

The Influence of Plant Hormones on Phospholipid Monolayer Stability

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Z. Naturforsch. **62c**, 55–60 (2007); received July 24/September 8, 2006

The influence of hormones in water subphase on the stability of monolayers built of phospholipid mixtures extracted from embryogenic (PLE) and nonembryogenic (PLNE) wheat calli was examined. Additionally, experiments on individual lipids, dipalmitoylphosphatidylcholine (DPPC) and dipalmitoylphosphatidic acid (DPPA), were performed. DPPC was chosen because it was the main phospholipid present in both calli. Negatively charged DPPA could mimic a negatively charged natural mixture of lipids. As hormones, auxins (IAA and 2,4-D), cytokinins (zeatin and kinetin) and zearalenone were chosen. The time of monolayer stability for PLNE calli was much longer than for PLE calli. Kinetics of monolayer stability of PLNE was similar to DPPA, whereas that of PLE was similar to DPPC. Generally, hormones increased the time after which the monolayer stability was reached and decreased the surface pressure. The greatest effect was observed for auxins (especially IAA), whereas cytokinins affected the monolayer stability to a lesser degree.

Key words: Phospholipid Monolayer, Auxins, Cytokinins