SEMINARS

Speakers:

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POLITECNICO MILANO 1863 | DIPARTIMENTO DI CHIMICA MATERIALI E INGEGNERIA CHIMICA GIULIO NATTA | SCITEC | INBIOWAL

27th November 2024 I 15:00

Room MA3 – Mancinelli
Politecnico di Milano
Via Mancinelli 7 (Milano)

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Design and synthesis of stigmasterol-modified acylglycerols

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Phytosterols (PS) are essential components of plant cell membranes that regulate their physicochemical properties. They have received much attention because of their hypocholesterolemic effect but they are also promising compounds for the prevention of neurodegenerative diseases, diabetes or cancer. However, phytosterols found in foods have low oil solubility and bioavailability and are easily degraded thermal processing or prolonged storage. Hence, in order to increase their bioavailability and reduce the formation of toxic compounds during heating, new sterol derivatives are being synthesized.
During the presentation design and synthesis of new modified acylglycerols in which one or two fatty acid residues are replaced by stigmasterol linked via carbonate or succinyl linker will be presented.

Formation and physicochemical properties of liposomes containing stigmasterol-modified acylglycerols

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Due to their structure, stigmasterol-modified acylglycerols are an excellent base for their use as the components of liposomes, which may increase their stability and efficiency to deliver stigmasterol to the human body and protect it from thermal-oxiditive degradation. This presentation will focus on the use of distigmasterol-modified acylglycerols to form liposomes in the mixture with phospholipid and evaluation of their impact on the physico-chemical properties of membranes of these nanocarriers. Fluidity and thermotropic parameters such as the temperature of the main phase transition were determined using calorimetric and spectroscopic methods.
The results provide a starting point for further research on the use of distigmasterol-modified acylglycerols in the design of dietary ingredients, such as liposomes carrying health-promoting phytosterols.

Participation at the event is free, but registration is mandatory at this link

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