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ATTI DEL CONGRESSO

ORG-PO-30 New 23-phosphodiester derivatives of Silybin and DHS: synthesis and preliminary evaluation of antioxidant properties.

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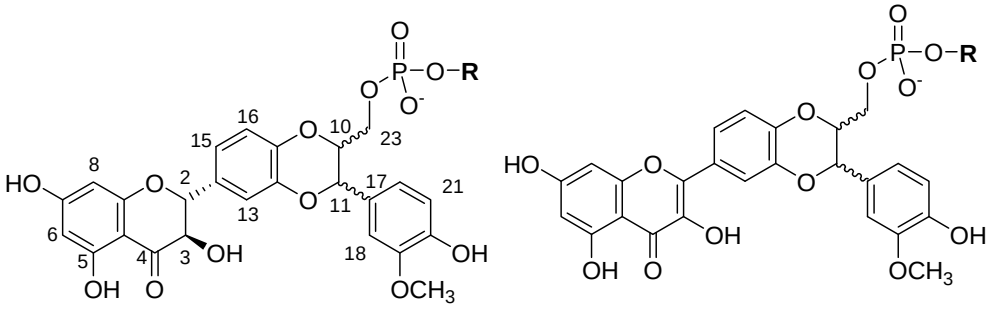
Silybin is the major flavonolignan of silymarin which is widely used as a natural remedy for the treatment of cirrhosis, chronic hepatitis, and liver diseases associated with alcohol consumption and exposure to environmental toxins [1]. Different studies recently made on the antiradical activity of silybin and DHS have elucidated the functional groups responsible for this activity [2]. The results suggest that the C-23 position could be a site for useful modifications aimed to improve the bioactivity of silybin and/or DHS analogues. Recently we describe an efficient synthetic strategy to obtain a variety of new silybin and 2,3-dehydrosilybin (DHS) derivatives in which the 23-hydroxyl group was converted to a sulfate, phosphodiester, or amine group, using a solution-phase approach [3]. The antioxidant properties of the new compounds were evaluated in a cellular model *in vivo* and most of them displayed an antioxidant activity comparable or higher to silybin and DHS. These results confirmed the assumption that modifications in position C–23 do not affect the radical scavenging activity of these analogues.

With the final goal to expand the repertoire of silybin and DHS C-23 modified, we describe here the synthesis and preliminary evaluation of antioxidant properties of a variety of new silybin and DHS conjugated with different labels through a phosphodiester bond The antioxidative properties of the above-synthesized compounds were determined by free radical scavenging (DPPH) assays.



23-phosphodiester silybin modified 23-phosphodiester DHS modified

[1] Gažák, R.; Walterová, D.; Křen, V. *Curr. Med. Chem.* **2007**, *14*, 315–338.
[2] Gažák, R.; et al. *Free Radic. Biol. Med.* **2009**, *46*, 745–758.
[3] Zarrelli, A.; et al. *Bioorg. Med. Chem. Lett.* **2011**, doi:10.1016/j.bmcl.2011.06.049