

NOTE

Synthesis and Insecticidal Studies of Hydroxytriazenes

BEHROOZ REZAEI, S. RESSALAN, R.S. CHAUHAN,
A.K. GOSWAMI and D.N. PUROHIT*
Department of Chemistry
M.L.S. University, Udaipur-313 001, India

Synthesis of 3-hydroxy-3-*p*-tolyl-1-*m*-chlorophenyltriazene has been done and its insecticidal activity against *Drosophila melanogaster* Meig has been studied. The LC₅₀ values are 1.50 ppm which are quite encouraging.

The class of compounds containing functional group $\text{HO}-\underset{|}{\text{N}}-\text{N}=\text{N}-$ are called hydroxytriazenes and have been widely used as reagents for spectrophotometric and metallochromic indicators for the complexometric determination of both transition and non-transition elements in our laboratory.¹⁻⁴

Recently this class of compounds has found application as biologically active compounds. Although Gubler⁵ prepared and screened the insecticidal and acaricidal properties of about forty alkyl and arylhydroxytriazenes not much headway has been made in this field as yet, except a few references for their insecticidal properties.⁶⁻⁹ In view of this insecticidal studies of a number of hydroxytriazenes have been attempted and further, their antibacterial, antifungal and antitubercular studies have been done in our laboratories.^{3, 10, 11}

In the present investigation the compound 3-hydroxy-3-*p*-tolyl-1-*m*-chlorophenyltriazene has been synthesised by the method as per reported in the literature¹²⁻¹⁵ and has been studied for its insecticidal property against *Drosophila melanogaster* Meig.

Synthesis of 3-Hydroxy-3-*p*-Tolyl-1-*m*-Chlorophenyl Triazene

An aqueous alcoholic (2 : 1) solution of 0.3 mole (40.1 g) of *p*-nitrotoluene was reduced by ammonium chloride (16.0 g) and zinc dust (50 g) at a temperature between 60-65°C. The addition of zinc dust was completed in about 2 h and the solution was stirred for another 15 minutes so as to complete the reaction. *p*-Tolylhydroxylamine so obtained (25.0 g i.e., 0.2 mole) was coupled with diazotized product of 0.2 mole (26.0 g) of *m*-chloroaniline at 0° to 5°C. This resulted in an orange precipitate which was filtered under suction and washed with ice cold water. The crude product was recrystallized twice with ethanol and orange needles were obtained (yield 27.5 g, 50.9%). The physical characteristics and elemental analysis of the compound are given as under:

Colour shape of the crystals	Yield %	m.p. °C	% Carbon		% Hydrogen		% Nitrogen		mol. formula
			Th.	Exp.	Th.	Exp.	Th.	Exp.	
Orange needles	50.9	143	59.66	59.66	4.62	4.43	16.00	16.62	C ₁₃ H ₁₂ N ₃ OCl

Insecticidal studies

The *Drosophila melanogaster* Meig were reared on medium described by Lewis.¹⁶ The newly born one day old male flies were used for investigation, while the grownup female flies were used for further culture. The LC₅₀ values were calculated using residue film method as per details prescribed by Gupta.¹⁷ The results of LC₅₀ values have been found to be 1.50 ppm which are quite encouraging and indicate that hydroxytriazenes can find use as biologically active compounds.

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(Received: 28 June 1997; Accepted: 1 July 1997)

AJC-1322