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The Structure and Ultra Structure of Anther Epidermis and Pollen in Lagerstroemia indica L. (Lythraceae) in Response to Air Pollution

Farkhondeh REZANEJAD
Department of Biology, Shahid Bahounar University, Kerman - IRAN

Abstract: The structure of the anthers and pollen of Lagerstroemia indica L. (crepe myrtles) (Lythraceae) in samples collected from clean and polluted areas was studied by OM, SEM, and TEM. The epidermal cells of the anthers enlarged during anther development. Their cuticle content increased and became thick and folded. The cytoplasm of epidermal cells was peripheral and degenerated in mature anthers. At this time, their major content was phenolic compounds. The epidermal cells in the anthers collected from polluted areas were shrunken, fragile, and burned at the tip, compared to those collected from non-polluted areas. Flavonoid stainability was greater in the anthers collected from polluted areas than in control samples. In addition, the cuticles were thinner, unfolded, and irregular. Pollen grains in anthers collected from polluted areas were irregular, shrunken, and smaller in comparison to the controls. Pollen cytoplasm in polluted samples was less dense and without cellular differentiation.

Key Words: Air pollution, anther epidermis, flavonoids, Lagerstroemia indica, pollen

Keywords
Authors

bot@tubitak.gov.tr

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