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# Cholesterol Modulates Curcumin Partitioning and Membrane Effects

*Natália B. Leite<sup>‡‡</sup>, Danubia B. Martins<sup>§</sup>, Vinicius E. Fazani<sup>§</sup>, Maira R. Vieira<sup>‡</sup>, Marcia P. dos Santos Cabrera<sup>\*‡§</sup>*

<sup>‡‡</sup>Departamento de Química e Ciências Ambientais and <sup>§</sup>Departamento de Física, Universidade Estadual Paulista (Unesp), Instituto de Biociências Letras e Ciências Exatas (Ibilce), Câmpus São José do Rio Preto, SP, Brazil.

## KEYWORDS

curcumin; cholesterol; lipid bilayer effects; phospholipid membranes; lipid/water partition coefficients; large and giant vesicles;

## ABSTRACT:

Curcumin, a polyphenol molecule, presents a wide range of biological activities as antioxidant, anticancer, anti-inflammatory, antimicrobial and wound healing. Although some strengths attributed to curcumin derive from promiscuous biological activity, possibly because curcumin can interfere on many membrane located processes, knowledge of underlying interactions are lacking. Mammalian cell membranes characteristically contain 25 to 50% cholesterol/phospholipid ratio; however, most studies involving lipid bilayers and curcumin consider pure phosphatidylcholine and compare effects of curcumin on membranes with those of cholesterol. We investigated the interaction of curcumin with lipid bilayers containing cholesterol mimicking mammalian cells, and

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