million cells per ml after 10 days of inoculation. The presence of algal growth was determined visually as well as microscopically at 5-day intervals up to 30 days, and the amount of growth in each treated flask was compared to that in the control. The effect of Panacide was determined by counting the percentage number of disintegrated and bleached cells. The lowest concentration necessary to kill 100% of the cells and the failure of the treated cultures to exhibit any growth upon subculturing in fresh medium was considered to be the minimum lethal dose.

Panacide proved to be toxic to all the five test algae. When the biocide was present at more than 20 ppm the growth of *Scenedesmus*, *Chlorella*, *Myxosarcina* and *Aulosira* was strongly inhibited, and degeneration of the cells set in within seven days of the treatment. The younger populations of *Scenedesmus* and *Chlorella* were more sensitive to the chemical than older ones. *Nostoc* was even more sensitive and 100% cells could be killed by using a concentration of only 10 ppm. The toxic effect became intensified with incubation time up to 20 days, but not thereafter. The observed damage to the cells was irreversible, and the chemical could not be leached out even after repeated subculturing in fresh media.

Panacide is a good candidate for the control of common noxious and resistant algae.

The authors are grateful to BDH Chemicals, Ltd., England, for providing the sample of Panacide for screening tests.

**National Botanic Gardens**, G. S. GUPTA.
**Lucknow, May 3, 1974.** P. N. SAXENA.


**OSTRINIA KASMIRICA MOORE, A NEW HOST OF SERRATIA MARCESCENS BIZIO FROM INDIA**

The lepidopterous tissue-borer, *Ostrinia kasmirica* Moore, feeds on the thistle plant, *Cnicus arvensis* (Family Compositae), in the Kulu valley (Himachal Pradesh). With a view to study its life-history, the field-collected larvae were reared on cut-pieces of thistle stem, brought from the Kulu valley, in the laboratory (18°8'–24°9' C) at Ludhiana. Most of the hibernating larvae were observed dying of a bacterial infection. The causative organism was identified as two non-chromogenic strains of *Serratia marcescens* Bizio. The infected larvae exhibited sluggishness in crawling, anal watery discharges and shrivelling of bodies. The moribund larvae were soft to touch, brownish-black and turned jet-black after death. The microscopic examination of the anal discharges revealed the presence of small gram-negative rods.

The larvae of *Ostrinia nubilalis* (Hübner), a close relative of *O. kasmirica* and a serious pest on corn, have been reported to die of *Serratia* infections by Raun and Brooks (1963) in Iowa, U.S.A. *Serratia marcescens* has been earlier found to cause disease among the larvae of *Agrotis ypsilon* Rott. (Chattopadhayay and Mukherjee, 1955), *Nephanis serinopa* Meyrick (Antony and Kurien, 1961) and *Azygophleps scalaris* (Rangaswami et al., 1970) under field conditions in India. The cultures of *Athalia proxima* Klüg (Bogawat et al., 1966) and *Prodenia litura* (Fabricius) (Pandey and Rangarajan, 1967) were also observed to suffer heavy mortality due to this bacterium in the laboratory. The present report of mortality among the field-collected hibernating larvae of *O. kasmirica* owing to *S. marcescens* is the first record from India.

The research work was financed under PL-480 Project A7-Ent-43 by the Agricultural Research Service of the U.S. Department of Agriculture. The authors are grateful to Dr. Yoshinori Tanada and Mr. Gerard M. Thomas of the University of California, U.S.A., for identification of the pathogen.

**College of Agriculture**, BAILAO SINGH.
**Punjab Agricultural University**, G. S. BATTU.
**Ludhiana, May 16, 1974.** A. S. ATWAL.