

DROUGHT STRESS TOLERANCE AND THE ANTIOXIDANT ENZYME SYSTEM IN *CTENANTHE SETOSA*

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We studied the relationship of the antioxidant enzyme system to drought stress tolerance during leaf rolling in the leaf, petiole and root of *Ctenanthe setosa* (Rosc.) Eichler. Chlorophyll and carotenoid content and the chlorophyll stability index decreased in the early period of drought stress but increased in later periods, approaching the control level as leaf rolling increased. Relative water content decreased, while the root:shoot ratio increased during drought stress. Lipid peroxidation also increased and then declined in the same drought period, contrary to photosynthetic pigment content. Superoxide dismutase (SOD) activity did not significantly change in leaves. In the petiole and root, however, it decreased in the early drought period but increased later. Glutathione reductase (GR) activity did not significantly change in the leaf and petiole versus the control, but increased in root. Peroxidase (POD) activity increased in the leaf and petiole but decreased in the root. A peroxidase isoenzyme activity band present in the control leaves did not appear in leaves exposed to 32 days of drought, but in the later periods that activity increased. Tolerance of drought stress apparently is closely associated with the antioxidant enzyme system as well as leaf rolling in *C. setosa*.

Key words: *Ctenanthe setosa*, chlorophyll, lipid peroxidation, superoxide dismutase, glutathione reductase, peroxidase, isoenzyme.