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Textures of BSA films with sodium halides

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Structure of solid phase of drying solution of biopolymers characterizes the relationship between the substances within it. On the surface of the films obtained from biopolymer solutions, dendritic and scale-invariant fractal texture (SIFT) are formed.

The objective of this work is to investigate the influence of halides NaF, NaCl and NaBr on the formation of SIFT on the surfaces of films obtained from solutions of bovine serum albumin (BSA).

To prepare films with textures, aqueous solutions of BSA (0.5 mg/ml) in the presence of NaF, NaCl and NaBr (with concentrations up to 20 mM) were used. Protein solutions of volume 0.5 ml were poured into cuvettes of 20×20 mm² size and dried at 40°C. Control of the hydration state of the BSA in the presence of NaF, NaCl and NaBr was performed using dielectrometry of solutions in 3 cm wavelength range.

For each film, mean values of specific density of SIFT were calculated.

Possible reasons for the detected changes in specific density of SIFT, in conjunction with the component concentrations of sodium halides in the solutions, are discussed.