

**EFFECT OF GIBBERELIC ACID ON POLLEN DEVELOPMENT IN SUNFLOWER
(*HELIANTHUS ANNUUS* L.)**

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ABSTRACT

Differentiation of meiotic cells requires temporally coordinated interactions with anther wall layers and any their defects result in aborted microgametogenesis. Light and electron microscopy investigations highlighted the crucial role of the tapetum in the pollen development. In sunflower degeneration of the tapetal cells is considered to be the result of programmed cell death and aborted microspores may be cause of poor nutrition or defects in pollen coatings secreted by these cells. However, there are many aspects such as signal triggers of cell death, checkpoint factors, signal transduction ways that has not been described in detail and which may provide a clearer picture of tapetum function. More recently, an intensive progress of meiosis and pollen viability studies are associated with use of interspecific hybridization in sunflower breeding. The divergence and heterogeneity of the genus cause difficulties, such as cross incompatibility, high percentage of meiotic abnormalities, resulting in sterility or reduced fertility of interspecific hybrids. These particularities have advantage in gametocides identifying for male sterility induction to achieve hybrid seeds (F1) or model systems for fundamental aspects of pollen development research. The most effective for induction of male sterility is considered to be GA3, but, is known that various genotypes respond differently to the GA3 treatments. Obtained date demonstrated alteration of cellular organization during microspore development in GA3 induced male sterility. Such investigations furnish useful information about the tissues most sensitive to gametocide and contribute as complimentary approaches in highlighting the role of gibberellins in transcriptional regulatory network for anther development.

Key Words : gibberellic acid, *Helianthus annuus* L., microgametogenesis, GA3 induced male sterility