Previous Next

Details Figures Literature Cited Related

Disease Notes

OPEN

First Report of Cassava Common Mosaic Potexvirus Infecting Chaya (*Cnidoscolus chayamansa*) in Tuvalu

P. Jones, J. Devonshire, A. Dabek, and C. Howells

Affiliations

Authors and Affiliations
P. Jones
J. Devonshire , Department of Crop & Disease Management, IACR Rothamsted, Harpenden, Herts AL5 2JQ, England
A. Dabek
C. Howells , Department of Agriculture, Vaiaku, Funafuti, Tuvalu

Published Online: 28 Feb 2007 |
https://doi.org/10.1094/PDIS.1998.82.5.591B

Vol. 82, No. 5
May 1998

ISSN: 0191-2917
e-ISSN:1943-7692

Article History

Issue Date: 25 Jan 2008
Published: 28 Feb 2007

Abstract

Chaya (*Cnidoscolus chayamansa* McVaugh) was introduced into Tu-valu as a leaf vegetable in the early 1990s (1) with the primary objective of alleviating vitamin A and C deficiencies, which at that time were prevalent throughout the population. Although there are no definitive quarantine records, we believe that the crop originated from vegetative cuttings introduced into Funafuti atoll from Kiribati. In the years following its introduction, chaya was distributed as cuttings taken from the original, introduced germplasm, to other islands and atolls of Tuvalu. The occurrence of yellow patches on the mature leaves of chaya cultivated in Funafuti had previously been attributed to iron deficiency, which was the inevitable consequence of growing the crop on coral atoll soils that are well known to be poor sources of metallic ions, notably iron, zinc, and copper. Following heavy cyclonic rains in March 1997, young, emerging chaya leaves were noted to exhibit an angular mosaic of the leaf lamina, characteristic of virus infections. Negatively stained sap from mosaic-affected leaves, when examined in the transmission electron microscope, was found to contain many rod-shaped virus particles similar in morphology to those of the *Potexviridae* (approximately 510 × 15 nm). The virus was transmitted mechanically to *Chenopodium amaranticolor,* in which it induced local lesion symptoms. The virus was found to be more closely related serologically to cassava common mosaic potexvirus (CsCMV) from Brazil than to that from Colombia, by immunosorbent electron microscopy with antisera kindly provided by F. Morales. Recently, CsCMV particles have been found in mosaic-affected chaya derived from the original Funafuti mother plants on

conclude that CsCMV must now have been distributed throughout the atolls and islands of Tuvalu by infected planting material. We believe this to be the first report of the occurrence of CsCMV outside Central America and the first record of a plant virus from Tuvalu.

Reference: (1) C. Howells and M. Bainbridge. 1996. South Pacific Commission, Pacific Island Forests and Trees. Page 10.