Synthesis of New Potential Biologically Active Tetra- and Pentanorlabdane Compounds with 1,3-Thiazole Units

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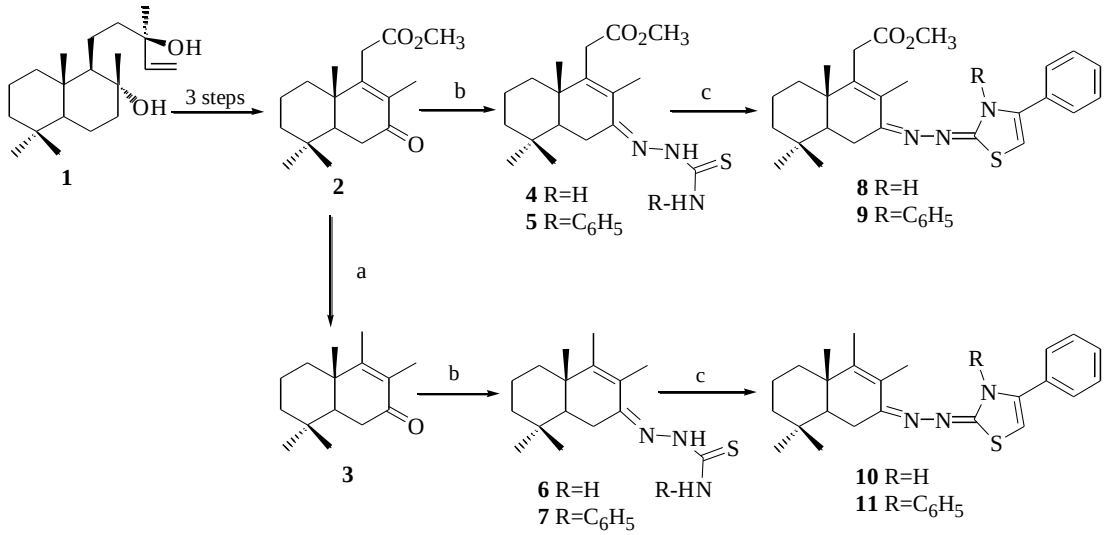
The 1,3-thiazole derivatives are considered heterocycles of special interest since they possess important pharmacological activities[1,2]. The results of investigations devoted to the synthesis of new tetra- and pentanorlabdane compounds containing thiazole structural units/core are reported.

The key strengths of this research are: accessible and natural starting material, labdane diterpenoid (-)-sclareol (**1**), which can be easily extracted from renewable resources; high probability of biological activities and low toxicity, due to their natural origin. The reported tetra- and pentanorlabdane hybrid derivatives **8-11** were prepared by interaction of thiosemicarbazones **4-7** with 2-bromoacetophenone under depicted conditions[2]. In turn, the intermediates **4-7** derived from known ketoester **2** and drimenone **3**, can be prepared from sclareol **1** in three and four steps, respectively (Scheme 1).



Reagents: a. KOH, EtOH, 98%; b. $NH_2NHCSNH_2$ or $NH_2NHCSNHC_6H_5$, EtOH, 71-85%; c. $C_6H_5COCH_2Br$, EtOH, 75-83%.

Scheme 1

The structures of reported compounds **4-11** have been fully confirmed by mean of ^{1}H, ^{13}C and ^{15}N RMN analysis, and MS spectrometry.

References:

1. A. I. El-Shenawy. *Russ. J. Bioorg. Chem*, **2016**, 42(1), 100–105.
2. R. M. Mohareb, W. W. Wardakhan, G. A. Elmegeed, R. M. S. Ashour. *Steroids*, **2012**, 77, 1560-1569.