Conidia nocte formata, globosa, hyalina, cum pariete tenui, mensura variabili inter 14·3–22·4 × 14·3–20·4 (17·7 × 16·2) μm, continus ad apicem, inmutata sine ulla papilla dehiscentiae, germinatus plerumque per tubulam germinalem, nucleorum numerus 10–26 in singulo conidio.

Oosporae globosae tuberculatae, cum pariete oogonali persistenti, 24·5–36·7 (29·0) μm, contenta tenuiter granulosa et germinantes per zoosporas.

Occurrunt in forma utraque conidiali et oogenali in solo *Heteropogon contortus* Beauv. et in sua forma conidiali in sola zea (*Zea mays* L.) in Rajasthan, India. Feliciter translatus in "teosinte" (*Euchlaena mexicana* L.) sed not in sorghum [*Sorghum bicolor* (L.) Moench], valde perniciosus in zea in regione Udaipur (Rajasthan).

Department of Plant Pathology,
University of Udaipur
Rajasthan College of Agriculture,
Udaipur, *May* 10, 1979.

BABU SINGH SIRADHANA.*
S. R. S. DANGE.**
R. S. RATHORE.
S. D. SINGH.

Present address : * University of Udaipur, Agricultural Research Station, Durgapura, Jaipur and ** ICRISAT, Patancheru P.O., Andhra Pradesh.

1. Dange, S. R. S., Jain, K. L., Siradhana, B. S. and Rathore, R. S. *Curr. Sci.*, 1973, **42**, 834.
2. —, —, — and —, *Plant. Dis. Reptr.*, 1974, **58**, 285.
3. Kaveriappa, K. M. and Safeeulla, K. M., *Indian Phytopathol.*, 1975, **28**, 486.
4. Shaw, C. G., *Ibid.*, 1970, **23**, 365.

STUDY OF THE EFFECT OF METRONIDOZOLE ON NUCLEAR CONSTITUENT

METRONIDOZOLE (Klont) tablets are generally prescribed by physicians to the patients suffering from disease Trichomoniasis. Earlier its mutagenic properties have been reported in *E. coli*[5,6] and further, increased incidence of Lung[6] tumor is also reported. It is therefore desired to test its effect on nuclear constituents, which may provide some indication of the side effects of this drug on the patients. The economic importance of such studies cannot be overemphasised in view of the fact that they have got a profound significance in cell growth, including mutations and chromosomal aberrations.

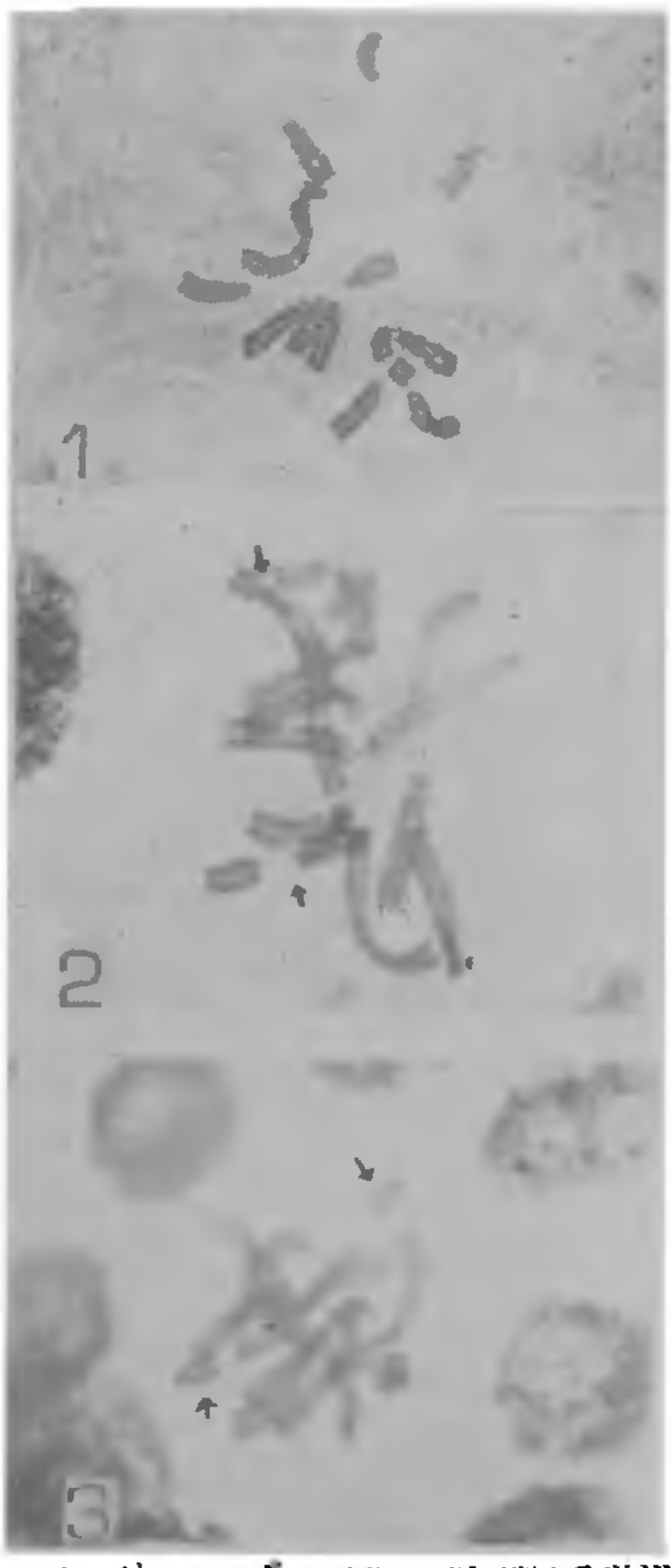
Growing roots of germinating seeds of *Vicia faba* L. were immersed in aqueous solutions of 1%, 0·5%, 0·25%, 0·20% of the drug for 4 hr, 6 hr, 12 hr and 24 hr respectively. For the study of control, germinating seeds with roots were immersed in Knop's solution for the same duration.

After respective treatment, root tips were washed thoroughly, fixed overnight in acetic-ethanol (1 : 3) and stained in 2% aceto-orcein N. HCl (9 : 1) mixture and squashed in 45% acetic acid.

Observations were recorded on approximately 500 dividing Cells. The results are given in Table I.

We know that the chromosome complement of *Vicia faba* L is composed of one long metacentric satellited chromosome pair and five shorter acrocentric or subtelocentric chromosome pair. The long one pair of metacentric satellited chromosome has been used as marker (M) chromosome in this study.

A high frequency of metaphases with scattered chromosomes were induced due to C-mitotic action of this drug in all the concentrations. This indicates the scope of its use as pre-treating agent for chromosomal analysis.



FIGS. 1–3. Fig. 1. Showing scattered metaphase as a result of C-mitotic action, × 2, 00. Fig. 2. Showing breaks in the M chromosomes (arrow mark), × 2,100). Fig. 3. Showing two breaks (side view), × 2,100 (arrow mark).

TABLE I

Concentrations of drug	Duration of treatment 4 hr	6 hr	12 hr	24 hr	Remarks
1%	Scattered metaphase in 10·2% of the dividing cells	Pre-dominance of agglutination of chromatin material with a few scattered metaphases	Tissue completely dead		At higher concentration the drug is highly toxic. The value of polyploidization is insignificant.
0·5%	Scattered metaphase in 20·3% of dividing cells	Scattered metaphase in 25·1% of the dividing cells	Scattered metaphase in 15·6% of the dividing cells	Few tetraploid cells recorded	
0·25%	Scattered metaphase in 20% of the dividing cells	Scattered metaphase in 22% of the dividing cells	Scattered metaphase with incidence of localised breaks in 10·2% of the dividing cells	Few polyploid cells and incidence of localised breaks increases up to 20% of the dividing cells	The incidence of localised breaks in M chromosome at secondary constriction region is remarkable (arrow mark Figs. 2, 3).
0·20%	Scattered metaphase *in 10·8%* of dividing cells	Scattered metaphase *in 11·1%* of the dividing cells	Scattered metaphase *with* incidence of localised breaks in 10% of the dividing cells.	Incidence of *localised breaks* in 15·3% of the dividing cells	..

Another typical reaction which appeared after treatment is the differential staining of chromosomes. In most of the chromosomes, the distal end became more dark showing terminal bands.

The incidence of localised break in the secondary constriction region is most significant. It has been shown that various mutagenic substances have the ability of breaking the chromosomes preferably in certain chromosome region[2]. Ford[1] found that nitrogenous mustard induced chromosome fragmentation more frequently in the Sat. chromosomes than would have been expected if the breaks occurred at random[1]. The breaks in these cases were probably situated close to or within the heterochromatic knobs of the Sat. chromosomes.

Kihlman and Levan[2] reported that some of the chemicals affect the attachment thread of the satellite in the M chromosome of *Vicia faba* L.[2,3]. The localised breaks might indicate the susceptibility of certain chromosome parts to breakage and as such reflect a linear chemical differentiation of chromosome segments[4].

It is apparent from the results that this drug has a strong tendency of hampering the cell division and is highly toxic at high concentrations even the low concentrations of this drug can induce chromosomal breaks. It is suggested that this drug should be banned to avoid its toxicological effects on human beings.

Cytogenetics Laboratory, ABHOY KUMAR GHOSH.
Department of Botany,
University of Calcutta,
Calcutta 700 019,
July 21, 1979.

1. Ford, C. E., *Proc. 8th Int. Cong. Genet.* (*Hereditas. Suppl.*), 1949, 570.
2. Kihlman, B. and Levan, A., *Hereditas*, 1951, **37**, 382.
3. Levan, A., *Ibid.*, 1950, **35**, 470.
4. Sharma, A. K., *Cytologia*, 1953, **21**, 372.
5. Voogd, C. E., Derstel, J. J. and Jacob, J. J. J. A. A., *Mutation Res.*, 1974, **26**, 483.
6. —, — and —, *Ibid.*, 1975, **31**, 149.