

Nanocarriers: successful tools to improve solubility, stability, and bioefficacy of natural products

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Over the millennia, natural products have represented for Humankind the only source of substances with prophylactic and health properties, widely used to cure human and animal diseases. Nowadays, numerous studies have selected constituents and extracts with pleiotropic functions but their clinical use is limited due to the need of repeated administrations or high doses because of low hydrophilicity and intrinsic dissolution rate(s), or physical/chemical instability. Other limits of natural products are low absorption, poor bioavailability, trivial penetration and accumulation in the organs of the body. Consequently, there is an increasing interest in the design and production of appropriate drug delivery systems, in particular nanosized ones, which can offer an advanced approach to optimize the therapeutic efficacy of extracts and isolated constituents [1-9]. The lecture aims to describe novel nanoformulations, namely polymeric nanoparticles and lipid based-nanocarriers, which can represent successful examples to overcome these limitations of natural pleiotropic molecules, extracts and essential oils.

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