

ENZYMES AS INDICATORS OF WATER STRESS IN COCONUT

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SUMMARY

The study was conducted on West Coast Tall (WCT) palms growing under rainfed and irrigated conditions in the Institute farm. Activities of the following enzymes extracted from leaves, viz: Peroxidase (PEROX), Poly Phenol Oxidase (PPO), Acid Phosphatase (APH), Glutamic - oxalacetic trans-aminase (GOT) and Malate dehydrogenase (MDH) were measured from Dec '85 to May '86 at an interval of one month. The levels of APH, GOT and MDH increased with the development of stress in the rainfed palms while they were consistently low in the irrigated palms. The activities of PPO and PEROX were highly variable. The soluble protein content in leaves of rainfed palms was also significantly lower.

When the leaves were artificially stressed in PEG-6000 medium for 24 hours, two additional fast-moving isoenzymes of PPO were noticed on polyacrylamide gels in the case of DXT and TXD while there was no change in the pattern of PPO isoenzymes in WCT and CDO.

The results suggest that these enzymes could serve as useful indicators of stress in coconut.