THE SPIROCYCLOPROPANE WITH FRAGMENTS OF DEHYDROABIEtic ACID AND AMINOxoINDOLE

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The abstract presents the synthesis of new highly functionalized spirocyclopropane with the fragment of natural compound – dehydroabietic acid (DAK), which can be potentially active against some diseases.

\[ \text{1.3 eq. (COCl)}_2 \text{dry CHCl}_3 \text{r.t., 3h} \]

It is a known that spirocyclopropanes have anti-HIV activity [1]. From the other side there are a lot of natural and synthetical oxindoles with various biological activities [2]. And the last fact – that the high optical purity and the molecular structure of tricyclic diterpenoid 1 make it an attractive object for studying new various properties, such as the synthesis of new derivatives with the natural skeleton preservation [3]. Firstly, our approach was to isolate the DAK from natural sources and to transform into chloride 2.

The next stage was the obtaining of 5-aminooxindole 6, which started from isatine 4, according to a known method [4]. The sequential three-stage synthesis of oxindole 5 [5] followed by classical reduction with hydrogen and 5 mol% of palladium on activated carbon [6] succeeded with 98% yield. And the final stage was the reaction of aminooxindole 6 with chloride 2 in dry chloroform, using as acceptor the excess Et3N. According to NMR spectrum, the desired product 7 is the mixture of diastereomers in ratio 1:1.

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References: