PHOSPHOLIPID MONOLAYER AND LIPOSOME APPLICATION IN
THE DETERMINATION OF THE PHOTOPHYSICAL
CHARACTERISTICS OF MC 540

LIBUŠA SIKUROVA
Department of Biophysics, Comenius University, Bratislava, Slovak Republic

Merocyanine 540 is an anionic fluorescent probe which has a wide range of
applications in biomembrane research, having, as it does, a high affinity to the
lipid phase of biological membranes. Thus, its interactions with model
phospholipid membranes with defined structures are an important starting point
in the quantification of its photophysical and photochemical characteristics. In
this study, we used Langmuir type multilayers and liposomes composed of
various phospholipids as model membrane systems. These systems were used
for the determination of the difference in the electric dipole moments of MC 540
between the ground and first electronically excited states, for the determination
of monomer-dimer distributions and equilibrium constants, for the evaluation of
thermodynamic parameters (enthalpy and entropy changes) of the probe in a
membrane, and for the estimation of effective values of dielectric permittivity of
the probe’s environment in membranes.