report of *P. misera* as a larval–pupal parasite of *S. litura* constitutes a new record from India.

The polyhedral inclusion bodies of a nuclear polyhedrosis virus[1] attacking *S. litura* (SLNPV) in the nature, were also evaluated against this local parasite, *P. misera,* with a view to developing this virus as microbial insecticide in future for the control of *S. litura.* The polyhedral inclusion bodies of this virus produced from experimentally infected caterpillars of *S. litura,* were inoculated to the dull-whitish grubs of *P. misera* collected by dissecting out, the field collected parasitized larvae of *S. litura* in two batches. Five grubs were dipped into the extract for 24 hours in the first batch while the second batch of 5 grubs received intrahemocoelic injections of the extract with the use of a 1 ml tuberculin syringe. Eight grubs in two groups (each of 4), treated with sterile distilled water, formed the control. It was interesting to note that all the grubs of the parasite thus treated (including control) subsequently pupated and emerged as normal adult flies from their reddish-brown puparia. These observations indicated that the viral agent was safe to the parasite. The intramuscular and intravenous injections of 44 mg of polyhedral inclusion bodies of NPV of *S. litura* at weekly intervals, could not produce any abnormality in the treated rabbits within 6 weeks[3]. Safety of similar insect viruses has also been reported earlier[2] in fishes, white mice, guinea pigs and other mammals including man. The present observations, being reported for the first time, indicate the high specificity and safety of the polyhedral inclusion bodies (SLNPV) against *P. misera.*

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ANTIMITOTIC ACTIVITY OF THE FLAVONOL GLYCOSIDE "POLYGALACIN"

THE importance of glycosides in medicine and therapeutics was indicated earlier[1]. Crude drugs containing saponin are known to exhibit antiulcerogenic and antiinflammatory actions[2]. The biochemical action of Ginseng Saponin and its metabolic stimulation or hormone-like action has also been established[3]. Some glycosides are shown to possess anticancer[4] and antimitotic[1,5-12] properties. Despite these reports there are several others whose effects on cells in division have not been investigated. The toxic principle of a flavonoid derivative (4, 5, 6, 7, 8 pentamethyloxy flavone) on Zebra fish and pregnant rats has been described[13,14]. The present study deals with the influence of the flavonol glycoside, polygalacin on mitosis in root meristems of *Allium cepa.*

Polygala chinensis L. belonging to the family Polygalaceae is a common herb found all over India. The new flavonol glycoside polygalacin ($C_{29}H_{34}O_{16}$) extracted from it is shown to be 3-rutinosyl rhamnazin (3-rutinosyl 7, 3-dimethyl quercetin)[15]. Profusely growing roots of *A. cepa* were treated in one series in 0·05% polygalacin (aqueous solution prepared by gently heating) for 4, 8 and 24 hr at room temperature. In another, roots treated for 24 hr were allowed to recover for 24 and 48 hr in distilled water with frequent changes of the same. Controls grown in distilled water were handled under identical conditions. Experimental and control roots fixed in 1 : 3 acetic alcohol were processed by the method described elsewhere[1,16].

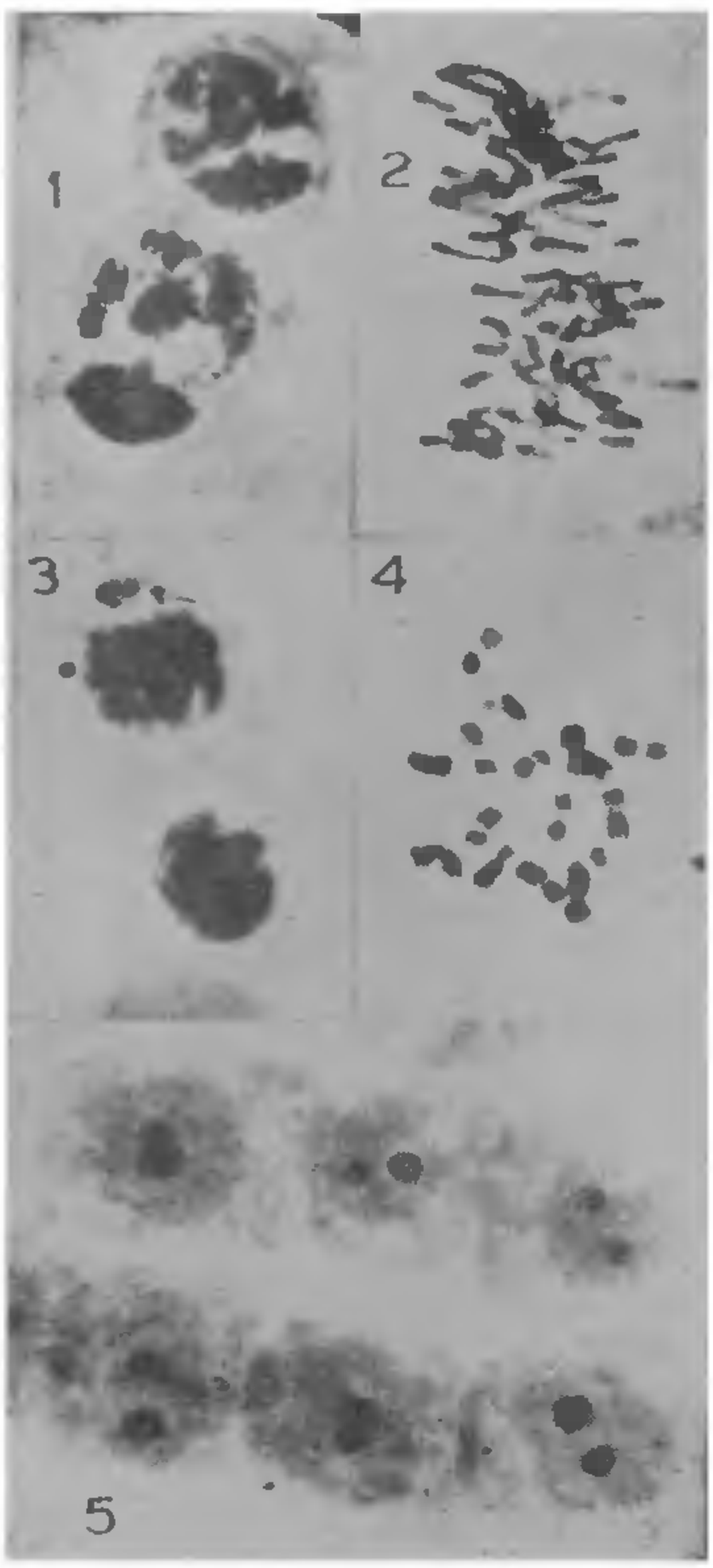
The most obvious effects produced by the glycoside were on the morphological changes of chromosomes and a lowering of mitotic index (MI). The MI showed a phenomenal decrease with the period of treatment (Table I). In 24 hr material mitoses were, however, highly limited. There was also a marked effect on cells in producing fragmented nuclei (Fig. 1). The latter were found even after a protracted period of treatment where mitoses were still frequent. Among the aberrations the breakage of chromosomes (Fig. 2) was an important event noted in 8 and 24 hr treatments. The micronuclei obviously formed from fragments

TABLE I

Treatment time (in hours)	Cells in division*	Mitotic index*	Frequency of aberrations				
			Fragmented nuclei	Breakages	C-metaphases	Micronuclei	Abnormal cells (%)
Control	264	6·60	..	..	..	..	..
4	232	5·80	21	..	..	..	9·05
8	208	5·20	44	8	5	..	27·40
24	128	3·20	67	14	9	10	78·12
24 hr – 24 hr recovery	224	5·60	..	..	..	..	..
24 hr – 48 hr recovery	260	6·50	..	..	..	..	..

* Based on 4,000 cells.

were encountered in 24 hr treatment only (Fig. 3). Slightly disturbed but unscattered and uncontracted metaphases were seen in 4 hr treatments. On the other hand 8 and 24 hr material exhibited few C-metaphases thus indicating the disruption of the spindle (Fig. 4). In contrast to another glycoside Morindine reported elsewhere[1] C-metaphases induced by polygalacin were few and occasional. One more striking observation was that the nucleoli were prominently stained in majority of cells in 8 and 24 hr treatments in contrast to faint nuclear staining (Fig. 5). This appears to be due to the specific response of the cells to polygalacin alone since no such feature was demonstrated by Morindine[1]. The mechanism by which this phenomenon is induced needs further investigation.



FIGS. 1–5. Polygalacin induced abnormalities in *A. cepa*. Haematoxylin squashes. Fig. 1. Nuclear fragmentation, 8 hr × *ca.* 1,000. Fig. 2. Chromosome breakage, 24 hr × *ca.* 1,000. Fig. 3. Micronucleus (arrow), 24 hr × *ca.* 1,000. Fig. 4. C-metaphase, 24 hr × *ca.* 1,000. Fig. 5. Nucleolar staining. 24 hr × *ca.* 1,000.

Morindine and polygalacin have antimitotic properties. While the former showed a pronounced induction of C-metaphases, stickiness of chromosomes and a slow recovery[1], the latter produced nuclear fragmentation, occasional C-metaphases, breakages and a fairly quick recovery. The return of the mitotic index, in roots recovered for 24–48 hr, to the levels of short periods of treatment and the control and an absence of abnormal cells in such material (Table I) denote the transient nature of the damage caused by polygalacin to the genetic system and its reversibility.

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MICROXIPHIUM : A NEW GENERIC RECORD FROM INDIA

During the course of survey on fungal diseases of angiosperms in Banaras Hindu University campus, a sooty mould was prevalent, on *Ficus religiosa* L., *Mangifera indica* L., *Hibiscus rosa-sinensis* L., *Tectona grandis* L. and *Gossypium herbaceum* L. The fungus is a new generic record in India causing deterioration of plants.

The fungus formed a thick network of hyphae, a pseudoparanchymatous crust on the leaves (Fig. 1) and the smaller twigs involving the entire plant often.

The fungus was identified as *Microxiphium fagi* (Parsoon) Huges. colonies effuse, brownish-black, with erect synnematous conidiophores. Synnemata 280 μ–415 μ long, 28 μ–55 thick at the base. Each synnemata capped by a slimy head. Annellides cylindrical, 8–12 μ × 1–2 μ. Conidia aggregated in slimy heads, acrogenous one celled, ovoid, smooth, hyaline, 3–4 μ long (Figs. 2–3).

Figs. 1–3

Microxiphium was first used at the generic level by Thumen[1] (1879). The specimen has been deposited in C.M.I., herb. Nos. 208617 and 208629.

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