Photophysical Characterization of Phenalenone Derivatives

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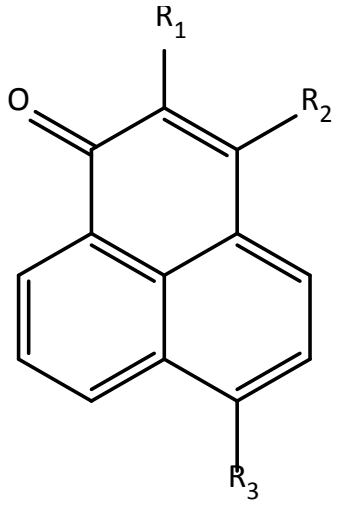
Phenalenone has been studied extensively due to its behavior and because it can be used on interesting applications from the scientific and technological point of view. We are interested in obtaining and characterizing phenalenone derivatives able to interact with specific targets, like lectins, to generate singlet oxygen promoting damage at specific selected locations, upon excitation preferably with visible light.
The presence of substituents on the molecule rearranges the molecular electronic states changing its photophysical behavior. To rationalize the effect of the presence of substituents in several positions of the phenalenone ring, we prepared and studied the derivatives shown in next table.



Molecule	R1	R2	R3
OXA2PN	Benzoxazole	-H	-H
3OHPN	-H	-OH	-H
3OEtPN	-H	-OEt	-H
6CGalPN	-H	$-O(CH_2)_6Gal$	-H
6CManPN	-H	$-O(CH_2)_6Man$	-H
6OHPN	-H	-H	-OH
6OEtPN	-H	-H	-OEt

When compared with phenalenone, the properties of the different compounds studied show the expected behavior, with bathochromic shifting of absorption and with the capability to generate singlet oxygen maintained or fairly reduced.

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