Condensation of Isophorone and Isophorone Oxime with Amines and Aldehydes

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Abstract—Mannich condensations of isophorone (3,5,5-trimethylcyclohex-2-en-1-one) with paraformaldehyde and dimethylamine, benzylamine, and piperidine hydrochlorides were studied. The reactions were not selective, and they involved both activated methylene group and vinylic carbon atom, as well the exocyclic methyl group at the double bond. The corresponding isomeric amino ketones were formed in comparable amounts (42, 30, and 28%). The *E* and *Z* isomers of isophorone oxime reacted with paraformaldehyde and dimethylamine hydrochlride to give mixtures of analogous Mannich condensation products, but the fraction of the addition product at the carbon atom spatially close to the oxime hydroxy group was larger. Under analogous conditions, the reaction of isophorone with aromatic amines and aromatic aldehydes gave products of two-component condensation of isophorone with aldehydes, and the reactions involved exclusively the activated methylene group in the initial enone with formation of the corresponding *trans*,*trans*-isomeric 7-arylmethylidene derivatives.

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