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THE DIASTEREOSELECTIVE SYNTHESIS OF THE POLYCYCLIC DERIVATIVES OF *CIS*-4,5-DIHYDROXYIMIDAZOLIDIN-2-ONE

ДІАСТЕРЕОСЕЛЕКТИВНИЙ СИНТЕЗ ПОЛІЦИКЛІЧНИХ ПОХІДНИХ *ЦИС*-4,5-ДИГІДРОКСИІМІДАЗОЛІДІН-2-ОНУ

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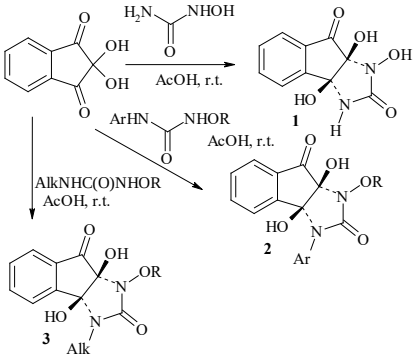
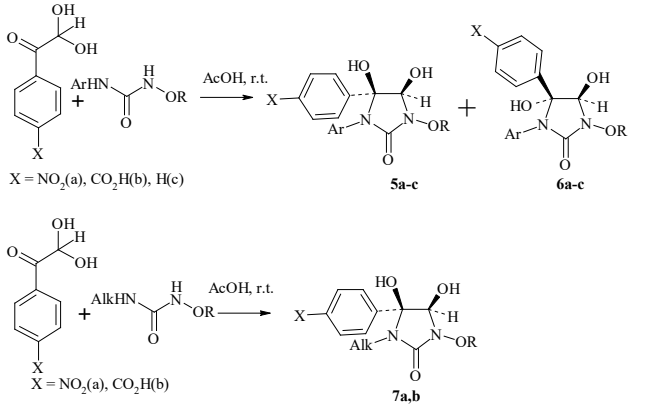
The ninhydrin interaction with *N*-hydroxyurea, *N*-alkoxy-*N'*-arylureas and *N*-alkoxy-*N'*-alkylureas in acetic acid at room temperature gives only one of the possible diastereomers of 1,3a,8a-trihydroxy-1,3,3a,8a-tetrahydroindeno[1,2-*d*]imidazole-2,8-dione **1**, 1-alkoxy-3-aryl-3a,8a-dihydroxy-1,3,3a,8a-tetrahydroindeno[1,2-*d*]imidazole-2,8-diones **2** and 1-alkoxy-3-alkyl-3a,8a-dihydroxy-1,3,3a,8a-tetrahydroindeno[1,2-*d*]imidazole-2,8-diones **3**, respectively. The XRD

study of compounds **1-3** has shown that the C(3a)–OH and C(8a)–OH hydroxyl groups are *cis*-oriented to each other [1; 2].



The arylglyoxals reacts with *N*-alkoxy-*N'*-arylureas and *N*-alkoxy-*N'*-alkylureas in the same conditions mainly yielding 3-alkoxy-1-aryl-*cis*-4,5-dihydroxy-5-(4-X-phenyl)imidazolidin-2-ones **5a-c** (X=NO_2 (**a**), CO_2H(**b**), H(**c**)) and only 3-alkoxy-1-alkyl-*cis*-4,5-dihydroxy-5-(4-X-phenyl)imidazolidin-2-ones **7a,b** (X=NO_2 (**a**), CO_2H(**b**)) respectively [3–5]. The compounds **5**, **7** have 4-hydroxyl and 5-hydroxyl groups in the *cis*-conformation to each other. The *trans*-4,5-dihydroxydiastereomers **6a-c** were observed in the products in the trace amounts.



The structure of the compounds 5,7 has been confirmed by the XRD study

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