

within one month. These results indicate that the fungus cannot survive during summer (March–July) in the diseased leaves but remains viable in the seeds.

Prabhu and Prasada<sup>3</sup> assumed that the fungus may be present in the seed and may sporulate with the onset of rains causing infection of lower leaves of wheat plants. The present study confirms that the principal method of survival of the fungus is through infected seeds.

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#### THE SOMATIC CHROMOSOMES IN *AJUGA GENEVENSIS* L. (LABIATAE)

THE taxon *Ajuga genevensis* L. belongs to the tribe Ajugoideae of the family Labiatae according to Engler and Prantl's system of classification<sup>1</sup>. During the investigation of somatic chromosomes of this taxon it has been found that this taxon is characterized by the diploid autosomes, B-chromosomes and polytene chromosomes in the very root tip. In the present note all these chromosomes are dealt with.

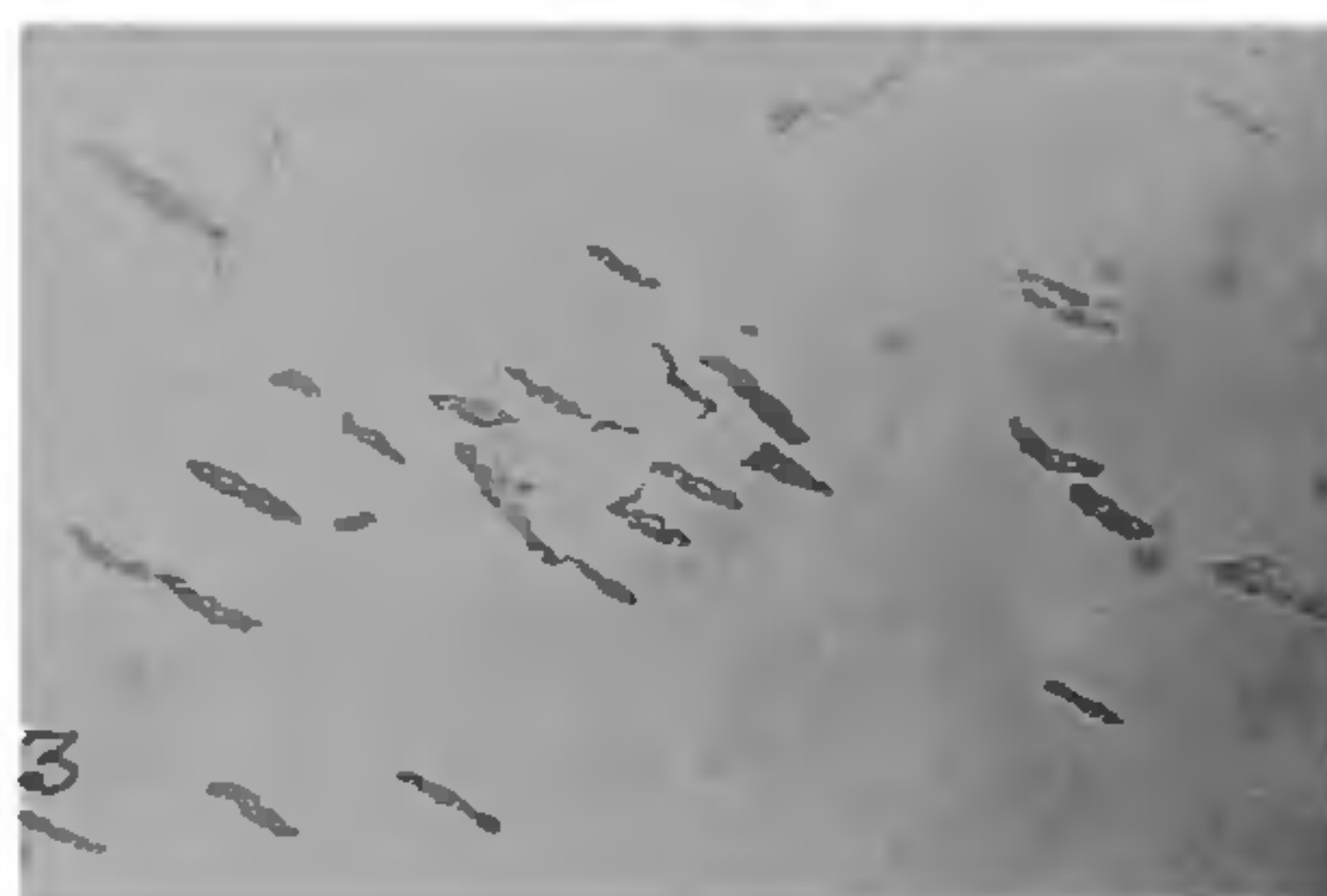
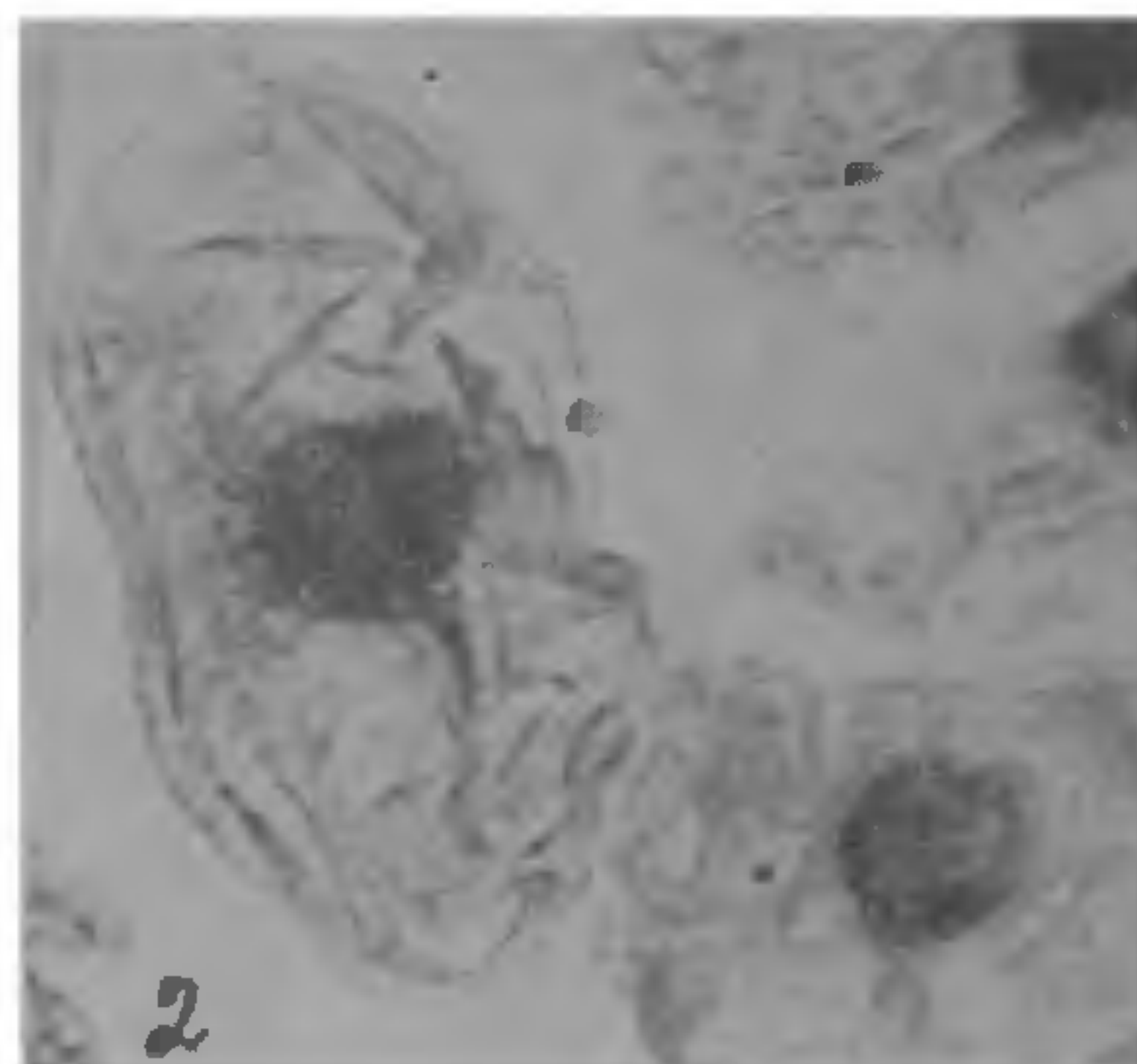
The material was collected from the natural populations of the hills of Georgia, USSR. The healthy roots were pretreated in  $\alpha$ -bromonaphthalene for 3 h at 6°C. Fixation, softening and staining were done following the method of Bhattacharya<sup>5</sup>.

The diploid chromosome number varies between  $2n = 28$  and  $2n = 32$  while the length varies between  $1 \mu\text{m}$  and  $2.9 \mu\text{m}$ . The most frequently occurring number is  $2n = 32$ . This is in conformity with the previous report<sup>2</sup>. The B-chromosomes are found to

vary between 0 and 5. However, the frequency occurs between 2 and 3 in most of the cases. B-chromosomes are allocyclic in nature. They could be detected in early metaphases. The length varies between  $0.3-0.7 \mu\text{m}$ . The variation of somatic chromosome number may be due to the presence of B's as found its parallels in major B-containing taxa<sup>4</sup>. B-chromosomes have been reported already in 4 species of *Salvia* belonging to the family Labiatae<sup>3</sup>. But in this taxon this is the first report (Fig. 1).



FIG. 1



FIGS. 2-3

From a number of metaphase plates it appears that there are 10 pairs of metacentric and 6 pairs of sub-metacentric chromosomes in the karyotype ( $2n = 32$ ). But there is variation in chromosome morphology with the variation of chromosome numbers. Secondary construction is not found in the karyotypes. This may be due to presence of B-chromosomes<sup>4</sup>.

Polytene chromosomes (Figs. 2, 3) are found in the endopolyploid cells adjacent to the root meristem as reported in *Phaseolus vulgaris*<sup>5</sup>. They arise through endomitosis. The number, length, breadth of these polytene chromosomes vary according to the degree of polyteny and endomitotic reduplication. Their morphology is not so clear as they are in prophase stage<sup>6</sup>. Some of the endopolyploid cells are found with high number of polyploid chromosomes.

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#### OUTBREAK OF A NEW BACTERIAL DISEASE OF AMALBEL, A MEDICINAL PLANT IN RAJASTHAN

DURING a survey in September, 1971 around Jobner, severe leaf spot was observed on a shrub, commonly known as Amalbel (*Cayratia carnosa* Gagn: family Ampelideae). Plants are commonly found in the hilly tracts of tropical Himalayas and throughout the hotter parts of India. The shrub has many medicinal properties.

During the years 1974 and 1975, the disease was observed during August in the hilly areas around Udaipur. Symptoms appear first as minute water-soaked lesions on aerial parts of the vine including leaves, stem, branches and tendrils; later these turn into dark brown irregular spots bearing bacterial masses. The bacterial nature of the disease was established by 'ooze test'. A yellow bacterium was isolated from infected leaves on nutrient dextrose agar medium and purified by streaking on triphenyl tetra-

zolium chloride agar and picking up single colonies under a stereoscopic microscope. Pathogenicity was proved by inoculating the lower trifoliate leaves with a fresh culture grown on yeast extract glucose chalk agar slants by using carborundum abrasion technique. Typical symptoms appeared 6-9 days after inoculation. Under artificial inoculation conditions, the bacterium was found to be not pathogenic to plants belonging to 19 different hosts.

Morphological, cultural, physiological and biochemical characteristics were studied by following the methods of Dye<sup>1</sup>. The bacterium is rod-shaped, gram negative, motile with single polar flagellum; on nutrient dextrose agar produces yellow, circular and raised, glistening colonies; on potato wedges produces yellow slimy growth; tolerates NaCl upto 3% and grows best at 27-30° C; strictly aerobic showing an oxidative metabolism of glucose; hydrolyzes starch weakly; asparagine is not utilized; nitrates are not reduced; produces acid but no gas in xylose, glucose, sucrose, fructose and mannitol; maltose was not utilized upto 27 days. The bacterium has important characters of the genus *Xanthomonas* and resembles *Xanthomonas vitis-carnosa* causing leaf spot of *Vitis carnosa* (Wall) Moniz and Patel<sup>2</sup>.

The bacterium (IMI B 6141) has been identified by Dr. J. F. Bradbury, of the Commonwealth Mycological Institute, Surrey, U.K., as a member of *Xanthomonas campestris* group and we would also refer the bacterium to the same species.

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#### INDUCING SPORULATION IN *HELMINTHOSPORIUM GRAMINEUM* IN CULTURE

*Helminthosporium gramineum* Rabenh., the causal organism of the barley leaf stripe disease, sporulates profusely on the lesions on the foliage and glumes under natural conditions. But it fails to sporulate in the pure culture. In India, attempts to induce sporulation in seven isolates of the fungus using a variety of culture media at different temperatures, pH, carbon and nitrogen sources proved unsuccessful<sup>3</sup>. In culture, sporulation of the fungus was successfully induced through the combined effect of light and temperature<sup>4</sup> and through a low temperature treat-