

# The Influence of Phytohormones on Zeta Potential and Electrokinetic Charges of Winter Wheat Cells

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The zeta potential measurements of protoplasts obtained from winter wheat cell culture and phospholipid liposomes were performed to determine the electrokinetic charge in a medium containing various phytohormones (kinetin, 2,4-D and zearalenone) in absence and in presence of  $2 \cdot 10^{-5} \text{M Ca}^{2+}$ . Calli were induced from immature inflorescences (inf) and embryos (emb) and cultured to obtain non-embryogenic (NE) and embryogenic (E) cell tissues. All investigated phytohormones indicate ability to adsorb to the negatively charged surfaces (latex, L88 – model negative adsorption site) both in water solutions and at the presence of mannitol and buffer (MES). In biological systems (protoplasts and liposomes – prepared from phospholipids of protoplasts) the electrokinetic charges were dependent on the phospholipid and protein composition of cells. The influence of protein groups on electrokinetic charge was calculated from charge values of protoplasts and liposomes, assuming additivity of surface charges. The comparison of calculated charges for protoplasts and liposomes indicate that 2,4-D is better adsorbed to the phospholipid and proteins of NE cells whereas kinetin is bound to the phospholipid and protein sites of E calli. This effect may be connected with embryogenesis process, where non-embryogenic culture of wheat requires 2,4-D in the medium, and embryogenic culture requires cytokinin rather. Zearalenone binding is especially dependent on the kind of explant.