STEREOSELECTIVE APPROACH TO SOME NOVEL D-DIHOMO-ESTRONE DERIVATIVES IN THE NORMAL SERIES

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New D-dihomo-heteroestrone derivatives were synthesized from an unsaturated carboxylic estrone secoaldehyde **1**, easily accessible from estrone-3-methylether. Michael-addition and reductive amination of **1** in alkaline solution led to carboxylic diamines **2**, which were cyclized to seven-membered amino-lactams **3**. Only reductive amination and subsequent cyclization could occur to obtain methylidene-lactams **4** when the reaction was carried out without applying sodium hydroxide in the first step. The analogous D-dihomo-lactone **7** was also prepared by the intramolecular substitution of the carboxylic chloride **6** of the corresponding secoalcohol **5** derived from **1** by reduction. At the same time, the direct ring-closure of **5** with scandium(III)-triflate resulted in the unsaturated 16-methyl derivative **8**.