

Table 1 Size of diploid and syndiploid PMCs

Parameter	Mean value	
	Diploid	Syndiploid
Longest semidiameter (μm)	18.65	23.27
Semidiameter perpendicular to longest semidiameter (μm)	13.25	16.25
Volume (μm^3)	1.3×10^4	2.5×10^4

cell cannot be due to addition of chromosomes alone. Though no empty or anucleate 'ghost cells' described earlier^{3,5}, were seen, flow of donor cytoplasm into the recipient is likely to have taken place¹.

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1. Sarbhoy, R. K., *Cytologia*, 1980, **45**, 375.
2. Lakshmi, N. and Raghavaiah, P. V., *Proc. Indian Acad. Sci. (Plant.Sci.)*, 1981, **90**, 285.
3. Datta, A. K. and Biswas, A. K., *Cytologia*, 1984, **49**, 437.
4. Bir, S. S. and Sahni, M., *Proc. Indian Natl. Sci. Acad.*, 1985, **B51**, 609.
5. Sinha, A. R. P., *Cytologia*, 1985, **50**, 341.
6. Singh, J. and Raghuvanshi, S. S., *Curr. Sci.*, 1986, **55**, 1088.
7. Parihar, R. S. and Zadoo, S. N., *Curr. Sci.*, 1987, **56**, 422.
8. Singh, R. P. and Singh, J., *Proc. Indian Natl. Sci. Acad.*, 1987, **B53**, 73.
9. Panje, R. R. and Babu, C. N., *Cytologia*, 1960, **25**, 152.
10. Uhl, C. H. and Moran, R., *Cytologia*, 1972, **37**, 59.

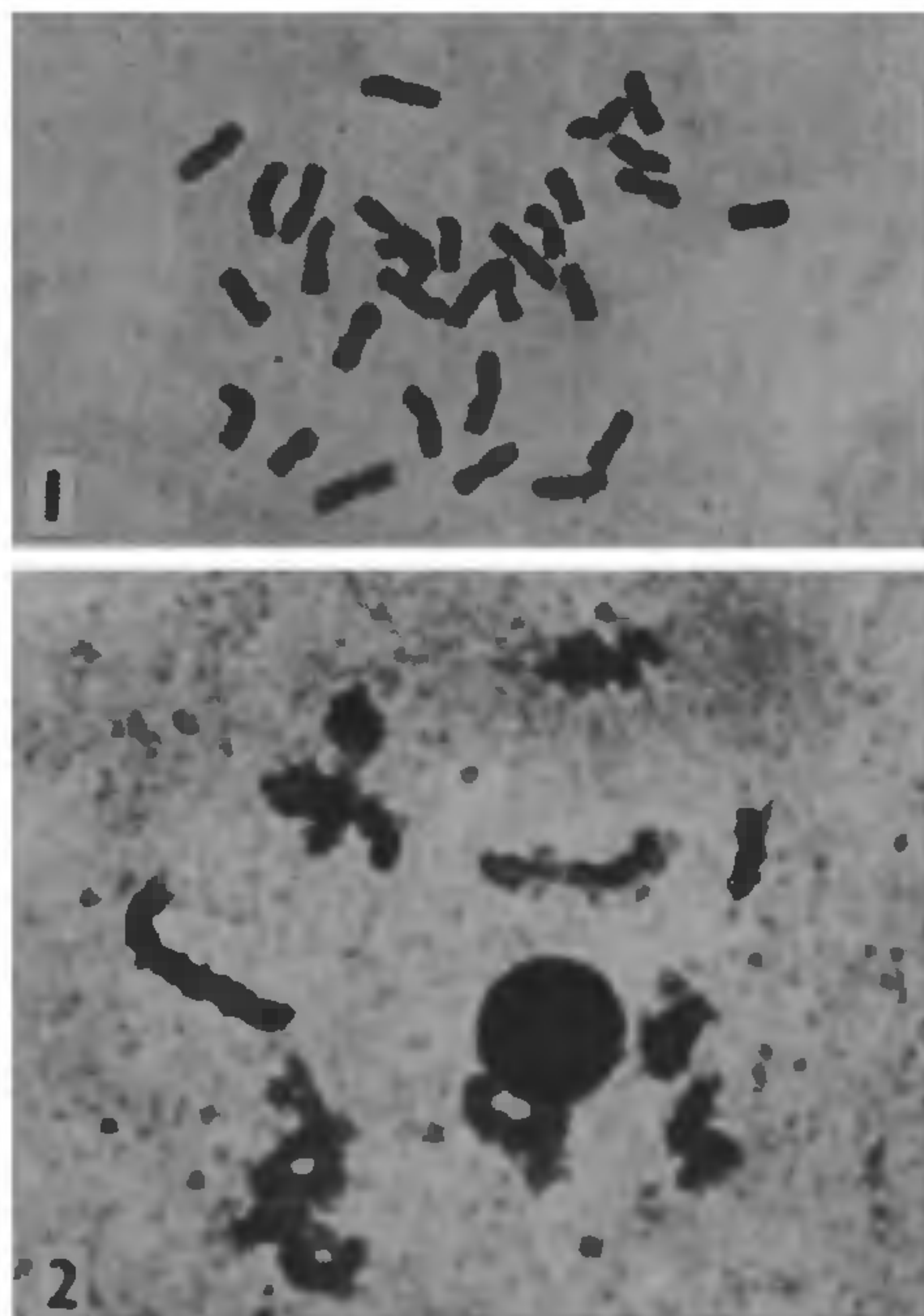
ON THE OCCURRENCE OF A NEW HEXAPLOID CYTOTYPE OF *COIX LACRYMA-JOBI* LINN. FROM NORTH-EAST INDIA

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THE genus *Coix* of the tribe Maydeae of the family Gramineae consists of four species¹. *Coix lacryma-jobi*

is polymorphic with many varieties and is cosmopolitan in distribution. A perusal of the literature revealed that this genus shows different levels of polyploidy, viz. diploids ($2n=10$), tetraploids ($2n=20$) and octoploids ($2n=40$)²⁻⁴. A few aneuploids have also been reported^{5,6}. However, no hexaploid species, with $2n=30$, has so far been reported. During an extensive collection of this genus from different parts of India, *C. lacryma-jobi* var. *ma-yuen* was collected from hilly state of Meghalaya. This species is cytologically interesting as it showed the hexaploid somatic number, $2n=30$. This is the first report of a hexaploid cytotype in *Coix*.

The seeds of *C. lacryma-jobi* var. *ma-yuen* were collected from the Khasi Hills, Meghalaya, where it is cultivated by the hill tribes. The fruit-case is soft, thin-shelled, spheroidal, white in colour and about 0.7 cm in diameter. The plants were raised in the botanical garden of this University for cytological studies. Chromosome studies were made from pollen mother cells and root-tip cells fixed in 1:3 acetic alcohol and stained in aceto-carmin.



Figures 1 and 2. 1, Metaphase of mitosis, $2n=30$ ($\times 1750$). 2, Diakinesis of meiosis ($\times 1750$).

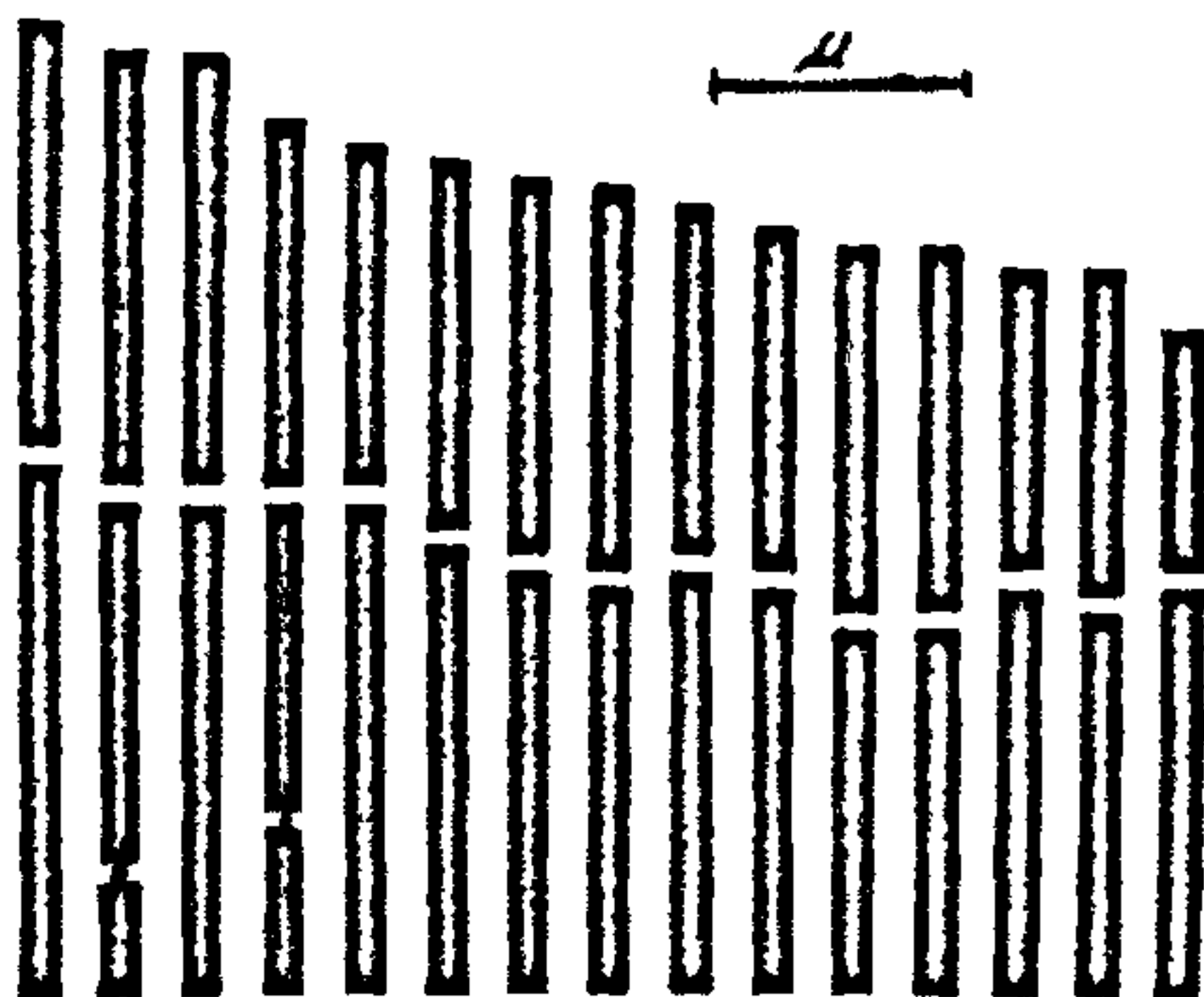


Figure 3. Idiogram of *C. lacryma-jobi* var. *ma-yuen* ($2n=30$).

The somatic chromosome number was consistently found to be $2n=30$ in the root-tip cells (figure 1). Karyotype analysis showed that the length of the chromosomes ranges from 2.66 to 3.91 μm with two pairs of M-type and 13 pairs of m-type and of 1A category⁷. Two pairs of chromosomes possess a secondary constriction in the long arm distal to the centromere (figure 3). It may be noted that the chromosomes of this taxon are similar to the other varieties of *C. lacryma-jobi* in size and karyotype category. Meiosis was found to be markedly disturbed, and at metaphase I, 3–5 quadrivalents were frequently observed along with bivalents (figure 2). Two bivalents or sometimes a single quadrivalent were found commonly associated with the nucleolus. Pollen sterility was found to be about 45%. *C. lacryma-jobi* is presumably of hybrid origin.

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1. Bor, N. L., *Grasses of Burma, Ceylon, India and Pakistan*, Pergamon Press, London, 1960.
2. Fedorov, A., *Chromosome Numbers of Flowering Plants*, Rept, Koenigstein, 1974.
3. Peter Goldblatt, *Index to Plant Chromosome Numbers*, Missouri Botanic Garden, 1984.
4. Christopher, J. and Thya Singh, G. E., *Curr. Sci.*, 1986, 55, 1200.
5. Christopher, J. and Mini, L. S., *J. Soc. Cytol. Genet.*, 1988, (in press).

6. Barve, S. S. and Sapre, A. B., *Curr. Sci.*, 1986, 55, 660.

7. Stebbins, G. L., *Chromosomal Evolution in Higher Plants*, Addison Wesley, London, 1971.

DIFFERENTIAL RADIATION SENSITIVITY IN MOTH BEAN

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MOTH bean, *Vigna aconitifolia* (Jacq.) Marechal, comprises one of the important pulse species of India. Being an extremely drought-resistant crop, it is grown widely in the arid and semiarid zones of Rajasthan, Gujarat, Maharashtra, Haryana and Uttar Pradesh.

Growing only 20–25 cm tall, the plant forms a mat across the soil surface. The stem of each plant radiates horizontal branches, producing an expanding circlet of densely matted, ground-hugging vegetation. A living mulch, moth bean shields soil from the sun's heat and retards soil erosion. Livestock avidly graze on its pods and foliage. The pods when young are used as a table vegetable. They contain tiny beans which are rich in proteins and other nutrients. The plant as a whole is a good source of quality forage under arid and semiarid conditions.

Although the plant has multifaceted importance, it has received only scant attention regarding its genetic improvement. Therefore it was thought worthwhile to look into the possibilities of improving moth bean through induced mutation. The present paper deals with evaluation of varietal radio-response in moth bean based on morphological parameters in R_1 and R_2 generations.

For recording the radio-response, dry seeds of three moth bean varieties, viz. Local, IPCMO 186 and MG-1, of uniform size and moisture content, were irradiated with different doses of gamma rays (5–25 kR). The irradiated seeds were sown in the field in randomized block design with three replications and the R_1 generation was raised. The effect of gamma rays on morphological parameters such as germination, survival of plants, plant height and commencement of flowering was studied. From the seed progeny of the R_1 generation, the R_2 generation