USE OF CAMPHOR FOR THE SYNTHESIS OF TRIMETHYLCYLOPETANECARBOXYLIC ACIDS

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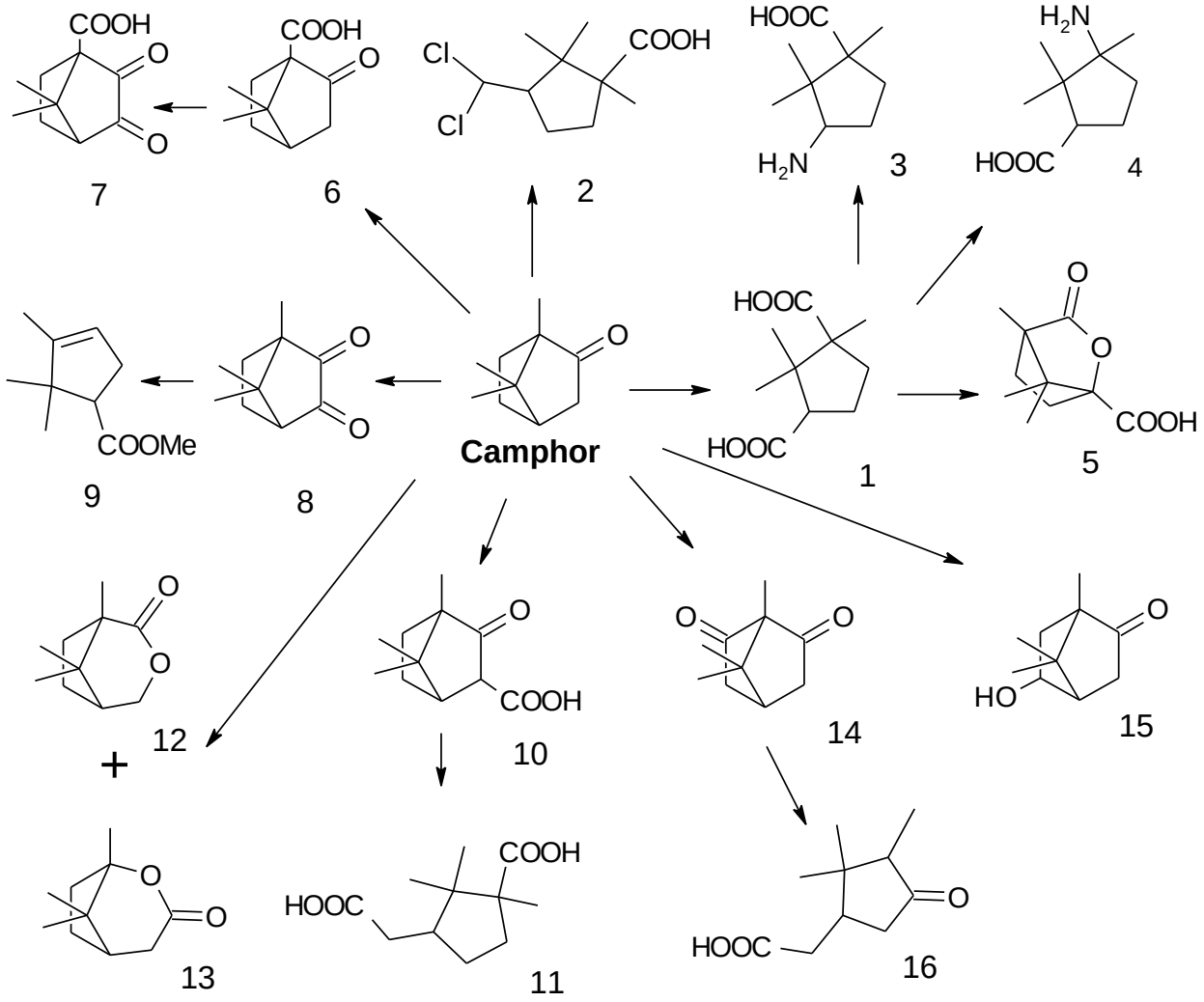
Introduction. In previous studies(±)-camphoric **1** and (±)-3-dichloromethyl-1,2,2-trimethylcyclopentanecarboxylic **2** acids for the synthesis of biologically active derivatives of quinazolone, oxadiazole, benzimidazole with trimethylcyclopentane moiety were used. Acids **1** and**2** were obtained from racemic camphor. The potential of camphor as a source for the synthesis of carboxylic acids that can be used for the synthesis of these heterocycles is not exhausted.

Scheme



Aim. The aim of this work is to review the methods of transformation of camphor into carboxylic acids with trimethylcyclopentane and other similar fragments.

Materials and methods. Analysis of scientific and scientific-methodical literature on the the methods of transformation of camphor into carboxylic acids.

Results and discussion. Camphoric acid **1** is obtained from camphor by oxidation with nitric acid. It can be further converted into isomeric amino acids **3** and **4** by cleavage of the corresponding amides according to Hoffman.

Another way to modify acid **1** is to convert to camphanic acid **5.**The intermediate compound in this reaction is 3-chlorocamphoric anhydride. The conversion of the methyl group of camphor in position 1 to carboxyl with the formation of ketopic acid **6** is carried out through the stage of 10-camphorsulfonic acid.

Acid **6** and camphor can be oxidized to the corresponding α-diketones **7** and **8** by selenium (IV) oxide. Camphorquinone **8** is oxidized by hydrogen peroxide to acid **1** in an alkaline medium, and in the presence of cerium ammonium nitrate itcan be rearranged into ester **9**. Compound **8** is able to react with the rupture of CO-CO bond.For example it react with o-aminophenol and lead to 3-(benzoxazol-2-yl)-1,2,2-trimethylcyclopentanecarboxylic acid.

Carboxylation of camphor yields camphorcarboxylic acid **10**. Acid **10** is cleaved in an alkaline medium to dicarboxylic acid **11**.

Oxidation of camphor with benzeneselenic acid leads to a mixture of lactones **12** and **13**. It is known, microbiological oxidation of camphor in positions 5 and 6 with the formation of diketone **14** and hydroxoketone **15**. Compounds **14** and **15** have the potential for further modification, for example into keto acid **16**.

Conclusion. When using camphor as the parent compound at least ten carboxylic acids with trimethylcyclopentane fragment can be obtained.

ESTERS OF 4-HYDROXY-2-OXO-6-ARYLCYCLOHEXENE-2-CARBOXYLIC ACIDAND THEIR USE IN THE SYNTHESIS OF A NEW 2-AMINO-4-ARYL-3-CYANO-5,6,7,8-TETRAHYDRO-4H-CHROMENES

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Introduction. The use of new building blocks and the search for conditions for multicomponent reactions (MCR) for the production of libraries of organic compounds is one of the priority areas for the development of theoretical and synthetic organic and medical chemistry. It is known that the use of enolnucleophils, carbonyl compounds