

Permeation-induced chromatic change of a polydiacetylene vesicle with nonionic surfactant

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A color change could be achieved by substrate permeation in a polydiacetylene vesicle formed with nonionic surfactant. The polydiacetylene vesicle was formed with N-(2-aminoethyl)pentacosan-10,12-diyamide (AEPCDA), tetra(ethylene glycol) monoctadecyl ether (TEGOE) was used as a nonionic surfactant, and methotrexate (MIX) was used as a substrate. The color change from blue to red due to MIX permeation was clearly shown when the AEPCDA: TEGOE ratio was 4:6. The change in color occurred only with the mixed vesicle with TEGOE. The change color could occur through permeation of a substrate with a high molecular weight, for example gentamicin and neomycin, but it could not occur with a substrate with low molecular weight, for example ethylamine and butylamine.