

ABSTRACT

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The capacity of leaves of mango (Mangifera indica) cacao (Cacao theobroma) and lime (Citrus aurantifolia) to withstand high temperatures has been studied by immersing the leaves in hot water for various combinations of time and temperature. Damage was subsequently assessed by daily estimations of the percentage area of the leaf that developed necrosis. Treatments were conducted on leaves still attached to the tree, as well as on leaves on detached cuttings, the latter being kept at 100% relative humidity after treatment. Enclosing leaves in polythene bags during treatment made little difference to the results.

Mango leaves were found to be slightly more heat tolerant than those of cacao, and leaves of lime showed the least heat tolerance. However, for all three species, temperatures above 120°F (49°C) proved to be lethal depending on the exposure time.

In cacao, there were only small differences in heat tolerance between leaves taken from the top of an exposed canopy compared with shaded leaves taken from within the canopy, or between leaves taken from well-watered plants compared with those subjected to water stress. However, young, unhardened leaves were found to be considerably more susceptible to heat damage than older, hardened leaves.

It was concluded that high temperatures (120° to 125°F; 49° to 52°C) may play a part in the rapid loss of thin-cuticled leaves that occurs when shade is removed from field-grown cacao.