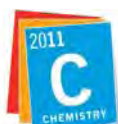
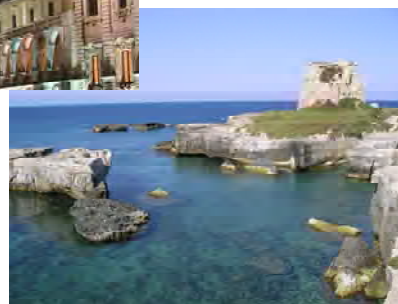
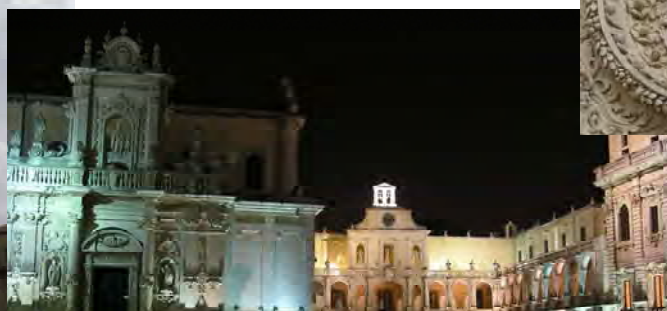




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ATTI DEL CONGRESSO

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

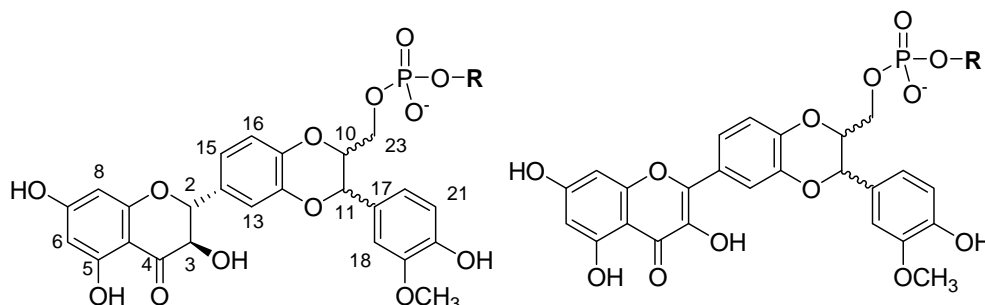
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Silybin is the major flavonolignan of silymarin which is widely used as a natural remedy for the treatment of cirrhosis, chronic hepatitis, and liver diseases associated with alcohol consumption and exposure to environmental toxins [1]. Different studies 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