

TABLE I

Incidence of mite and rind disorder on different varieties of mandarin during December-January

Variety	Percentage of fruits infested with		Range of adult/nymph mites per infested fruit
	Mite	Rind disorder	
Nagpur	** 53	* (64)	** 58 (72)
Srinagar	25	(18)	29 (23)
Sylhet	24	(16)	26 (19)
Emperor	23	(15)	24 (17)
Butwal	22	(14)	21 (13)
Kinnow	12	(4)	15 (7)
C.D. at 5% level	1.58		0.73

* Figures in parentheses show percentage.

** Angular transformed data.

of treated plants during February. A circular sticky band (grease and aldrin) was made on the stem of treated plants at 30 cm above the ground level to be doubly sure for checking the migration of mites on the plant.

These studies revealed that on the untreated plants 62% of the fruits were found infested with mite during January. The mites did not appear on the treated fruits throughout the season whereas 67 and 63% of Keltian and Omite treated fruits developed rind disorder, respectively, as compared to 66% in control. In other words, irrespective of the presence or absence of mite the rind disorder was observed. Hence it was felt that the mite might not be the cause for rind disorder.

According to Knorr², in Florida, the species associated with citrus leprosis is closely related *Brevipalpus californicus* Banks. The present disorder of mandarin seems to be entirely different from leprosis as far as symptomology of both is concerned. Control of both *Brevipalpus* mites and leprosis was obtained with an annual post-bloom application of either wettable sulphur or chlorobenzilate^{1,3}. In the present studies the mite population was controlled by frequent spraying of miticides whereas the rind disorder could not be checked.

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SEEDLING HANDEDNESS IN *CAJANUS CAJAN* (L.) MILL SP.

SEEDLING characters in flowering plants in general and dicotyledons in particular have not been much studied. Compton⁵ is the pioneer in studying the seedling handedness in Gramineae. No comparable work on any dicotyledon species is known, although dicotyledon seedlings have been used for taxonomic⁴ and even genetic⁶ studies. This paper deals with the studies on seedling handedness in *Cajanus cajan* (L.) Mill sp.

For this study 22 cultivars of *Cajanus cajan*, collected from India, Sri Lanka, Brazil, Peru and West Indies, and obtained through the courtesy of ICRISAT, Hyderabad, were used. Seeds were sown in earthen flats and their germination stages were observed. The seedlings (hypogeal) emerged on the third day of sowing and the two seedling leaves became prominent on the fifth day which closely overlap each other by their lateral margins (Plate I). The seedlings were sorted out based on the two major categories of overlappings; the left-handed and the right-handed, as shown in Plate I. The seedlings in which the margin of right leaf overlaps the margin of the left are called left-handed and those in which the margin of the left leaf overlaps the margin of the right are called right-handed seedlings. This character lasts hardly for one day after which the leaves get separated and the overlapping is lost.

A total of 5,057 seedlings were scored for left and right-handedness, out of which 2,380 (47.06%) were left-handed and 2,645 (52.3%) were right-handed and the remaining 32 (0.64%) were neutrals. (A neutral seedling is that in which both the margins of one leaf enclose both the margins of the other). The L/R ratio on the total is 0.899. A similar excess of right-handed seedlings was observed by Compton⁵ in *Avena*

sativa (L/R—0.814) and also by Bahadur *et al.*¹ in *Bambusa arundinacea* (L/R—0.933), however, Rao *et al.*⁸ observed equality of L and R seedlings in *Phaseolus vulgaris*. The χ^2 -value on the total for I.d.f. is high and the P value is highly significant. However, some cultivars showed an excess of left-handed seedlings, although the L/R ratio was not different from equality.

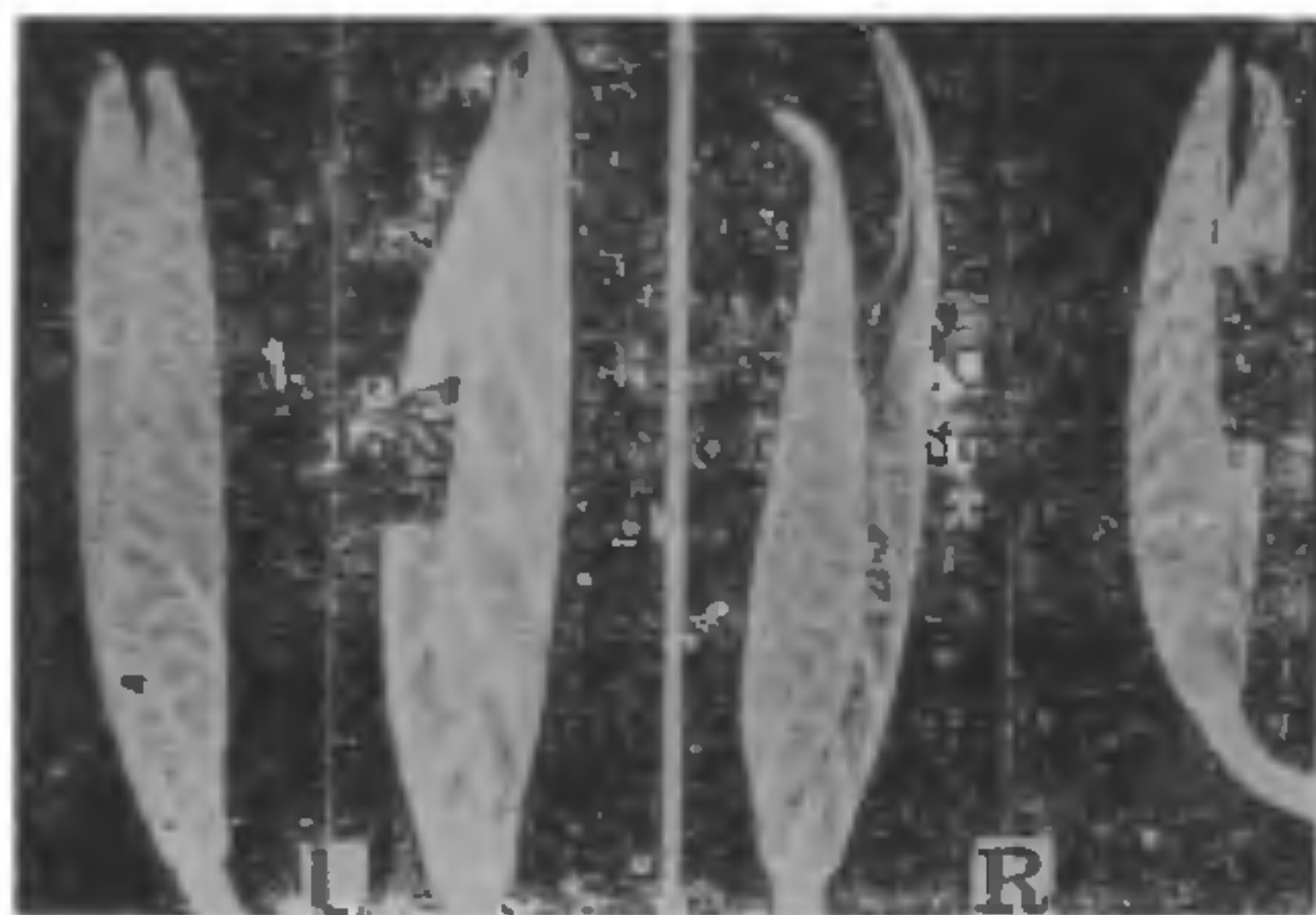


PLATE I. L : Two left-handed seedlings showing overlapping of first pair of leaves towards the left-hand side. R : Two right-handed seedlings showing overlapping of first pair of leaves towards the right hand side. Note the overlapping of leaves as indicated by a black paper strip.

The presence of seedling handedness in *Cajanus*, forming mirror image pattern constitutes yet another clear case of bio-isomerism, so far not described in the literature. This however, can be compared to bio-isomerism in number of other plant organs particularly the one described by Bahadur and Reddy² in cyathia of *Euphorbia millt*, where the two bracts overlap variously as observed in the present study.

Although preliminary work showed that the seedling handedness does not follow Mendelian inheritance, it has been suggested that handedness in plant organs may be either due to stereoisomerism of the hormone molecules that are active in the primordia of the concerned plant part² or that levo and dextro compounds in the primordial metabolism determined isomerism³. Thus Bahadur *et al.*^{2,3} opined that molecular chirality is expressed in biological chirality. Further work on various aspects of seedling handedness in *Cajanus cajan* are in progress.

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HASSALL'S CORPUSCLES IN CHELONIAN THYMUS

DIVERSE views¹⁻³ on origin, morphology and function of Hassall's Corpuscles in thymus have imparted them considerable importance even in sub-mammalian vertebrate groups. The few studies^{2,4,5} available on reptilian thymus do not provide substantial information on these structures. This note is intended to provide information on the morphology of Hassall's Corpuscles in an Indian Fresh-water turtle, *Kachuga smithi*, which abounds almost all types of waterbodies in North India. The study is based on sectioned thymic gland obtained from mature specimens of *Kachuga smithi* (carapace length 207 mm) collected in November 1978 from Jammu (India). The material was fixed in Bouin's Picro-Formol and stained in Mallory's Acid Fuchsin, Aniline Blue-Orange G mixture⁶.

Thymus is a paired gland in *K. smithi*. It is lobulated and is situated in the angle between trachea and the Common Carotid Artery. Histologically, it is differentiated into an outer denser cortex and an inner comparatively thinner medulla. In both these zones, among other cell types are to be found Hassall's Corpuscles. Each Hassall's Corpuscle (Fig. 1) is a spherical or oval cell profile bearing a centrally located one (in unicellular type, Fig. 1), occasionally two (in bicellular type, Fig. 2) light staining nuclei. The Corpuscles are large, often $8 \times (20-28) \mu$ in diameter and the nucleus in each measures $4 \times (6-8) \mu$. Each nucleus has a prominent nucleolus. The cytoplasm is strongly acidophilic and shows circumferentially disposed concentric striae, all running around the nucleus. These