The 1,3-Dipolar Cycloaddition of *N*-α-Hydroxybenzylidene-*N'*-phenylhydrazine Inner Salt

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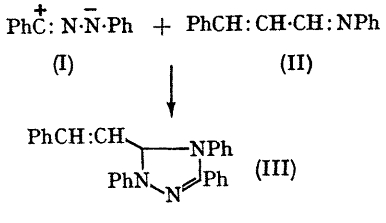
DIPOLAR cycloadditions of nitrile imines to multiple bonds of many kinds have been reported.[1] We report on the dipolar cycloaddition of nitrile imines to conjugated imines.

N-α-Hydroxybenzylidene-*N'*-phenylhydrazine inner salt (I) was prepared *in situ* by the action of triethylamine on *N*-α-chlorobenzylidene-*N'*-phenylhydrazine and was treated with an equivalent quantity of cinnamylideneaniline (II) in dry benzene at room temperature for 20 hr. Triethylamine hydrochloride separated and was filtered off, and the residue left on removal of the solvent was crystallized from benzene–hexane (1 : 1) to give a 1 : 1 addition product (yellow crystals m.p. 110°) in 75% yield. The structure of the adduct as the Δ^2-1,2,4-triazoline (III) is supported by elemental analysis, i.r., n.m.r., (60 Mc./sec.), and mass spectra. The nitrile imine (I) added preferentially to the C=N rather than the C=C bond of the conjugated imine. The presence of the *trans*-HC=CH bond in the cyclo-adduct (III) is indicated in the i.r. spectrum at 877, 895, 915, and 975 cm.$^{-1}$ (975 cm.$^{-1}$ band being the strongest) and by the two olefinic proton signals in the n.m.r. spectrum in the region τ 3·2—3·6 as these are in the same region in the conjugated imine (II). The mass spectrum of the adduct (III) gave a base peak at *m/e* 401 (calc. 401) and other major fragment-ion peaks including the ions at *m/e* 324 (401 — C_6H_5), 310 (401 — C_6H_5N), and 298 (401 — C_8H_7).



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