

A SEARCH FOR THE BIOCHEMICAL PARAMETERS OF
DROUGHT RESISTANCE IN COCONUT AND PALMYRAH PALMS

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Total aminoacids were found to accumulate more in root samples of coconut and palmyrah palms during drought than during the rainy spell. While expressing the aminoacid content per mg of protein along the root length, palmyrah contained highest amounts of aminoacids in its 2 to 4cm length from the root cap. TLC analysis of roots showed that alanine, threonine, serine and asparagine were the aminoacids predominantly accumulating during water stress. Moreover, palmyrah was found to be a stronger aminoacid accumulator in its root system than coconut.

Although proline was accumulated in roots during drought, its contribution to the total aminoacid pool was found to be around 2.0% even during severe drought. However the proline content was increased more than two fold when excised leaves were stressed with PEG (8 000) with an osmotic potential -2.0 MPa, or desiccated by exposure to atmosphere. Results indicate that the leaves can accumulate more proline than they usually do during natural drought. This may support the notion which relate the proline accumulation to drought injury rather than drought tolerance.

Total reducing sugars were found in higher amounts in watered roots of these palms than the roots of the same palm that were feeding in dry soil simultaneously. These results indicate that the reducing sugars are presumably associated with the growth processes which are going on in the roots under moist conditions. Thus the possibility of reducing sugars being osmotically active solute could be ruled out. No relationship was observed between the amount of K^+ in roots and the severity of the drought in field - grown coconut and palmyrah palms.