

The cultures were incubated for five days at 25° C. and the Cx activity was determined by following the loss in the viscosity of 1.0% carboxyl methyl cellulose solution over a period of 30 minutes. The results are shown in Fig. 1.

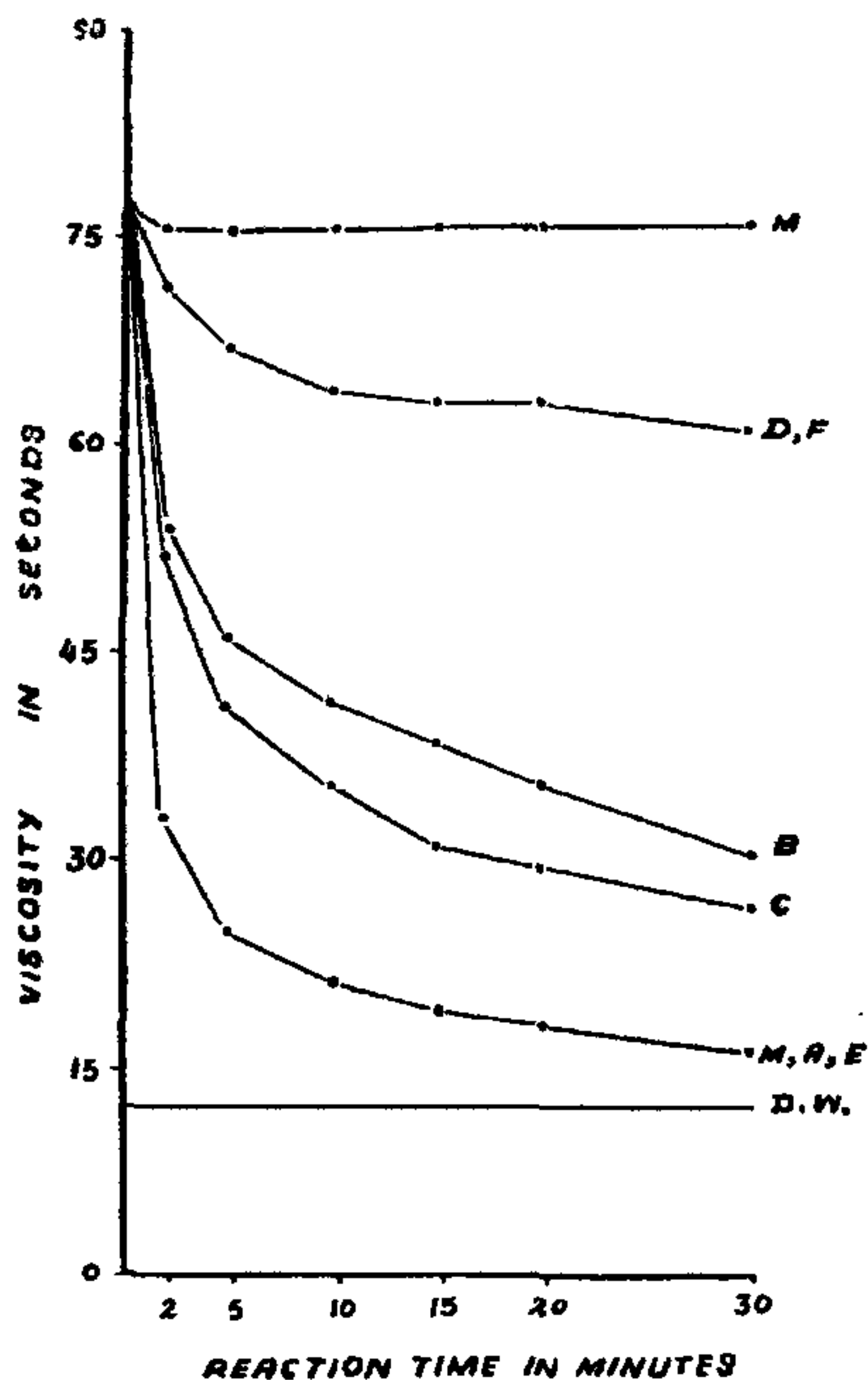


FIG. 1. Production of cellulolytic enzyme (Cx) by *Alternaria tenuis*. D. W.—Distilled Water.

It was concluded from the results that the fungus secretes active cellulolytic enzyme (Cx) extra cellularly on synthetic medium. The production of the enzyme was, however, better in presence of pectin and cellulose powder than in the presence of carboxyl methyl cellulose, filter-paper or glucose alone.

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### A NEW BACTERIAL LEAF-SPOT DISEASE OF *BAUHINIA RACEMOSA* LAMK.

*Bauhinia racemosa*, a small, crooked tree, (venerated by the Hindus on the Dassera day) is widely distributed throughout India, China, Ceylon and Timor. Its leaves commonly known as *Apta* or *Ahitra* are used in making indigenous cigarettes called Bidis. A severe bacterial leaf-spot, causing considerable reduction in the market value due to rotting of leaves, is widespread in South Gujarat.

Early symptoms of infection are evident in the form of very minute, pale brown spots surrounded by water-soaked area. In the advanced stage of infection, spots appear dark with brown centres, round to irregular in shape and measure up to 1.5 mm. Encrustation probably due to drying of the exudate is generally evident. Veins seem to be more susceptible than petioles. Younger leaves are more susceptible than the older ones.

Young lesions when examined under the microscope show powerful bacterial ooze from the cut ends of the lesion. The causal organism was isolated by the usual dilution poured plate technique using potato dextrose agar. Isolations from these lesions yielded a pure culture of bacterium which on agar slant gave smooth, copious, butyrous, entire, circular, glistening, lemon yellow growth, characteristics of *Xanthomonas*.

After establishing the pathogenicity of the organism on *B. racemosa*, further experiments were undertaken to ascertain its host range. The results showed that it neither infected the other two spp. of *Bauhinia*, nor *Cassia tora* L., *Tamarindus indica* L., *Pisum sativum* L., *Dolichos lablab* L. and *Vigna sinensis*.

#### CULTURAL AND PHYSIOLOGICAL CHARACTERS

The bacterium is a short rod with rounded ends, occurring singly, measuring  $1.6 \times 0.54 \mu$ , gram negative, capsulated, non-spore forming, non-acid fast and motile with a polar flagellum. It grows profusely on potato dextrose agar, M<sub>2</sub> medium and Czapek's agar, but moderately on nutrient agar and in nutrient broth after 48 hours. It hydrolyses starch, digests casein moderately, liquefies gelatin, peptonises milk, reduces litmus with colour changes from lavender through pink to colourless, does not produce H<sub>2</sub>S and NH<sub>3</sub> from peptone. V.P. and M.R. tests negative, citrate utilised but not uric acid, acid without gas in glucose, sucrose and maltose; salicin not utilised. Strictly aerobic; optimum temperature for growth 27–31° C.; thermal death-point 52° C,

1. Pandey, D. K. and Gupta, S. C., *Indian Phytopath.* (Under publication).

The bacterium is presented as a new species under the name of *Xanthomonas bauhiniae* sp. nov.

Pathogenic on leaves of *Bauhinia recemosa* Lamk. only. The disease is found at several places in Gujarat State.

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### RECORD OF LUCERNE SEED INFESTING CHALCIDOIDS FROM INDIA

THE seed-infesting chalcidoids besides affecting the germinability or the commercial value of the seeds are also important from quarantine point of view since the infested seeds do not bear any external evidence of their presence within. This group of insects often causes very serious damage; as many as 40% mericarps of fennel seeds (*Foeniculum vulgare*) have been reported to be damaged by the eurytomid, *Systole albipennis* Wlk. (Gupta, 1962). This species has recently been recorded for the first time from India infesting fennel seeds (Batra et al., 1959).

While examining a sample of lucerne seeds (*Medicago sativa*, N.O. Leguminosae), some seeds were noticed to bear small circular holes very much like those made by the seed-infesting chalcidoids. Therefore samples of unripe lucerne seeds were collected from the Indian Agricultural Research Institute Farm, from Pahasu fields near Khurja, Uttar Pradesh and from the Remount Depot Farm, Babugarh, near Hapur, Uttar Pradesh, and kept under observation. In a few days large number of insects emerged in all the samples which were identified as *Bruchophagus gibbus* Howard and *B. roddi* Guss. (Eurytomidae) along with their parasite, *Habrocytus* sp. (Pteromalidae). From I.A.R.I. sample, another parasite, *Eupelmus* sp. (Eupelmidae), also emerged. The details of the emergence of the pests and the parasites are presented in Table I. This is the first record of these two species of *Bruchophagus* from India. This genus, however, is already represented in India by *B. mellipes* Gahan, damaging dhaincha and red gram seeds (Mani, 1938).

*B. roddi* and *B. gibbus* are noted pests, the former infesting alfalfa and the latter red clover

TABLE I  
Showing the percentage emergence of pests  
and parasites from lucerne seeds

Locality	No. of insects emerged per 100 seeds	No. of parasites per 100 insects	Incidence of pests per 100 insects (females)	
			<i>B. gibbus</i>	<i>B. roddi</i>
I A.R.I., New Delhi	12.02	22.02	43.17	16.49
Pahasu U.P.	5.41	25.00	58.95	4.62
Babugarh, U.P.	23.22	16.66	36.36	30.58

seeds. As many as 83% seeds of alfalfa seeds have been reported to be damaged by *B. roddi* in the western United States (Strong, 1962b). Since this is the first record of the species, it appears necessary to ascertain the distribution and check further spread to newer fields through suitable domestic quarantines.

With a view to eliminate the confusion resulting from the indiscriminate use of the name *B. gibbus* for the eurytomid emerging from legumes, Strong (1962b) concludes that both in North America and in the Palearctic region, *B. roddi* will be used in reference to those eurytomids emerging from alfalfa and *B. gibbus* to those emerging from red clover (*Trifolium pratense*), but the record of both these species from alfalfa seeds from India does suggest a possibility of both the species infesting the same host.

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Research Institute,  
New Delhi-12, November 7, 1964.

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