utility as intermediates in the synthesis of nitrogen containing 5- membered heterocyclic compounds is explored here. The condensation reaction of N-tert-butyl isocyanodichloride with different substituted N-aryl thiosemicarbazide resulted in the synthesis of various different substituted 1,3,4-thiadiazolidine. In the present work attempts have been made to use N-tert-butyl isocyanodichloride in the synthesis of 5-membered heterocyclic compounds 1,3,4-thiadiazolidines namely 2-N-t-butylimino-3-γ-picolinoyl-5-p-arylimino-1,3,4-thiadiazoles (IVa) and 2-arylimino-5-t-butylimino-1,3,4-thiadiazolidine (IVA) with different substituent and some by incorporating isoniazide in it's structure in view of having more promising pharmacological and pathological activities. The structures of the synthesized compounds were established on the basis of chemical properties, IR and NMR spectral data. These compounds are expected to possess biological activities.*

Keywords: Substituted 1,3,4-thiadiazolidine, N-aryl thiosemicarbazide, tert-butyl isocyanodichloride, cyclo condensation

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