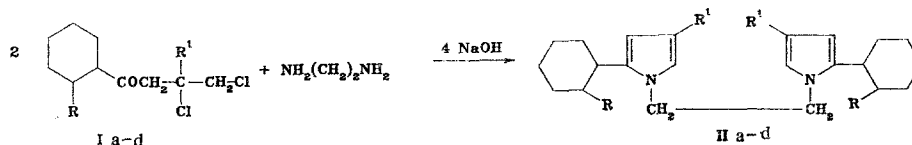


SYNTHESIS OF 1,2-DIPYRROLETHANES

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We found that the condensation of 1,2-dichloropropyl cyclohexyl ketones (Ia-d) with ethylenediamine in an alkaline medium at -5°C produces 1,2-dipyrrolethanes (IIa-d).



I, II a $R=R'=H$; b $R=CH_3$, $R'=H$; c $R=R'=CH_3$; d $R=H$, $R'=CH_3$

The use of an excess of ethylenediamine as the dehydrochlorinating agent results in the practically complete resinification of the reaction mixture.

Thus, 0.2 mole of ketone I is added to a mixture of 8.6 g (0.1 mole) of a 70% aqueous solution of ethylenediamine and an aqueous solution of 16 g (0.4 mole) of NaOH at -5°C , the mixture is heated for 6 h at $70-80^{\circ}\text{C}$, the aqueous layer is extracted by ether, and the organic layer and the ethereal extracts are washed with water and a 10% solution of sodium carbonate and dried by Na_2SO_4 . The ether is driven off, the residue is vacuum-distilled, and the compound is crystallized from ethanol.

Data [compound, yield, in %, mp in $^{\circ}\text{C}$, bp in $^{\circ}\text{C}$ (mm Hg)]: IIa, 38, 90-91, 162-165 (5); IIb, 40, 152-154, 175-178 (5); IIc, 32, 141-143, 155-158 (3); IId, 36, 128-131, 153-155 (2). The PMR spectra of compounds II show characteristic signals of the pyrrole ring at 5.5-6.5 ppm. The IR spectra correspond to the structure, and the data from the elemental analysis correspond to the calculated values.