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PHOTOISOMERIZATION OF 5-MEMBERED HETEROCYCLES. M. Torres*,
 M. Constenla, A. Clement and O.P. Strausz, Department of
 Chemistry, University of Alberta, Edmonton, Alberta, Canada, T6G 2G2.

Photolysis of substituted furans, thiophenes and pyrroles resulted in positional isomerization as a consequence of the scrambling of the ring carbon atoms. Two intermediates have been proposed for this photoisomerization,

namely, the Dewar form , 1, and the ring contracted form CHX, 2.

Recently, we confirmed the formation of both intermediates in the case of the parent furan, thiophene and pyrrole by a combination of solution phase photolysis-trapping and low temperature matrix photolysis-FTIR experiments. As the next step, we have now carried out similar photolyses of selected deuterium labelled furan and thiophene in an effort to determine the symmetry of the reaction path leading to 1 and 2. Deuterium was chosen in order to minimize the electronic and steric effects of the substituent. The observed scrambling of the deuterium label in 1 and 2 indicates that photoisomerization takes place prior to their formation.

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