and Verbenaceae have been reported to possess juvenoid activity by earlier workers[12, 13]. Further it may be noted that the extract of the epicarp of fruits of *Citrus sinensis* and *Citrus arvensis* showed juvenoid activity but their leaves did not. In fact, as much as 3 times the dose (1500 μg) of the leaf extracts of these plants did not produce any effect. Likewise, the extract of the rhizome of *Zingiber officinale* yields juvenoid-active factor but its leaves do not. The observations do not support the view of Slama[3] that generally speaking plants which possess the juvenoid principle contain these more frequently and abundantly in the root system.

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A JUTE MUTANT WITH IMPROVED SEED YIELD COMPONENT

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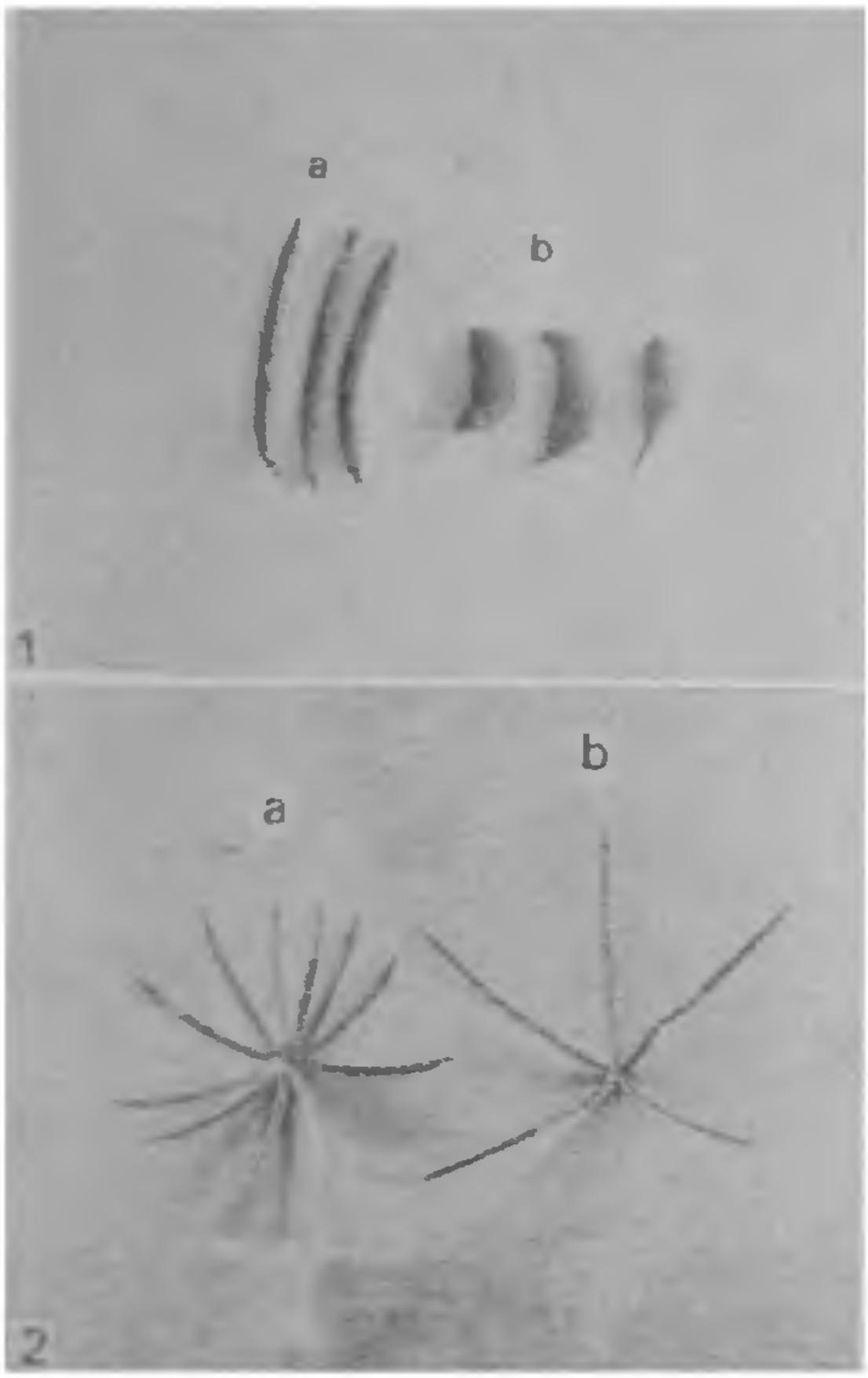
IN a self-pollinated species variability is created by inducing mutation by physical and chemical mutagenic agents[1]. Various kinds of x-ray induced mutants of jute have been reported earlier[2–4]. It was also observed[5, 6] that the frequency of mutation could be increased considerably by using combination of physical and chemical mutagens. From one such combined treatment, oval pod with higher number of seeds per pod, of jute (*C. olitorius*) has been isolated and preliminary study on this mutant is reported here.

The mutant with oval pod and higher number of seeds per pod was isolated in M_3 generation of *olitorius* variety JRO 632 after combined treatment with x-ray (40 kR) and ethyl methane sulphonate (1%). The mutant bred true in subsequent generations. Cross section of the ovary of the above mutant showed 14–16 locules as opposed to 5–6 locules per ovary of the standard *olitorius* variety, JRO 632. The increase in the number of carpels in the ovary of this mutant was also evident from the separation of locules in the mature pod (figures 1, 2). The mean values of the different related characters of the standard variety and those of the mutant are shown in table 1 and each of the character pair differed significantly at 1% level. The ovalness of the pod of the mutant can be ascertained from the reduction of length, increase of diameter and also smaller length/diameter ratio in comparison to those observed in the standard one. Since the carpel number increased double fold, the number of seeds per pod of the mutant increased one and half times. The number of seeds per gram was much smaller in mutant than in the standard, indicating higher seed weight of individual seed of the mutant. Through the increase of the number as well as the individual seed weight the total seed weight per pod of the mutant has increased doubly over the standard one. Cylindrical type of pod is a species character of *C. olitorius* and hence a mutation to oval pod from cylindrical type, resembling that of *C. capsularis* is considered to be a case of macromutation.

As the mutant produces more number of seeds per pod with an increased weight of the individual seed, it is likely to prove useful towards improving seed yield of *olitorius* jute.



Figures 1, 2. **1a.** Normal capsule, **b.** Mutant capsule, **2a.** Mutant capsule showing 11 locules and **b.** Normal capsule showing 5 locules.

Table 1 *Mean value of pod characters*

	JRO 632	Mutant
Carpel number	6	15
Length of pod (cm) L	5.6	3.1
Diameter (cm) D	0.46	1.0
Ratio L/D	14.28	2.56
No of seeds per pod	150	225
No of seed per g wt.	670	544
Seed wt per pod (mg)	224	414

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CYTOLOGY OF OCTOPLOID *GLORIOSA SIMPLEX* L.

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GLORIOSA L. (Liliaceae), a genus of 5–6 species, is native to Asian and African tropics[1]. Basic chromosome number of the genus is 11. Euploids with $2n = 22$, 44, 66, 77 and 88 chromosomes have been recorded[2–4]. *G. simplex* and its synonyms, *G. plantii* and *G. virescens*, have been reported earlier as diploid and tetraploid ($2n = 22$, 44)[3–6]. In this communication, male meiosis of an octoploid ($2n = 8x = 88$) cytotype of this species is presented.

Anthers at proper stages of meiosis were fixed in Carnoy II fluid. Squashes were prepared in 1 % aceto-orcein and studies made from temporary slides.

All microspore mother cells were found to bear 88 chromosomes which associated into configurations ranging from univalents to octovalents (figures 1–3). Thirty cells studied at metaphase I showed average per cell association of 0.27 VIII + 0.27 VI + 2.13 IV + 0.13 III + 36.50 II + 2.33 I. Of the 51 cells scored at anaphase I, 11 showed regular 44:44 separation. Irregularities were found in the form of unequal separation (upto 41:47), laggards, precociously dividing univalents and occasional bridges (figure 4). Pollen stainability with 1 % acetocarmine was 64.2 %. Fruit set in self pollinated flowers was 20 %.

Alloploid nature of the present octoploid is evident from the high frequency of bivalents (36.5 out of a maximum possible of 44 per cell). It may, however, be pointed out that the basic karyotype of *Gloriosa* has 2–3 long and 8–9 quite small chromosomes. It was observed that the majority of multivalent associations were formed by long chromosomes whereas the short chromosomes paired mostly into bivalents. Since chiasma frequency depends on chromosome length, small chromosomes are less likely to form multivalents