RARE PHENOMENON OF ABNORMAL ELONGATION OF INFLORESCENCE IN GREEN GRAM (*PHASEOLUS AUREUS* ROXB.) VARIETIES INFECTED BY DOLICHOS ENATION MOSAIC VIRUS

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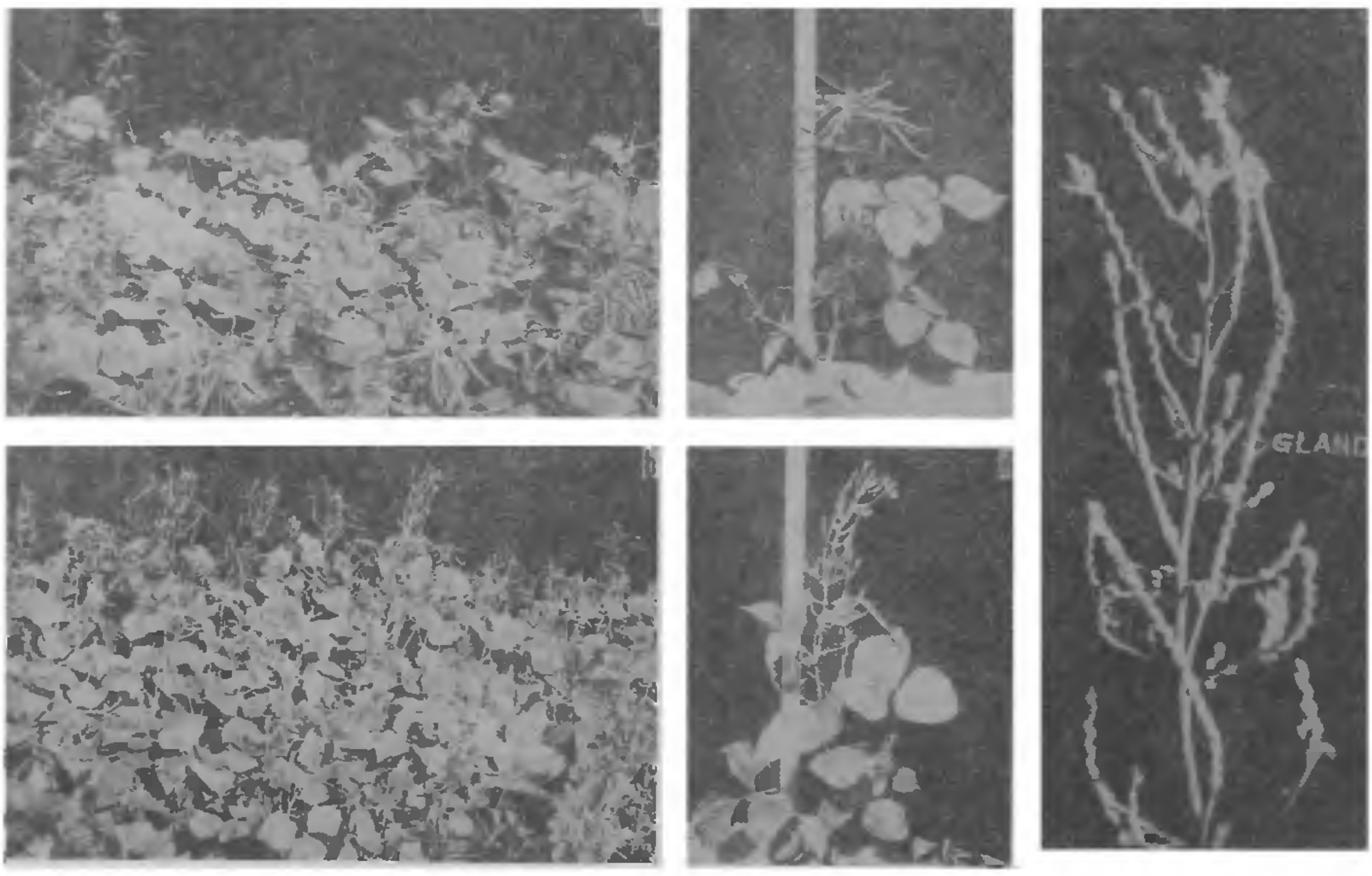
DOLICHOS enation mosaic virus (DEMV), first reported[1] on *Dolichos lablab* L. in 1948, is a virulent leguminous strain of tobacco mosaic virus, with a wide host range in many members of leguminosae[2]. Among several plant characters, flowering and inflorescence are adversely affected by many of the legume viruses. The effect of DEMV infection on flowering and inflorescence characters of different varieties of green gram was studied and the observations are presented in this note.

Seeds of 16 varieties of green gram (K.1, K.11, P.S.7, G.65, S.8, S.9, T1, T2, T44, T51, K.P.1, J.781, G.G.525, H.B.45, B.1 and Pusa Baisakhi) were hand dibbled in rows 30 cm apart with a spacing of 7.5 cm between plants in the field. Inoculations were done using a standard extract of the inoculum of DEMV on the 8th day after sowing by rubbing the entire upper surface of both the primary leaves using 'Celite 503' as abrasive. The primary leaves of healthy plants (controls) in all the varieties were rubbed with a suspension of celite alone. Healthy and DEMV-inoculated series were maintained side by side in different plots. The middle 20 plants in a row were employed for recording the data.

Fifty days after inoculation, the lengths of the main inflorescence axis and the first branch of the inflor-



Figures 1a–e. a. Population of healthy matured plants of green gram in profuse bearing (varieties K. 11, T1 and K.P. 1), **b.** Population of DEMV-infected plants showing abnormal elongation of inflorescence, reduced number of flowers and few pods (varieties K. 11. T1 and K.P. 1), **c.** Healthy plant in full bearing with numerous pods (variety T1), **d.** DEMV-infected plant showing pronounced elongation of inflorescence, few flowers and pods (variety T1), **e.** Abnormal elongation of the main inflorescence, its branches and increased number of glands in the variety T1 infected with DEMV.

escence and the number of glands in the first branch of the inflorescence were recorded in the plants of both healthy and infected in each variety. The flowers formed in the healthy and infected plants of different varieties were observed under the microscope for pollen sterility, if any.

The infected plants of all the 16 varieties exhibited characteristic elongation of the inflorescences as compared to the healthy plants. Both the main axis and the branches or inflorescences were affected similarly (figure 1a–e). The glands at the base of the flowers enlarged and their numbers increased in the infected plants (figure 1e). However, no flowers at all these gland points could be observed and few flowers were noted only at the tips of the inflorescence branches (figure 1d and e). All the infected plants of the 16 different varieties of green gram recorded an increase of 9.4–65.6 % in the length of the main inflorescence axis, 3.1–121.1 % increase in the length of the first branch of the inflorescence and 107.7–350.6 % increase in the number of glands on the first branch of the inflorescence as compared to the corresponding healthy plants. Further, commencement as well as attainment of 50 % flowering were delayed by 4 to 10 days in the infected as compared to the healthy.

Several workers have reported reduction in the number of flowers and pods of the infected plants, as observed here, in many legume viruses[2–7]. There was no flower drop in any of the varieties tested, unlike in mosaic disease of urd[8]. Microscopic examinations revealed no pollen sterility in flowers of either infected or healthy series.

Such a unique and rare phenomenon of abnormal elongation of inflorescence in DEMV-infected green gram varieties as observed here, seems to have not been reported so far in any virus-host combination, especially in legumes. In addition to the above described elongation of the inflorescences, the proliferation in the numbers and size of nectaries (figure 1e) is another prominent morphological abnormality observed. These effects may probably be attributed to greater metabolic disturbance and hormone imbalance in the DEMV-infected green gram varieties. Susceptibility or resistance to infection is known to be influenced by growth regulatory substances[9,10] and they, in turn, would affect the physiology of virosed plants and such changes may lead on to the effects on virus infection and symptom expression.

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MEIOSIS IN AN INTERSPECIFIC MANDARIN HYBRID 'KINNOW' (*CITRUS NOBILIS* LOUR. × *CITRUS DELICIOSA* TEN.)

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THE degree of pairing of chromosomes in interspecific hybrids can be considered a measure of chromosome homology and hence as evidence of degree of species relationship and their ancestral origin[1]. Meiosis was studied in an interspecific mandarin hybrid KINNOW (*Citrus nobilis* Lour. × *C. deliciosa* Ten.) ($2n = 18$) to find out the genome relationship between the two species.

Meiotic studies in KINNOW revealed the presence of nine bivalents in all the PMCs studied, frequency of ring bivalents ranged from 0–6 per PMC with a mean of 3.34

Table 1 *Bivalent associations in KINNOW at metaphase I.*

Number of bivalent groups	Number of PMCs
3	112 (28)
4	44 (11)
5	96 (24)
6	108 (27)
7	40 (10)

Figures in parentheses give percentage values