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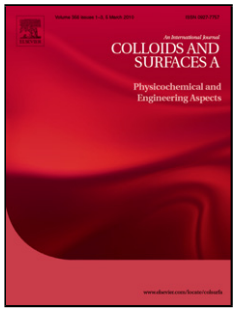

Title: Physicochemical Characterization of Natural Phospholipid Excipients with varying PC content

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Physicochemical Characterization of Natural Phospholipid Excipients with varying PC content

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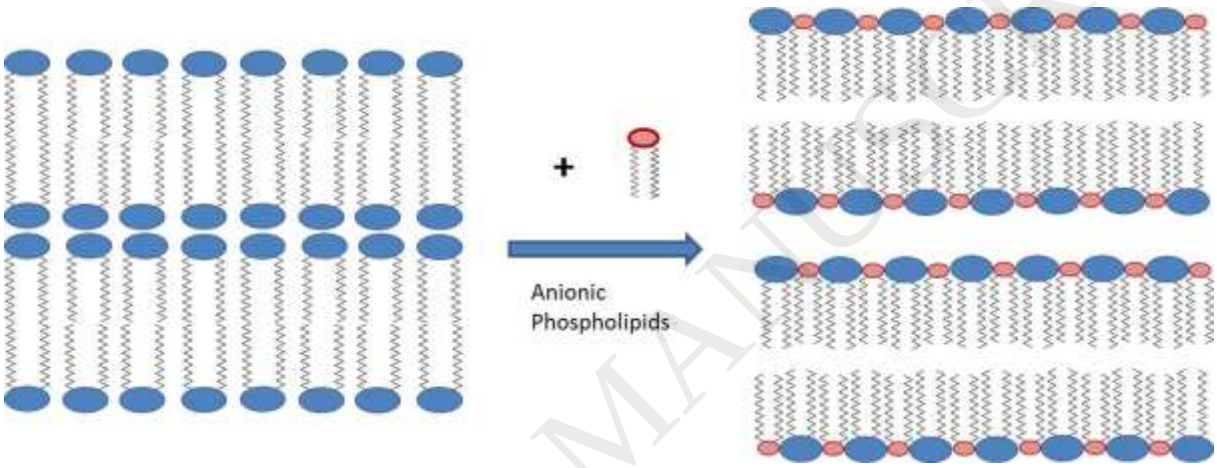
Graphical Abstract



Abstract

Phospholipids are widely used excipients in pharmaceutical, cosmetic and food industry. Despite the variety of phospholipids, mainly phosphatidylcholine is used. In the present study, the physicochemical characteristics of natural phospholipids from soybean and egg-yolk, differing in PC content, have been investigated in aqueous dispersions and Langmuir monolayers model systems. The zeta potential and the resulting electrostatic repulsion were measured in aqueous dispersion of the lipids. When the negative charge increased from -14.1 mV to -73.7 mV, the distance between the formed bilayers increased accordingly (5.2 nm to 8.3 nm). The bilayer thickness was measured by small-angle X-ray scattering (SAXS) and showed a correlation with the zeta potential. Langmuir isotherms were recorded for analysis of the monolayer properties in a purified water phase to further clarify the effect of the charged components, present in the natural phospholipids. Phospholipids with a higher amount of charged species formed a more condensed and rigid monolayer. The components present in the

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