The inter- and intramolecular 1,3-dipolar cycloaddition of nitrones with different dipolarophiles is a valuable route leading to many heterocyclic compounds. The cycloaddition of nitrones with variety of alkynes is used in the synthesis of isoxazoline incorporating structures. The intramolecular 1,3-dipolar cycloaddition of acetylenic nitrones leading to bicyclic nitrogen heterocycles was investigated. Intermolecular 1,3-dipolar cycloaddition of acyclic and cyclic nitrones with DMAD was reported. Dihydroazet-1-oxide, dihydro-β-carboline N-oxide, and 3,4-Dihydro-2H-pirrole 1-oxide derivatives are the few known heterocyclic nitrones used in the 1,3-dipolar cycloaddition with DMAD. The synthesis of the first examples of the 4H-imidazo[4,5-c]isoxazole ring system was recently reported.

3a,4,5,6-Tetrahydroimidazo[1,5-β]isoxazoles, the adducts of Δ^3-imidazoline 3-oxides and dimethyl acetylenedicarboxylate underwent base induced rearrangement to give heretofore unknown [6,7-bis(methoxycarbonyl)-2,3,5-trisubstituted-8-oxa-1,3-diazatricyclo[3.3.0.0^2 -6 ]oct-7-yl]sodium derivatives. The intramolecular retro 1,3-dipolar cycloadditions of this compounds was investigated. Regio- and diastereoselective Michael addition of metoxide to cis imidazoisoxazoles 3d,e was also demonstrated.