

Aim of the research

Till nowadays, many studies have strongly concentrated on the expression, localization, and function of dehydrins in plants. Up till now, more than 200 dehydrin genes have been cloned and characterized. Despite so many studies that researched the structural characteristics (Campbell and Close, 1997) and cryoprotective activity of this group of proteins (Close, 1996; Houde *et al.*, 1995; Wisniewski *et al.*, 1999), the function and the mechanism of it's cryoprotective activity remains still unknown.

The main goal of this work was to investigate dehydrins in order to obtain information which would help us in further elucidation regarding their actual biological function.

Different experiments were conducted in order to:

- examine if the dehydrins protect cellular membranes under the freezing conditions, because membranes are known to be primary sites of freezing damage.
- determine whether mutual interactions between dehydrins have influence on the total cryoprotective activity (additive effect).
- characterize the interaction between membranes and cryoprotective dehydrins to deduce a model for the mechanisms which leads to cryoprotection of the cellular membranes.
- describe the Influence of dehydrins on membrane permeability in freeze thaw cycle, as well as influence of dehydrins on kinetics LSS (light scattering) signal.