



INITIATION AND ORIGIN OF STIGMA-LIKE STRUCTURES (SLS) ON OVARY AND STYLE EXPLANTS OF SAFFRON IN TISSUE CULTURE

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Saffron, made from the dried stigmas of *Crocus sativus* L., contains pigments and valuable aromatic compounds, and can be used in medicine and as a spice. Nowadays its production is lower than demand. Tissue culture presents an alternative biochemical tool which can be used to produce stigma-like structure (SLS) *in vitro*. In this study, the origin and induction of SLS formation was investigated in ovary and style explants of floral buds on MS medium supplemented with 1-naphthalene acetic acid (NAA) and 6-benzlaminopurine (BAP). SLS were directly originated through meristematic cells or indirectly in the form of colorless globular structures from parenchyma tissue. The colorless globular structures initially were conical and pale yellow color at the sharp ends; subsequently they matured into trumpet-like red stigmas with or without finger-like papillae at the margins. Light and electron microscopic observations of ultra- and semithin sections of different developmental stages of SLS showed that these structures possess two kinds of cells: (1) small cells close to parenchyma tissues and (2) large cells oriented towards the peripheral area and apparently originated from the small ones. Our results suggest that the SLS originated from internal parenchyma tissues.

Key words: *Crocus sativus* L., meristematic cells, tissue culture, stigma-like structures, parenchyma tissues.

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