

possibly becomes unbridled of all the possible control mechanisms resulting in neoplasia. Mutation in mitosis controlling genes also cannot be ruled out. By virtue of such toxin-tissue interaction, the same toxin can act both as mitoinhibitory (at lower doses) and carcinogenic (at higher doses). This is further supported by the fact that in separate experiments we recorded the damage of liver cells in guinea pigs which was followed by appearance of mitotic configurations in the remaining hepatic tissue (neoplastic hepatoblasts, figure 2).

7 May 1986

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ARROWROOT (*MARANTA ARUNDINACEA* L) IS A NEW COLLATERAL HOST FOR KATTE DISEASE OF CARDAMOM (*ELETTARIA CARDAMOMUM* L) MATON

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MOSAIC or marble disease of cardamom (*Elettaria cardamomum* (L) Maton) is a threat for cardamom cultivation. The loss in yield due to the disease depends upon the number of years that the plants have been infected. Naidu¹ reported that the yield reduction may vary from 38–68% in one to two years. In nature, the virus is known to be transmitted through an aphid vector (*Pentalonia nigronervosa* f. *caladii* Vander Goot)². Besides cardamom, the virus has been found to infect the other wild host plants viz *Amomum cannebarbam* and *A. involucreatum*³; *A. microstephanum*⁴, *Alpinia nutan*⁵

and *Curcuma neilgherrensis*⁶ which might serve as a source of inoculum in the plantations.

During the survey of katte disease of cardamom around Sringeri, the authors observed about 2–3% arrowroot (*Maranta arundinacea*) plants showing typical symptoms of katte virus of cardamom. On the infected plants the chlorotic flecks noticed on the leaves measured 2–8 mm in length and 2–3 mm in diameter. The mosaic symptoms were pronounced on the youngest leaves. Further, mosaic and mottling symptoms were observed on the leaf sheath and young pseudostem.

An attempt has been made to prove the pathogenicity by transmitting the virus reciprocally between arrowroot and cardamom. The aphid vector *P. nigronervosa* f. *caladii* was used for transmission of the virus. The pure virus free aphid culture was maintained on healthy cardamom plants. Such aphids were allowed to feed on inoculated arrowroot leaf for 24 hr. The viruliferous aphids were transmitted to 50 days old healthy cardamom seedlings and were allowed to feed for 24 hr. Observations were recorded at regular interval for the expression of early symptoms on young leaves. The experiment was repeated six times to confirm the transmissibility of the virus and the percentage transmission was recorded up to 100%. Back transmission of the virus from cardamom to healthy arrowroot plants was also successful.

Based on the similarity in symptoms and transmissibility through the aphid vector (*P. nigronervosa* f. *caladii*) the virus has been found to be identical to katte disease of cardamom (*E. cardamom*). Hence arrowroot (*M. arundinacea*) is a new record of a collateral host to katte virus in nature and serves as a source of inoculum for spread of katte virus of cardamom in an established plantation.

26 May 1986; Revised 27 June 1986

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