

植物细胞质膜的分布电荷所引起的电场和细胞内压力

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根据细胞双电层模型和电学原理, 推出了植物细胞膜上电荷产生的细胞内压力的计算公式。利用该公式分析了植物细胞膜上电荷产生的电场力对细胞内压力的影响。得出了细胞的实际内压力和植物体的实际刚度比只考虑机械压力的理论结果要大些, 细胞的实际破裂情况比只考虑机械压力时的理论分析结果要容易些三点结论。

ELECTRICAL PROPERTY OF PLANT CELL MEMBRANE AND ITS INFLUENCE ON CELLULAR PRESSURE

A formula about cellular pressure produced by the electricity on the plant cell membrane was deduced by the double electrical layer model of cell membrane and electrical theory. The effect on cellular pressure, which was given by the electric field force produced by electric charge on the plant cell membrane, was analysed through this formula. The results showed that the actual cellular pressure and the actual plant body stiffness were more than the theoretic values, and the actual rupture of cell was easier than that of the theoretic analysis when the mechanical pressure was only taken into account.

关键词

植物(Plant); 细胞质膜(Cell membrane); 电特性(Electrical property); 内压力(Cellular pressure)