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The 1st Generation Dendrimeric Antioxidants of Arylmethyl Meldrum's Acids

Elīna Zoltnere, Uldis Peipiņš

*Institute of Technology of Organic Chemistry, Faculty of Materials Science and Applied Chemistry
Riga Technical University, Str. P. Valdena 3/7, Riga, LV 1048, Latvia
e-mail: Inese.Mierina@rtu.lv*

Previously our group has demonstrated arylmethyl Meldrum's acids as strong antioxidants and free radical scavengers [1]. On the other hand, dendrimers could be an excellent route for introducing of multiple fragments with antiradical and antioxidant activity in one molecule. For example, such strategy was used to bind in one structure several syringol [2] and carbazole units [3]. Inspired on these examples, herein we present the first dendrimeric antioxidants containing residues of Meldrum's acid as surface groups.

In order to obtain new dendrimeric antioxidants containing several moieties of arylmethyl Meldrum's acid the following strategy was used. The reaction sequence was started with alkylation of polyhydroxybenzene **1** with vanillin derivative **2**, thus leading to the dendrimer core **3**. Further, the compound **3** was decorated with 1,3-dioxane-4,6-dione moieties through Knoevenagel reaction. The obtained arylidenes **4** were transformed to the target

compounds **5** by treatment with NaBH₄. Antiradical activity of the obtained dendrimeric derivatives of Meldrum's acid will be discussed.

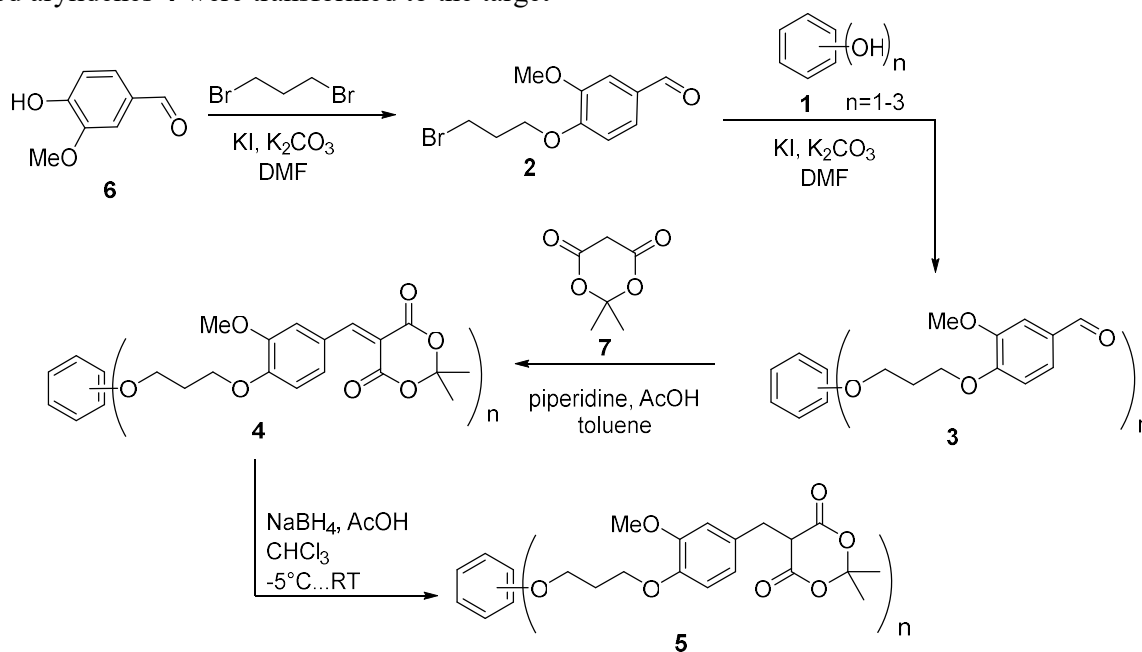
Supervisor: Dr. chem. I. Mierina

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Scheme 1. Synthesis of arylmethyl Meldrum's acid dendrimer derivatives.