TABLE I

Effect of UV and γ-irradiation on the survival of spores and antibiotic production of A. chevalieri *mutants*

Spores at $8{\cdot}0 \times 10^7$/ml

Mutagen	Time of treatment (mins.)	% survival	% mutants* with affected antibiotic activity†			
			Increase	Decrease	Lost	Unaltered
UV	2	19·2	1·7	5·7	..	92·4
	4	1·7	1·3	5·0	0·2	93·3
	6	0·2	2·7	4·2	..	93·0
	8	0·05	1·1	7·6	0·5	90·6
Gamma	10	24·2	1·6	3·0	0·2	95·2
	20	8·5	1·8	2·7	..	95·5
	30	2·0	2·1	3·1	0·3	94·5
	40	1·5	2·9	2·8	0·3	94·0

*Both biochemical and morphological mutants tested,
†Agar cup method of assay against *E. coli*.

Staphylococcus albus, S. aureus, Streptococcus faecalis, Proteus vulgaris, Vibrio cholerae, Pseudomonas aeruginosa and *Aerobacter aerogenes,* mutant UV-14 could inhibit the last 4 bacteria mentioned and mutant Gm-12 inhibited all the bacteria.

The three organisms were grown in Czapek's liquid medium at 28–30° C and the active materials were extracted from the culture filtrates on the 7th day of incubation with ether. Evaporation of the solvents yielded gummy materials which were dissolved in acetone, concentrated and subjected to unidimensional, descending paper chromatographic studies with *n*-butanol, acetic acid, water (4 : 2 : 1) as the solvent system. The active materials were located in bioautograms against *E. coli*. The antibiotics produced by the parent strain, *UV-14* and *Gm-12* had R_f values at 0·8, 0·42 and 0·95 respectively.

As concluded by Kelner[11], the authors also found that the mutants obtained from *A. chevalieri* differed in their antibacterial spectra and also in the nature of the antibiotics produced as evidenced by paper chromatographic studies.

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A GYNOGENIC HAPLOID PLANT IN *N. GOSSEI*

HAPLOID plants, having a set of gametic number of chromosomes, usually arise spontaneously in polyploid as well as diploid plants. Such spontaneous haploids have been reported in 5 species of genus *Nicotiana* namely, *N. tabacum* ($n = 24$), *N. glutinosa* ($n = 12$), *N. langsdorffii* ($n = 12$) and *N. repanda* ($n = 24$)[2]. Haploidy can also be induced artificially using X-rayed pollen, heat, cold and colchicine treatment, by delayed pollination, interspecific hybridization and pollen culture. A comprehensive list of haploids, their type and mode of origin had been reported[3]. A recent review mentions various haploids obtained, especially in *N. tabacum*[4]. An androgenic haploid plant of *N. gossei* has been reported from a cross between *N. tabacum* and *N. gossei*[1]. Occurrence of a gynogenic haploid plant which arose from a cross *N. gossei* ($n = 18$) × *N. tabacum* ($n = 24$), is reported here.

Plant Description and Cytology

A cross between *N. gossei* and *N. tabacum* variety H.R. 3, a newly evolved commercial variety released as Dhanadayi from the Central Tobacco Research Institute, Rajahmundry, was effected during the year 1970. The cross produced an abundance of seeds which germinated well but failed to grow beyond the cotyledonary stage probably due to hybrid lethality. However, a single surviving plant from this cross grew well and attained full blossom. The plant was slow in growth, less vigorous with about 60 cm height, had a woody and hairy stem (Fig. 1). The leaves were smaller in size compared to diploid plant, with sessile ovate-elliptic leaf and wide auricle. The flowers were white, smaller in size, with less than 1% pollen fertility. From these observations it is evident that the plant cannot be a hybrid but a smaller replica of *N. gossei*. Cytological examination of meiosis showed 18_I at Diakinesis stage (Fig. 2). There was no bivalent formation at all. In the latter stages chromosome separation was

irregular, resulting in aborted pollen, and thereby sterility. As evidenced from the morphological and cytological observations it was deduced that the plant is a gynogenic haploid of *N. gossei*.

FIG. 1. A, Diploid plant; B, Haploid plant.

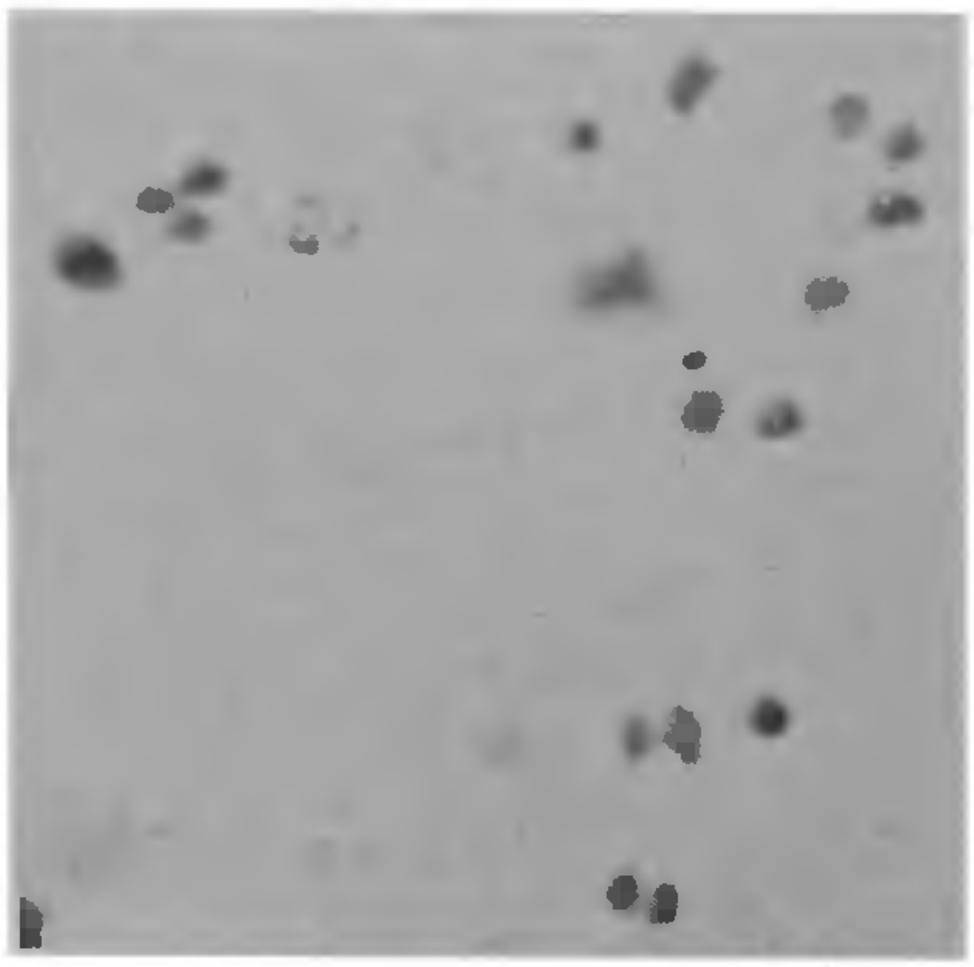

FIG. 2. Diakinesis in haploid plant showing 18_1.

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SOME OBSERVATIONS ON THE TRANSMISSION OF STERILITY MOSAIC OF PIGEON PEA *

AMONG the diseases of pigeon pea, sterility mosaic is a very destructive one and reduces the yield considerably. Seth[1] indicated that the disease was transmitted by an eriophyid mite at New Delhi and later identified the mite as *Aceria cajani*. But, work done subsequently at Coimbatore provided strong circumstantial evidence that the disease was transmitted by nematodes[2]. Detailed studies were made on the mode of transmission of this disease and the results are given below.

Tests were conducted to find out whether the mosaic symptoms were due to virus infection or caused by feeding injuries of the mite *Aceria cajani*. For this, scions from infected pigeon pea plants were dipped in carbophenothion 0·06% solution for ten minutes, for elimination of mites and then grafted to healthy pigeon pea plants. The possibility of surviving mites in the scion if any, moving on to the healthy plants, was further prevented by smearing vaseline around the base of the scion and the whole scion was covered with a polythene bag. The four plants, thus grafted, developed mosaic symptoms after 40 to 45 days indicating the viral nature of the disease.

In inoculation studies using the mite, a series of tests were carried out with batches of 1, 5, 10, 25, 50 and 100 mites each on a number of plants. For this the mites were hand-picked from diseased leaves with a camel hair pick under a stereozoom microscope and released on one month old pigeon pea plants (var. Co. 1) raised in sterile soil.

The observations are furnished in Table I.

The results (Table I) showed that even a single mite was sufficient to transmit the disease. The time taken for the development of symptoms varied from 12–43 days depending upon the number of mites used.