# SYNTHESES OF HETEROCYCLIC COMPOUNDS FROM TRIS(TRIFLUOROMETHYL)CYCROPROPENYL TRIFLUOROMETHYL KETONE

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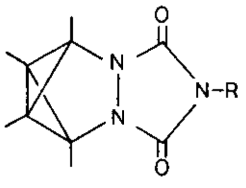
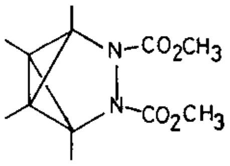
The cyclopropenylketone (1) has an interesting structure: it contains a strained double bond in a three-membered ring and a carbonyl group, both of which can be converted to other functional groups. We now report the syntheses of unique heterocyclic compounds from 1.

1: Reaction of 1 with trifluoroacetamidine in the presence of titanium-tetrachloride gave 1,2,4,6,7-pentakis(trifluoromethyl)-3,5-diazatricyclo-$[4.1.0.0^{2,7}]$hept-3-ene (2). Compound (2) is the first example of valence bond isomers of 1,3-diazepine derivatives which contain a bicyclobutane part. Compound (2) isomerized to 1,3,5,6,7-pentakis(trifluoromethyl)-2,4-diazabicyclo-[3.2.0]hepta-2,6-diene (3) by thermolysis or UV irradiation. Thermolysis of 3 gave tetrakis(trifluoromethyl)pyrrole. UV irradiation of 3 gave tris(trifluoromethyl)imidazole.

2: Reaction of 1 with various azo compounds and triphenylphosphine gave unique heterocyclic compounds (4a,b,5,6). Tetrakis(trifluoromethyl)pyridazine was derived from 4a.



4a : R = Ph
4b : R = $CH_3$



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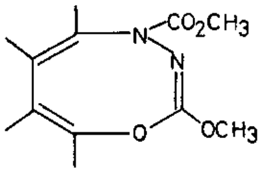

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— = $CF_3$