

RP-9

MOSAIC DISEASE OF GINGER (*Zingiber officinale* Roxb.)

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While screening the germplasm collection of ginger (*Zingiber officinale* Roxb.) for field incidence of various diseases during 1972-73 season, incidence of a mosaic disease was noticed. From a perusal of the literature it is seen that ginger has been reported to be susceptible to only one virus viz. wheat streak mosaic virus which is reported to be sap transmissible from wheat to ginger (Ganguly and Raychaudhuri, 1971). Hence a preliminary study on this disease was considered necessary and the results of the study are reported here.

The symptoms appear first in younger leaves and later in the older leaves. The first visible symptom is the appearance of chlorotic flecks which later develop into slender spindle shaped chlorotic streaks of discontinuous nature, running parallel to each other from midrib to the margin. Several such adjoining streaks may coalesce forming larger chlorotic stripes (Fig.). With the advancement of the disease these stripes together with intervening green areas form a mosaic pattern. In some cases large patches of dark green and light green areas lie parallel to each other traversing obliquely from midrib to the leaf margin. It is not uncommon to see minute chlorotic specks dispersed irregularly in between the streaks. The diseased leaves are neither malformed nor reduced in size; but the affected leaves are conspicuously yellow. In some cases the interveinal chlorotic areas are often colonised by *Phyllosticta zingiberi* and become necrotic.

Rhizomes from mosaic affected plants were collected and sown in sterilised and unsterilised soil. Freshly emerging leaves from these rhizomes exhibited clear mosaic symptoms in both the treatments indicating the systemic nature of the causal agent.

Preliminary studies on sap transmission from ginger to ginger, ginger to *Nicotiana tabacum* var. Harrison Special, *N. tabacum* var. rustica, *N. tabacum* var. Xanthi, *N. glutinosa*, *Elettaria cardamomum*, *Curcuma longa* and *C. aromatica* gave negative results. Hot water and hot air treatments of rhizomes from affected plants at 45°C and 50°C for 3 hr, 6 hr and 12 hr did not alleviate the symptoms. Further studies on transmission, heat and chemotherapy are in progress.

The incidence of mosaic under field conditions during 1972-73 season was recorded in the germplasm collection of ginger maintained at the Institute farm. The data on the percentage of infection re-

corded from 31 types (3 exotic and 28 indigenous) maintained in the germplasm are summarised in the Table. The type 'Poona' showed maximum incidence (76.11%) and the type 'Gujarat II' showed minimum incidence (13.3%). The effect of this disease on the quality and yield characters of the ginger is yet to be assessed.

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Reference.

Ganguly, B., and Raychaudhuri, S.P. 1971. Purification of wheat streak mosaic virus. *Phytopath. Z.* 70: 11-14.



Mosaic affected ginger plants

TABLE

Incidence of mosaic in different types of ginger during 1972-73 (Average of 3 replications)

S.No.	Type	Mosaic incidence (%)
1.	Gujarat II	13.30
2.	Peechi	15.56
3.	Wynad Manantody	26.67
4.	Rio-de-Janeiro	27.78
5.	Himachal Pradesh	31.67
6.	Sierra Leon	32.22
7.	Zaheerabad	33.33
8.	Gujarat I	33.33
9.	China	35.00
10.	Assam	38.89
11.	Wynad local	38.89
12.	Vengara	40.00
13.	Tinlaidium	41.67
14.	Uttar Pradesh	41.67
15.	Maran	41.11
16.	Thingpuri	42.22
17.	Jugijan	43.33
18.	Tura	45.00
19.	Burdwan	46.11
20.	Valluvanad	46.11
21.	Wynad Kunnamangalam	47.78
22.	Mysore	51.11
23.	Narasapattam	51.11
24.	Thodupuzha	51.67
25.	Ernad Manjeri	52.78
26.	Karakkal	53.89
27.	Jorhat	56.67
28.	Bajpai	62.22
29.	Ernad Chernad	64.17
30.	Nadia	65.56
31.	Poona	76.11