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CYCLOADDITION-ELIMINATION REACTIONS OF 4-ALKYL-5-ARYLIMINO-1,2,3,4-THIATRIAZOLINES

G. L'abbé^a; A. Timmerman^a; C. Martens^a

^a Department of Chemistry, University of Leuven, Belgium

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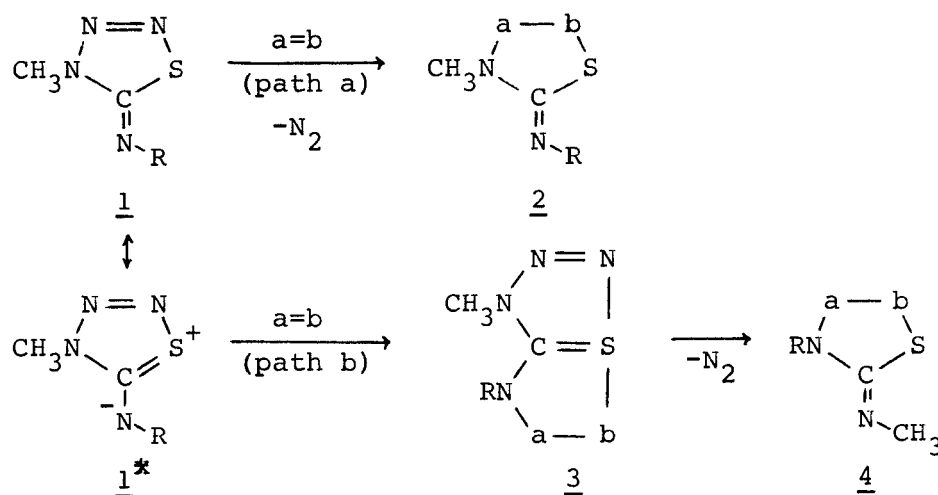
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CYCLOADDITION-ELIMINATION REACTIONS OF
4-ALKYL-5-ARYLIMINO-1,2,3,4-THIATRIAZOLINES.

G. L'abbé, A. Timmerman, and C. Martens

Department of Chemistry, University of Leuven, Belgium.

In previous work, we have shown that 4-alkyl-5-arylsulfonylimino-1,2,3,4-thiatriazolines (1, R = ArSO₂) react with unsaturated compounds (a=b) at the decomposition temperature of 1 via the intermediacy of a thiaziridinimine or its open-chain 1,3-dipole. We have now found that the corresponding 5-aryliminothiatriazolines (1, R = Ar) already react with a=b components at room temperature and by a bimolecular mechanism. In some cases (i.e.



with isocyanates, carbodiimides and alkyl and aryl isothiocyanates) the cycloaddition-elimination reaction involves participation of the endocyclic nitrogen atom of the amidine moiety of 1. In other cases (i.e. with acylisothiocyanates and sulfenes), the reaction occurs on the exocyclic nitrogen atom of 1. Path b is interpretable in terms of a masked 1,3-dipole 1* and possibly also a thiapentalene 3 as intermediate or transition state. The isomerization of 4 into 2 will also be discussed.