STEREOCHEMISTRY OF REACTION OF EPISULFONIUM SALTS WITH π-DONORS

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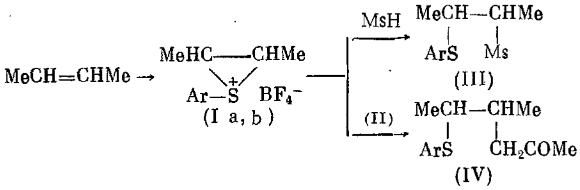
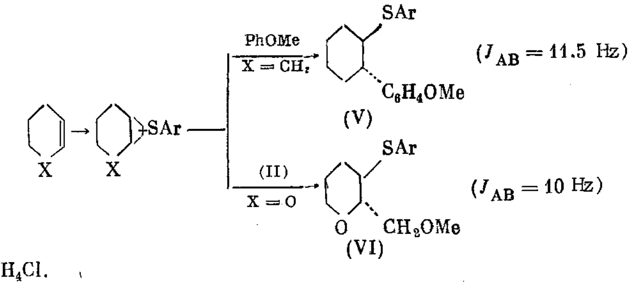
It was found that the reaction of episulfonium ions (ESI) with π-donors, which are active aromatic compounds [1], and trimethylsilyl enol ethers [2] proceeds strictly stereospecifically according to a trans-ring opening scheme. Thus ESI salts (Ia, b) obtained from cis- and trans-butene [3], in a reaction with mesitylene (MsH) or 2-trimethylsiloxypropene (II) give stereoisomeric individual (GLC, PMR data, 250 MHz) adducts (IIIa, b) and (IVa, b), in yields of 50-70%.



cis → cis-(Ia) → ≥ 95% threo-(IIIa), (IVa)
trans- → trans-(Ib) → ≥ 95% erythro-(IIIb), (IVB)

From the literature data on the stereochemistry of the ring opening of ESI by π-donors [3] and the value of the spin–spin coupling constant, a threo configuration was assigned to adducts (IIIa) and (IVa), and an erythro configuration to (IIIb) and (IVb). In the reaction of ESI of cyclic alkenes, trans-disubstituted derivatives (V) and (VI) are formed stereoselectively in yields of 30-60%.



Ar = 4-C_6H_4Cl.

The above examples are the first cases of the stereospecific opening of ESI by the action of weak nucleophiles which are π-donors.

The structure of all the products was confirmed by data of elemental analysis, mass- and ^1H and ^{13}C NMR spectra.

LITERATURE CITED

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