Acrylamide polymers with covalently linked zinc(II)tetraphenylporphyrin groups: synthesis and complexation with amino acids

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Experimental

Materials.

Zinc(II) 5,10,15,20-tetrakis(4-allyloxyphenyl)porphyrinate was synthesized by alkylation of zinc 5,10,15,20-tetrakis(4-hydroxyphenyl)porphyrinate with allyl bromide is similar to that of work.[1]

Amino acids (DL-methionine, L-arginine, L-histidine and L-cysteine) and dipeptides (DL-α-alanyl-alanine, glycyl-α-alanine, DL-α-alanyl-DL-valine) (REACHEM, Russia), bovine serum albumin (fraction V, pH 7.0) and sodium salt of DNA from salmon sperm (Acros Organics) were used without purification. Acrylamide (purity 99%), Azobisisobutyronitrile (AIBN) (purity 97%), 1,4-dioxane (anhydrous, purity 99%) were bought in Sigma-Aldrich. The aqueous solutions were prepared using double distilled water.

Spectral measurements

UV-Vis and fluorescence spectra were recorded using a spectrometer AvaSpec-2048 (Avantes, The Netherlands) and 10 mm quartz cuvettes.

Binding constants of analytes to the synthesized polymers were calculated on the basis of the obtained spectral data using the Rose equation:[2]

$$\lg K = \lg \frac{A_0 - A_i}{A_i - A_{max}} - \lg C_L^0 ,$$

where K is the binding constant, A_0, A_i и A_{max} are the optical densities of initial solution, after addition of i*th* dose of titrant and final solution, respectively, C^0_L is the initial concentration of analyte solution.

Figure S1 Photographs of water solutions of Pol20, Pol20-HYS complex and Pol20-CIS complex (from left to right).

References

1   N. Pechnikova, A. Lyubimtsev, T. Ageeva, S. Syrbu, A. Semeikin and O. Koifman, *J. Porphyrins Phthalocyanines*, 2014, **18**, 162.

2   N. J. Rose and R. S. Drago, *J. Am. Chem. Soc.*, 1959, **81**, 6138.