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Synthesis of derivatives of adamantane modified epiandrosterone

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Esterified steroids are characterized with high biological activities. It is ascertained that inclusion of adamantane fragment into the steroidal compound improves its lipophilicity and the ability to permeate a cell membrane, which in and of itself results in increased biological activity. Inclusion of the radical of adamantane into the molecule of a substance often tends to decrease the toxicity of this compound, while also prolonging the ability of this compound to be biologically active. In order to study relationship of structure-activity by esterification of epiandrosterone with chloranhydride of adamantane acid 3β–(1–adamantoat)–5α-androstan-17-one has been synthesized. By its interaction with hydroxylamine, semicarbazide and hydrazines (phenylhydrazine, p-methyl-, p-bromo-, p-chloro-, p-phenyl-, p-nitro-, 2,4-dinitrophenylhydrazines) corresponding oxime and hydrazones have been obtained. Starting epiandrosterone was synthesized by conversation of 3β-acetoxy-5α-pregn-16-en-3β-ol-20-one – splitting product of tigogenine.

Recent Publications

1. Nadaraia N, Onashvili E, Kakhabrishvili M, Barbakadze N, Sylla B and Pichette A (2016) Synthesis and antiviral activity of several N-containing 5α-steroids. Chemistry of Natural Compounds 52(5):853-855.
2. Barbakadze N, Nadaraia N, Kakhabrishvili M, Onashvili E and Katritzky A (2016) Synthesis from tigogenin of 17β-amino-5α-androstan-3β-ol peptide derivatives. Chemistry of Natural Compounds 52(3):445-447.
3. Nadaraia N, Kakhabrishvili M, Onashvili E, Barbakadze N, Getia M, Pichette A, Sikharulidze M and Makhmudov U (2014) Synthesis of several 5α-androstano[17,16-d]pyrazolines from tigogenin. Chemistry of Natural Compounds 50(6):1024-1028.
4. Barbakadze N, Jones R, Rosario N, Nadaraia N, Kakhabrishvili M, Hall D and Katritzky A (2014) Chemical modification of oximes with N-protected amino acids. Tetrahedron 70(40):7181-7184.
5. Nadaraia N, Kakhabrishvili M, Barbakadze N and Sikharulidze M (2013) Synthesis of some derivatives of 17β-amino-5α-androst-2-en-17-one. Georgia Chemical Journal 13:1:146-147.

Biography

Nana N Barbakadze has completed her PhD from Ivane Javakhishvili Tbilisi State University. She is a Research Scientist at Tbilisi State Medical University. Her field of interest lies in chemistry and synthesis of biologically active compounds. She is the author of more than 15 papers in reputed journals and presentations at 40 international scientific conferences.

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