



CELL STRUCTURAL REORGANIZATION DURING INDUCTION OF ANDROGENESIS IN ISOLATED MICROSPORE CULTURES OF TRITICALE (*×TRITICOSECALE* WITTM.)

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Upon stress treatment, isolated microspores of triticale (*×Triticosecale* Wittm.) were directed towards sporophytic development (androgenesis). We used fluorescence microscopy to study the cell structural reorganization associated with the process. Changes in the developmental pathway coincided with the character of the microtubular cytoskeleton configuration, the number and direction of nuclear divisions, changes in vacuolization, the distribution of mitochondria, ER and starch grains, and the architecture of new cell wall formation. A band of diffused fluorescence surrounding the nucleus was observed before the first symmetric division of microspores. This structure most likely represents a preprophase band (PPB). Successive mitotic divisions within the microspore wall led to the formation of multinucleate or multicellular structures consisting of one or two domains of cells differing in size. They were later released from the sporoderm and continued further development with features typical for a monocotyledonous embryo. The pattern of internal architecture of androgenic structures depended on their developmental phase. Before and after release from the microspore wall, cortical microtubules (MTs) exhibited various configurations without preferential orientation. They formed a denser network in the region opposite to the sporoderm rupture site. Released multicellular structures showed both intensely fluorescing cortical MTs and more dispersed endoplasmic MTs radiating along the cytoplasmic strands from the nuclear region to the cell cortex. Up to globular stage, isotropically expanding cells of androgenic embryos showed a random pattern of MTs. This is the first report that successive events of androgenic development of triticale microspores are associated with MT reorganization. The results support the view that changes in cytoskeleton architecture are critical during induction of androgenesis.

Key words: Androgenesis, microspores, triticale, cytoskeleton, microtubules.

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