

**THE EFFECT OF PHYTOHORMONES ON THE X-RAY STRUCTURE OF PHOSPHOLIPIDS PREPARED FROM NON-EMBRYOGENIC AND EMBRYOGENIC WINTER WHEAT CELLS**

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In *in vitro* cultures of plant cells, the content and proportions of hormones play an essential role in embryogenesis. This is especially important in wheat cultures, where the auxin level is drastically lowered to induce embryogenesis. Differences in the lipid composition of plasmalemma between non-embryogenic (NE) and embryogenic (E) cells suggest the possibility of structural changes occurring. The X-ray diffraction method was used to obtain information on changes in membrane structure under hydrated conditions. The aim of this experiment was to study phospholipid liposomes obtained from the plasmalemma of NE and E cultures. Both cultures were induced from immature inflorescences of winter wheat. We investigated the influence of cytokinin (kinetin) and auxin (IAA) and their chemical analogues (mercaptapurine and melatonin, respectively).

Chloroform solutions of phospholipids were evaporated to form a thin film of lipid at the bottom of the test tube. For liposome preparation, water was added to the lipid film (100mg lipids/ml) and the resulting mixture was vigorously shaken. The measurements were performed with a WAX-camera at 20°C, equipped with a one-dimensional position-sensitive detector. The X-ray diffraction pattern was further analysed by indirect Fourier transformation.

The position in maxims of the Bragg peaks of NE and E liposomes indicate the possibility of micelle formation by these membranes. The shift of these maxims between NE and E peaks could be explained in terms of changes in the curvature of their micelles. All the investigated hormones only affected on E micelles and did not influence NE peak maxims. These changes of the micelle size of E membranes were in the direction observed for NE membranes. This was especially true for IAA and its chemical analogue. Kinetin to a lesser degree influenced micelle thickness, and non-considerable differences were noted for its chemical analogue – mercaptapurine. Thus, we suggest that removing auxins from winter wheat culture media is necessary to maintain the structure of membranes characteristic for embryogenic cells.