

Title Anatomical and Ultrastructural Changes in Lotus (*Nelumbo nucifera* Gaertn.) Petal Browning
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Abstract

The anatomical structure of ‘Sattabhud’ lotus (*Nelumbo nucifera* Gaertn.) petal on the first day of soaking in distilled water consisted of one layer of epidermis, layers of mesophyll and vascular tissue. Structure and shape of cells were turgid cells with distinct cytoplasm. After 3 days of soaking, the petal tissues showed a tremendous change of cells and tissues particularly the epidermis and parenchyma. The parenchyma cells lost their round or polyhedral shape with observed shrinkage and separation of protoplasm from cell wall. The ultrastructure of petal cells indicated that browning caused from the deterioration of epidermis and mesophyll parenchyma cells particularly collapsed of cells, precipitation of substances in cytoplasm and shrinkage of protoplasm. This also resulted in synthesis of toxic metabolites and petal turning black.