

trast apparatus at 1,000 diameters and afterwards enlarged to 3,750 diameters.

D. M. ROBINSON*

Cotton Research Station,
Namulonge,
Uganda.

* Present address: Hope Department of Entomology, University of Oxford.

¹ Baker, E. W., and Pritchard, A. E., *Hilgardia*, 29 (11), 455 (1960).

² Boudreaux, H. B., *Ann. Ent. Soc. Amer.*, 49 (1), 43 (1956).

VIROLOGY

Centrosema Mosaic: a Plant Virus Disease transmitted by both Aphids and Plant Bugs

INVESTIGATIONS have been carried out in Papua and New Guinea on a previously undescribed virus disease, *Centrosema* mosaic, which infects several tropical legumes.

The virus is transmitted mechanically, by *Cuscuta campestris* Yuncker, by two aphid species, *Brachycaudus helichrysi* (Kltb.) ? variety *warei* Theob. and *Aphis gossypii* Glov., and by two species of plant bugs of the genus *Nysius* (Table 1).

Table 1. INSECTS CAPABLE OF TRANSMITTING *Centrosema* MOSAIC VIRUS TO *Crotalaria anagyroides* H.B.K.

Insect	Insect form	No. of insects per plant	Proportion of plants infected
Aphididae			
<i>Brachycaudus helichrysi</i> var. <i>warei</i>	apterae	10	20/20
<i>Aphis gossypii</i>	apterae	10	6/20
Lygaeidae			
<i>Nysius</i> sp. (green)	winged	20	10/60
<i>Nysius</i> sp. (brown)	winged	20	38/60

It is not usual for a plant virus to be transmitted by both an aphid and a plant bug. *B. helichrysi warei* is able to transmit *Centrosema* mosaic after an access feeding period of 12 min. and remains infectious for 48, but not for 72 hr.; pre-access starvation increases the efficiency of transmission. These facts suggest the virus is transmitted in a non-persistent manner¹. Winged females, wingless females and first and second instars of *B. helichrysi* var. *warei* are all capable of transmitting the virus.

Though *Aphis gossypii* can transmit the virus under laboratory conditions, it is probably not a natural vector as it has not been recorded feeding on *Crotalaria* spp. or *Centrosema pubescens* Benth., in the field.

Nysius spp. are able to transmit *Centrosema* mosaic to *Crotalaria anagyroides* after an access feeding period of 2 hr. and within a test feeding period of 24 hr.

The virus naturally infects and produces mosaic symptoms on *Centrosema pubescens*, *Crotalaria anagyroides*, *C. goreensis* Guill. and Perr., *C. retusa* L., *C. mucronata* Desv., *Calopogonium mucunoides* Desv. and *Desmodium distortum* (Aubl.) Macbride. The virus can also be mechanically transmitted to *Crotalaria juncea* L., *C. spectabilis* Roth., *C. incana* L., *C. intermedia* Kotschy, *C. lanceolata* E. Mey., and *C. usaramoensis* Baker F., and produces mosaic symptoms in all these hosts. *Stizolobium deerin-gianum* Bort. exhibits a pale greenish-yellow chlorotic spotting of the first set of trifoliate leaves following inoculations of the first true leaves with infective sap; subsequent leaves show mosaic symptoms which are systemic and persistent. The virus failed to infect *Phaseolus vulgaris* L., *P. mungo* L., *P. aureus* Roxb., *P. lunatus* L., *P. calcaratus* Roxb., *Vigna*

sinensis (L.) Savi, *V. unguiculata* (L.) Walp., *Vicia faba* L., *Pisum sativum* L., *Medicago sativa* L., *Canavalia ensiformis* DC., *Datura stramonium* L., *Nicotiana tabacum* L., *N. glutinosa* L., *Lycopersicon esculentum* Mill., *Petunia hybrida* Vilm., *Cucumis sativus* L., or *Chenopodium amaranticolor* Coste and Reyn. following mechanical inoculation. The virus is inactivated after an exposure of 10 min. at 58° C.; at a dilution of 1 in 2,000, and after an exposure of 6 hr. at a room temperature of 28° C.

Further details of these investigations will be published elsewhere.

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R. J. VAN VELSEN

Lowlands Agricultural Experiment Station,
Keravat, New Britain,
Territory of Papua and New Guinea.

N. C. CROWLEY

Waite Agricultural Research Institute,
Private Bag No. 1, Adelaide,
South Australia.

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GENETICS

A Dominant Gene for Renal Adenomas in the Rat

FAMILIAL renal adenomas in the rat have been described in a previous report¹. They usually occurred as multiple tumours and were bilateral. The tumours were simple cysts, papillary cystadenomas, solid eosinophile adenomas or solid basophile tubular adenomas. They varied in size from barely visible to large growths which included almost the entire kidney (Fig. 1). The material consisted of a number of individuals from a line of Wistar rats maintained in this laboratory, indicating that the condition was genetically controlled.

The breeding of these animals is a laborious process as they have to be opened and inspected to determine the presence of tumours. Males are inspected through a mid-abdominal incision while the kidneys of females are inspected through dorsolateral incisions as they frequently failed to care for their litters after abdominal operations. Furthermore, although

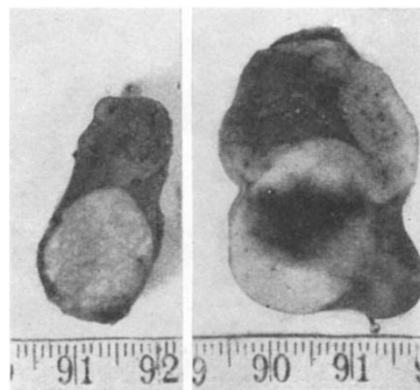


Fig. 1. Longitudinally bisected left and right kidneys of a female with large bilateral tumours