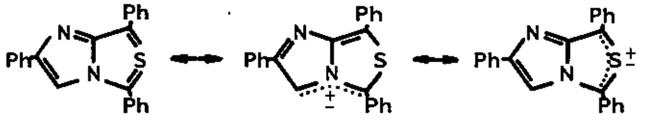
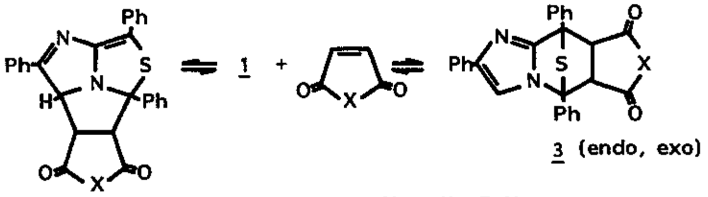
SYNTHESIS AND CYCLOADDITION REACTION OF A NITROGEN-BRIDGED TETRAVALENT SULFUR COMPOUND, 1,3,6-TRIPHENYLIMIDAZO[1,2-c]THIAZOLE

Otohiko TSUGE, Shuji KANEMASA, and Takayoshi HAMAMOTO
Research Institute of Industrial Science, and Department of Molecular Science
and Technology, Interdisciplinary Graduate School of Engineering Sciences,
Kyushu University, Kasuga, Kasuga-shi, Fukuoka 816

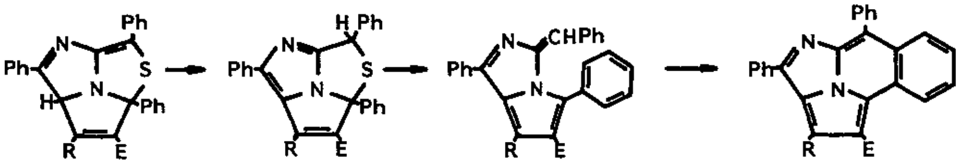
A novel tetravalent sulfur compound, 1,3,6-triphenylimidazo[1,2-c]thiazole 1, was synthesized. The compound 1 reacted with N-(p-tolyl)maleimide as both an azomethine ylide and a thiocarbonyl ylide 1,3-dipole yielding four 1:1 adducts that contained each endo and exo isomers. The cycloadducts 2 were found to isomerize into the isomers 3 through a retro 1,3-dipolar cycloaddition reaction.





2 (endo, exo)   X: p-Me-C$_6$H$_4$-

Similarly 1 underwent highly stereospecific cycloaddition reaction to some symmetrically substituted acyclic dipolarophiles giving the cycloadducts to the thiocarbonyl ylide B in good yields. A variety of unsymmetrically substituted olefinic dipolarophiles also cycloadded to 1 in an exclusively regioselective manner.



However, the cycloaddition reaction between 1 and acetylenic dipolarophiles afforded excellent yields of regio- and periselective [3 + 2] cycloadducts to A. These cycloadducts 4 underwent, in the presence of triethylamine, a rare desulfurization and a subsequent 10 pai cyclization yielding the 4,9c-diazapentaleno[1,6a,6 : ab]naphthalenes (4 → 5 → 6 → 7).