

**On the possibility of indirect determination of the glass transition temperature of proteins from viscosity measurements and Avramov's model**

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The paper presents the results of viscosity determinations on aqueous solutions of hen egg-white lysozyme, bovine  $\beta$ -lactoglobulin, human and porcine immunoglobulin IgG at a wide range of concentrations and at temperatures ranging from 5°C to 55°C. Viscosity-temperature dependence of the proteins solutions is analyzed based on a formula resulting from the Avramov's model. One of the parameters in the Avramov's equation is the glass transition temperature  $T_g$ . It turns out that for all studied proteins, the  $T_g$  of the solution increases with increasing concentration. To determine the glass transition temperature of the dry protein  $T_{g,p}$ , a modified form of the Gordon-Taylor equation is used. This equation gives the relationship between  $T_g$  and the concentration of the solution, and  $T_{g,p}$  and a parameter dependent on the strength of protein-solvent interaction are fitting parameters. Thus determined the glass transition temperature for the studied dry proteins is in the range from 227.3 K (for bovine  $\beta$ -lactoglobulin) to 260.6 K (for hen egg-white lysozyme).