

Functionalized 2-Substituted Allyl Bromides in the Barbier Allylation of (*R*)-2,3-*O*-Isopropylideneglyceraldehyde. Synthesis of the C⁸–C¹⁷, C⁸–C¹⁸, and C⁵–C¹⁷ Building Blocks of Laulimalides and Their Synthetic Analogs

I. V. Mineyeva^a

^a *Belarusian State University, Minsk, Belarus*
e-mail: i.mineyeva@yandex.ru

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Abstract—Several new 2-substituted allyl bromides were synthesized through cyclopropanol intermediates and were then involved in the Barbier allylation of (*R*)-2,3-*O*-isopropylideneglyceraldehyde in the presence of zinc in a mixture of tetrahydrofuran and saturated aqueous ammonium chloride to obtain the corresponding homoallylic alcohols with high diastereoselectivity. The possibility of using the latter as building blocks for macrocyclic antitumor agents (laulimalides) and their synthetic analogs was demonstrated.

Keywords: 2-substituted allyl bromides, Barbier reaction, (*R*)-2,3-*O*-isopropylideneglyceraldehyde, cyclopropyl sulfonates, diastereoselective allylation, homoallylic alcohol, laulimalide.

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