INFLUENCE OF CAROTENES ON THE NITRIC OXIDE PERMEABILITY THROUGH MIMETIC MEMBRANES

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It is known that carotenes can modulate the thylakoid membrane fluidity and may be considered as an adaptive mechanism to a hazardous environment. In order to understand the relationship between the structure of the carotenes ß-carotene (CAR) and lycopene (LYC) and their effect on the molecular dynamic of mimetic membranes. We have investigated the influence of the carotenes on the nitric oxide (NO) permeability behavior of dipalmitoylphosphatidylcholine (DPPC) with 0.5 mol % of dicetyl phosphate (DCP) of large unilamellar vesicles (LUV), using a NO analyzer. LUV were obtained by $CHCl_3$ injection into aqueous solution (50mM SNP, 20mM TRIS-HCl, pH 7.2). The suspension was passed through two polycarbonate filters in a extruder and, it was passed through SEPHADEX G-25 column to remove SNP (NO donor) not encapsulated. The results showed that CAR and LYC increase the mimetic membrane fluidity, since there is a decrease the observed permeability rate constant ($k_{obs} = 1/t_{1/2}$). CAR fluidify 1.9 times the membrane (k_{obs}=0.0025) and Lyc, 1.4 times (k_{obs}=0.0019) in relationship to LUVs without carotenes (k_{obs}=0.0013). This may be related to the property of carotenes to increase the permeability of lipid systems and, consequently, change the permeation of reactive oxygen and nitrogen species.

Supported by: FAPESP
Keywords: mimetic membranes, carotenes, NO, permeability