is not only at morphological level but also at metabolic level and a similarity of nitrogen metabolism and betacyanin synthesis between GA_3 treated seedlings and dark grown seedling was established[7-9]. The object of this study is to find out if there is any correlation between respiratory activity of dark grown seedlings and of GA_3 treated light grown seedlings.

Seeds of *Lactuca sativa* L var. Great lakes were germinated, grown and the respiration was measured as described earlier[1]. For dark treatment, one set of seeds was germinated and grown in the dark while other germinated in light and transferred to dark at 25° C (± 1°). Each time fresh seedlings were used for measuring the respiration.

The results of O_2 uptake of seedlings grown in the dark are shown as percentage of control in light. The respiration of seeds germinated and grown in dark (Fig. A) show a peak at very early stage, *i.e.*, 8 h. and for most of the time the respiration is below the light control.

The seeds germinated in light and later transferred and grown in the dark, show a shift in the peak of O_2 uptake (Fig. B), the peak is shifted to 18 h. The magnitude of this peak rises but the decline is also steeper.

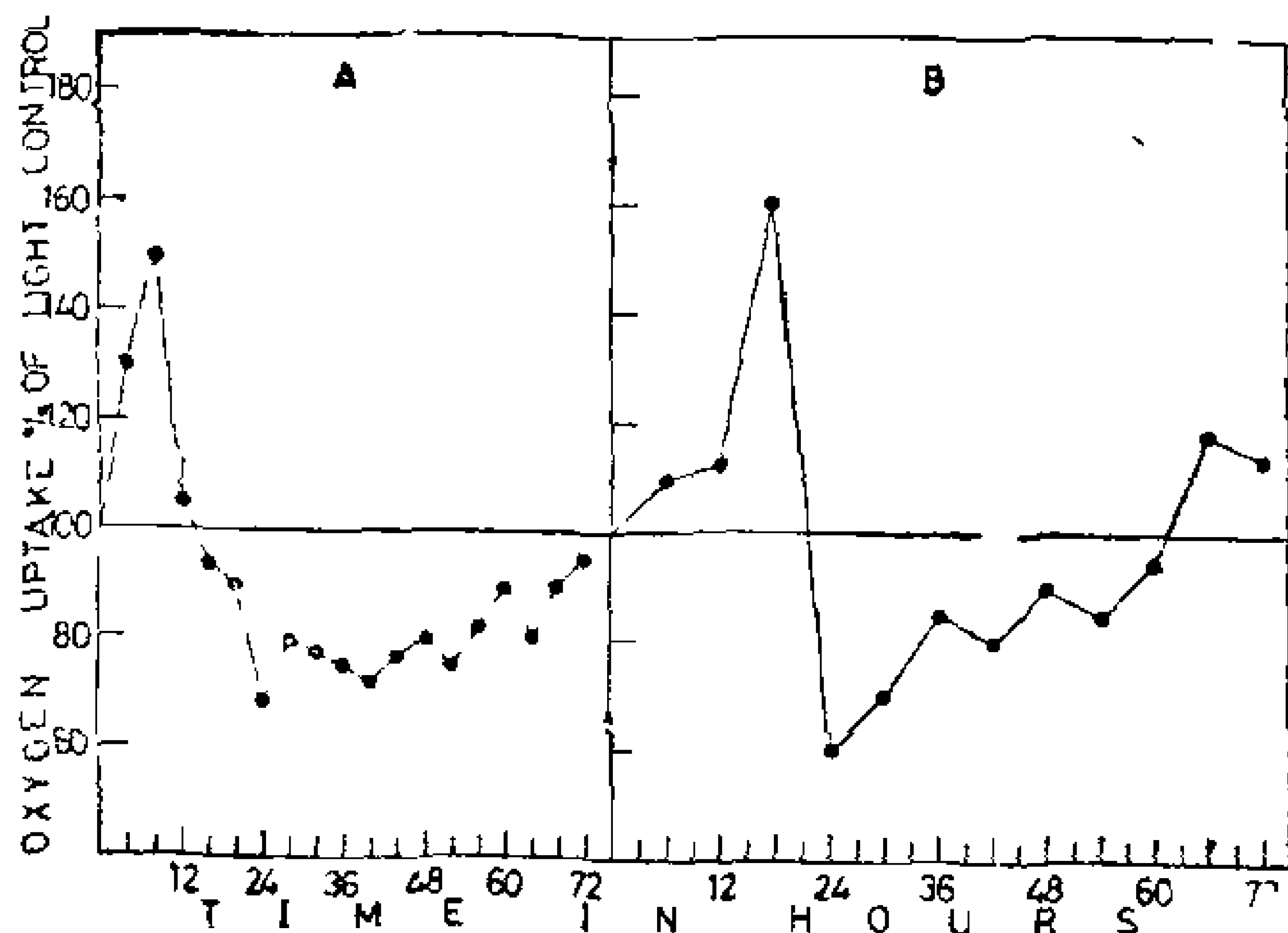

FIG. A. Oxygen uptake of dark sown and grown lettuce seedling expressed as percentage of light control.

FIG. B. Oxygen uptake of light germinated and dark grown lettuce seedlings as percentage of light control.

Comparison of respiratory pattern in light and dark grown seedlings with that of GA_3 effects (in light) establishes similarity between dark grown and GA_3 treated seedling and confirm the results[7-9]. While in GA_3 treated seedlings respiratory peak is shown at 12h[1]., the peak shifts to 18 h., in light germinated and dark grown seedlings (similar to GA_3 treatment). This delay may be related to the time taken by the endogenous GA_3 to recover the inhibitory effect of light received during seed germination. The seeds germinated and grown in dark exhibit peak earlier at 8 h since there was no inhibition caused by light. These results clearly show that light inhibits respiration rate while GA_3 reverses this inhibition[1] and brings it at par with dark grown seedlings.

The identity of the respiratory pattern of dark grown seedlings with GA_3 treated seedlings is reminiscent of parallelism between nitrogen changes[7] and betacyanin synthesis in celosia[9]. These results strengthen the view that gibberellins truely reverse the light mediated metabolism to the pattern of dark grown and that growth in dark and metabolism of seedlings are predominantly under gibberellin control.

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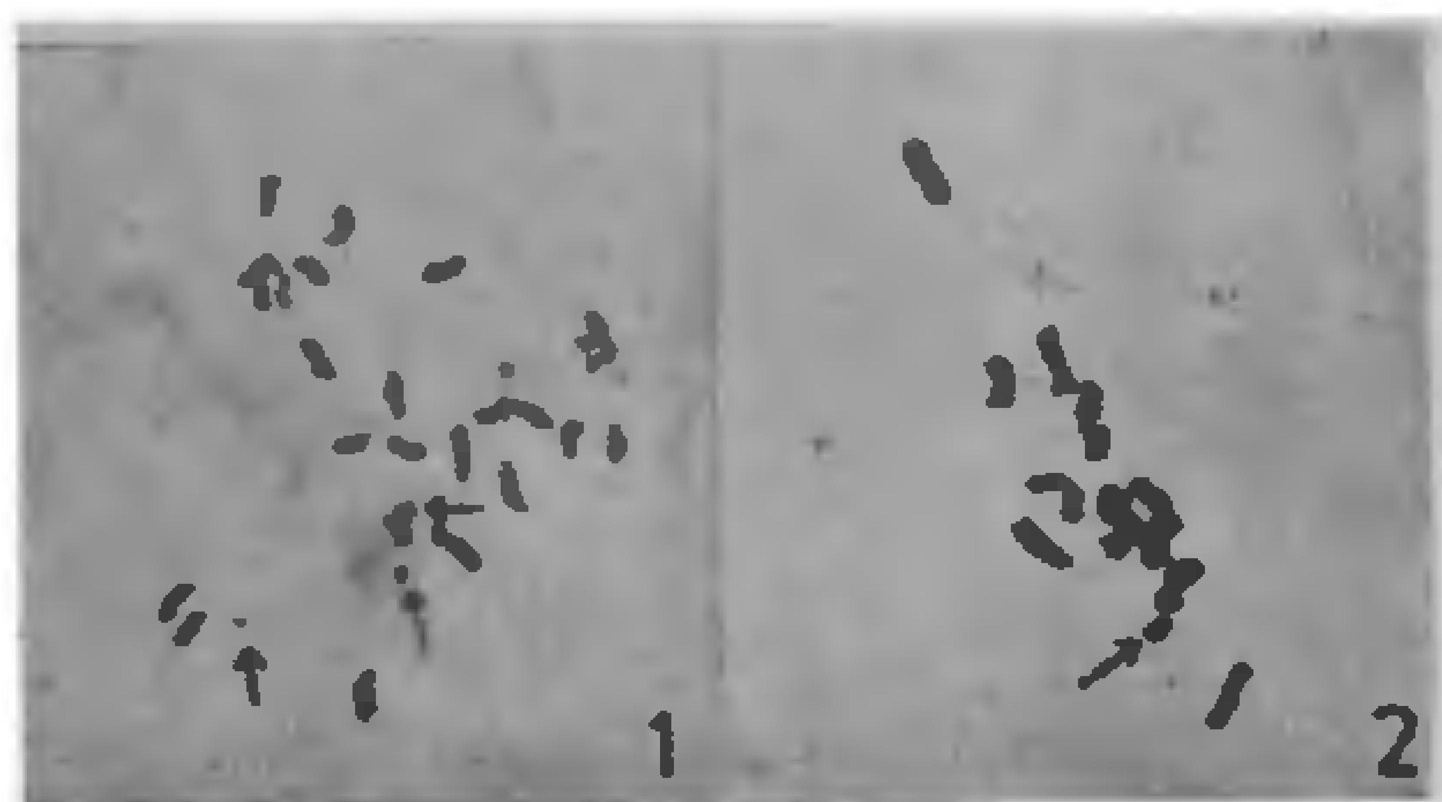
CYTOGENETICAL INVESTIGATION IN *CUCUMIS* L. B-CHROMOSOMES IN TWO *CUCUMIS* SPECIES

IT has been studied well now that B-chromosomes influence chiasma frequency and genetic recombination[1,4]. The B-chromosomes in flowering plants have been reported in about 591 species belonging to 219 genera[1]. In family Cucurbitaceae B-chromosomes are known to be rare; they were first reported in *Melothria medraspatana*[2], where they were later found to be the normals once. Recently they have been recorded in *Trichosanthes anguina*[5].

The present communication reports B-chromosomes in two species of *Cucumis*. During mitotic analysis of fifteen species and varieties of *Cucumis*, B-chromosomes were recorded in *C. melo* momordica ($2n = 24$) and in *C. hardwickii* ($2n = 14$). Their number varied from 1–3 in the former species, while 1–2 in the case

of the latter. The number of B-chromosomes was not constant even in the somatic cells of the same root tips.

Meiotic studies of these species did not reveal any such chromosomes in gametic cells which means that either they are eliminated during somatic division on account of their accentric nature or they are present only in a few plants which could not be analysed meiotically.



Figs. 1–2. Somatic cell at metaphase showing somatic number and B-chromosomes (arrowed) (1) in *C. melo memordica* ($2n = 24$) and (2) in *C. hardwickii* ($2n = 14$) × 1890.

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"TOXICITY OF SOME STANDARD AND PROSPECTIVE CHEMOSTERILANTS" AGAINST *AEDES AEGYPTI* (L.) LARVAE

In the Chemistry Department of this University, several naphthaquinones were prepared by Afzal and Tawfeeq[1]. Before exploring their utility, determination of toxicity was essential. On the basis of preliminary trials, two of them, *i.e.*, 5, 8-dihydroxy-2- (4-methyl-pent-3-enyl)-1, 4-naphthaquinone or shikonin and 1- (5, 8-dihydroxynaphthaquinone-2-yl) 4-methyl-pent-3-enyl-2-methylcrotonate or shikonin angelate, were selected for toxicity determination and further studies. Generally, *Aedes aegypti* strains are used as insect test material for the sake of easy breeding and pure material[2]. Therefore, these compounds were tested on the larvae of a standard *Aedes aegypti* (L) strain (Rockefeller susceptible strain) obtained by the courtesy of Dr. A. W. A. Brown, Director, Pesticide Research Centre, Michigan State University, and compared simultaneouly with standard chemosterilants, tepa and hempa (samples Ent. No. 24915 *k* and 50882 *k*) obtained by the courtesy of Dr. A. B. Borkovec, Director, Entomology Research Division, USDA, Gainesville, Florida. The present communication reports the LC_{50} of the above-mentioned compounds under the laboratory conditions.

The chemicals were tested according to the standard WHO method reported by Brown[3]. One per cent stock solutions of the chemicals were prepared in ethanol. From this stock, different concentrations in ppm were prepared by diluting with distilld water. Preliminary experiments were done on different instars with various concentrations, to find the effective range of the chemical as well as the susceptibility of the instar. A control and check (ethanol) was always kept and considered while analysing the data. The experiments were run in duplicate sets 5–7 times. Twenty larvae of approximately the same size, age and instar were taken in 250 ml distilled water, in a beaker, for treatment. The mortality was noted 24 h after treatment and if the mortality in control increased above 10% the experiment was discarded. The larvae in moribund condition were also counted as dead. All the data were analysed statistically and probit-mortality curves were drawn on log-log paper.

Figure 1 shows the structural formulae of the compounds while Fig, 2 shows the probt motality curves for the 4th instar larvae. The latter indicates that shikonin is the most toxic compound with LC_5

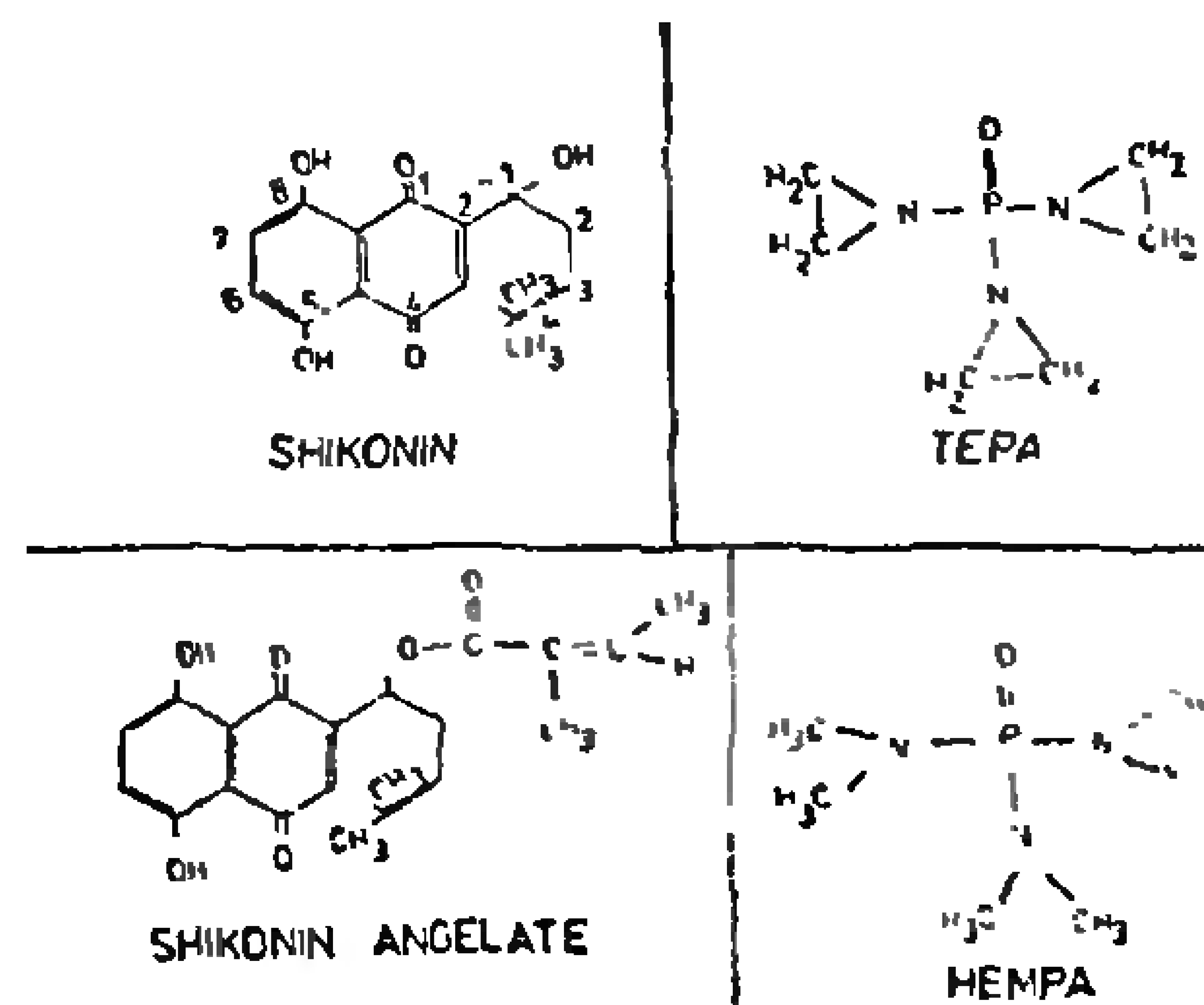

Fig. 1. Structural formulae of the standard and prospective chemosterilants.