Multicomponent samples with identical composition, prepared with different order of single component addition, should show different behavior of its macroscopic or microscopic properties. This paper is focused on problematic related to the effect of the order of substances addition in a colloidal sample and the effect of initial form (liquid, solid) of each substance. This problem can be finding as important in interaction between water-soluble charged polymer and oppositely charged surfactant in aqueous environment. These systems, especially where polymer and surfactant are biocompatible, can lead to the formulation of novel delivery system in cosmetics and pharmaceutics.

As investigated system, biopolymer hyaluronan and cetyltrimethylammonium bromide (CTAB) was selected. This system has been studied in the aqueous, saline, and phosphate buffer environments. Fluorescence probe method and surface tension measurement were selected as indicators. As fluorescence probes pyrene and nile red were used due to their unique sensitivity to the micropolarity of the system [1, 2].

It was found that the order of the mixing of solutions has a significant effect on the aggregation properties of the system and its appearance. Further effects were detected on the prepared samples by dissolving powdered biopolymer surfactants and vice versa, and environmental influences of the polarity of the system. It was found that sodium chloride abolished the effects of interactions in the system. Effect of method of preparation of certain concentration of CTAB in phosphate buffer is reflected only slightly.


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