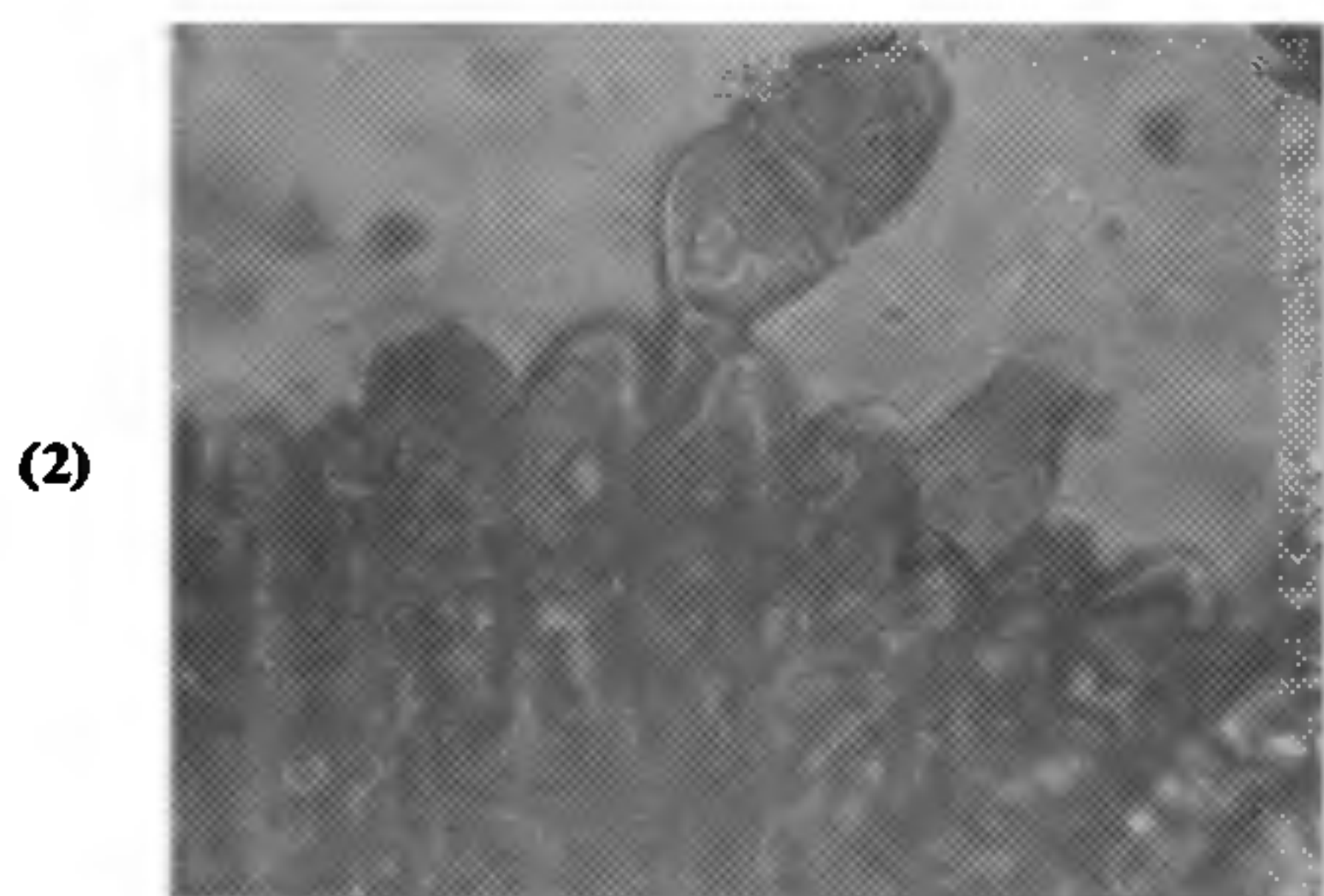
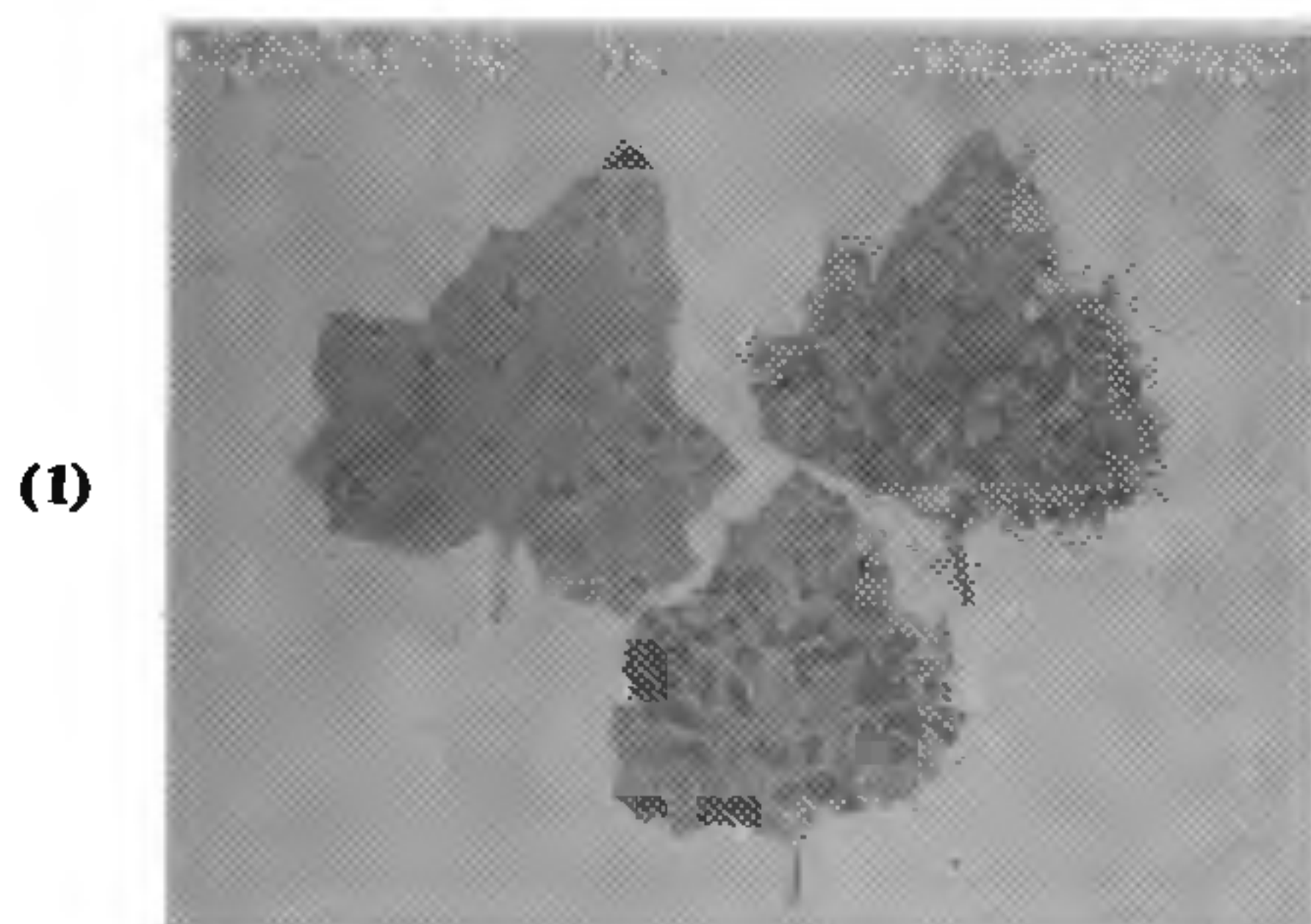


PUCCINIA XANTHII SCHW.—A FIRST REPORT FROM INDIA

DURING August–September 1977, the authors observed severe infection of rust on *Xanthium stromarium* L., in the vicinity of College premises. The specimen was sent to Commonwealth Mycological Institute, Kew, for identification and Dr. E. Mordue confirmed the fungus as *Puccinia xanthii* Schw. (IMI 217561).

P. xanthii has not so far been reported from India but has been reported from many other countries of the world (Parmelee⁶). Apart from *Xanthium* sp., it has been reported on *Helianthus annuus*, *Callendula officinalis* (Alcorn^{1,2}) and *Ambrosia* spp. (Parmelee⁶).

The diseased leaves show chlorotic patches on the upper surface and dark black sori on the lower surface. Rarely some sori were noticed on upper surface also. Severely affected leaves were distorted and curled. Only telial stage could be seen (Fig. 1).



FIGS. 1–2. Fig. 1. Symptoms of *Xanthium* rust. Fig. 2. Teliospores of *P. xanthii*.

P. xanthii Schw. is autoecious and microcyclic producing only telia. Telia are pulvinate in compact circular groups upto 20 mm in diameter, individually brown but dark brown to black in clusters, becoming ash coloured from centre. Teliospores narrowly ellipsoidal to obovoid, with round to obtuse apex and tapered base, usually constricted at septum, $40.0\text{--}56.7 \times 17.7\text{--}23.6\text{ }\mu\text{m}$; Pedicels persistent yellow to

brown, $25\text{--}35\text{ }\mu\text{m}$ long; Teliospores wall dark brown, smooth, $1.0\text{--}1.5\text{ }\mu\text{m}$ at side and $3.0\text{--}4.0\text{ }\mu\text{m}$ at apex; Pores apical and septal (Fig. 2). Germination of teliospores was observed *in situ* showing ashy layer of promycelium bearing sporidia. Promycelium septate, four celled, basidiospores round to oval.

Kuhnoltz–Lordat⁴ observed paraphysate telia but the authors did not observe the paraphyses as is also reported by Parmelee⁶ in the North American material.

Morphologically *P. xanthii* resembles *P. melampodii*, *P. zinea* and *P. tridacis* (Arthur³). Contrasting characters are not given for *P. melampodii* and *P. xanthii* as primary separation is based on the hosts, which were treated at that time in different tribes of Compositae. Alcorn² found no morphological difference between *P. xanthii* and *P. flaveriae*. Parmelee^{5,6} noted that *P. melampodii* was morphologically indistinguishable from *P. xanthii* but maintained the separate species because of the lack of cross inoculation evidence.

The authors are thankful to Professor P. D. Wangikar, Head, Plant Pathology Department and to the Associate Dean, College of Agriculture, Akola, for providing the facilities and suggestions. The authors are also thankful to Director, CMI, Kew, for confirming the identity of the fungus.

Plant Pathology Department,
College of Agriculture,
Akola 444 104,
March 6, 1978.

A. N. JADHAV.
R. B. SOMANI.

1. Alcorn, J. L., "Rust on *Xanthium pungens* in Australia," *Australian Plant Pathology Society Newsletter*, 1975, 4, 14.
2. — and Kochman, J. K., "A field record of *P. xanthii* on sunflower," *Ibid.*, 1976, 5, 33.
3. Arthur, J. C., *North American Flora of Uredinales*, 1922.
4. Kuhnoltz–Lordat, M., "*P. xanthii*," *Bull. Soc. Mycol. Fr.*, 1942, p. 192.
5. Parmelee, J. A., "The autoecious species of *Puccinia* on Helianthae in North America," *Can. J. Bot.*, 1967, 45, 2267.
6. —, "The autoecious species of *Puccinia* on Helianthae (Ambrosiaceae) in North America," *Ibid.*, 1969, 47, 1391.

POWDERY MILDEW OF HORSE GRAM

Introduction

HORSE GRAM (*Dolichos biflorus* L.) is one of the important pulse crops grown in Maharashtra State. In the month of December 1977 powdery mildew disease was observed by the author infecting the horse gram crop on the Agricultural College Farm. The review of literature revealed that the disease had not been reported so far from India or elsewhere.

Symptoms

Infection spreads from lower to upper leaves and the symptoms are seen on both the surfaces of leaves in the form of small circular brown spots to start with. Later the spots enlarge and are covered by the powdery growth of the fungus (Plate 1). The infection takes place at an early stage of the plant growth, continues even after pod formation, but is confined to the leaf lamina only.

Morphology of the fungus

Microscopic examination revealed the presence of the conidiophores bearing each a chain of conidia numbering from 4 to 8 (Plates 2 and 3). The conidiophores are short, hyaline with 2 to 3 septa. Conidia measure $16.8 - 33.6 \times 13.2 - 26.4 \mu$. Under humid conditions on a dry slide, the conidia germinated by producing a single germ tube.

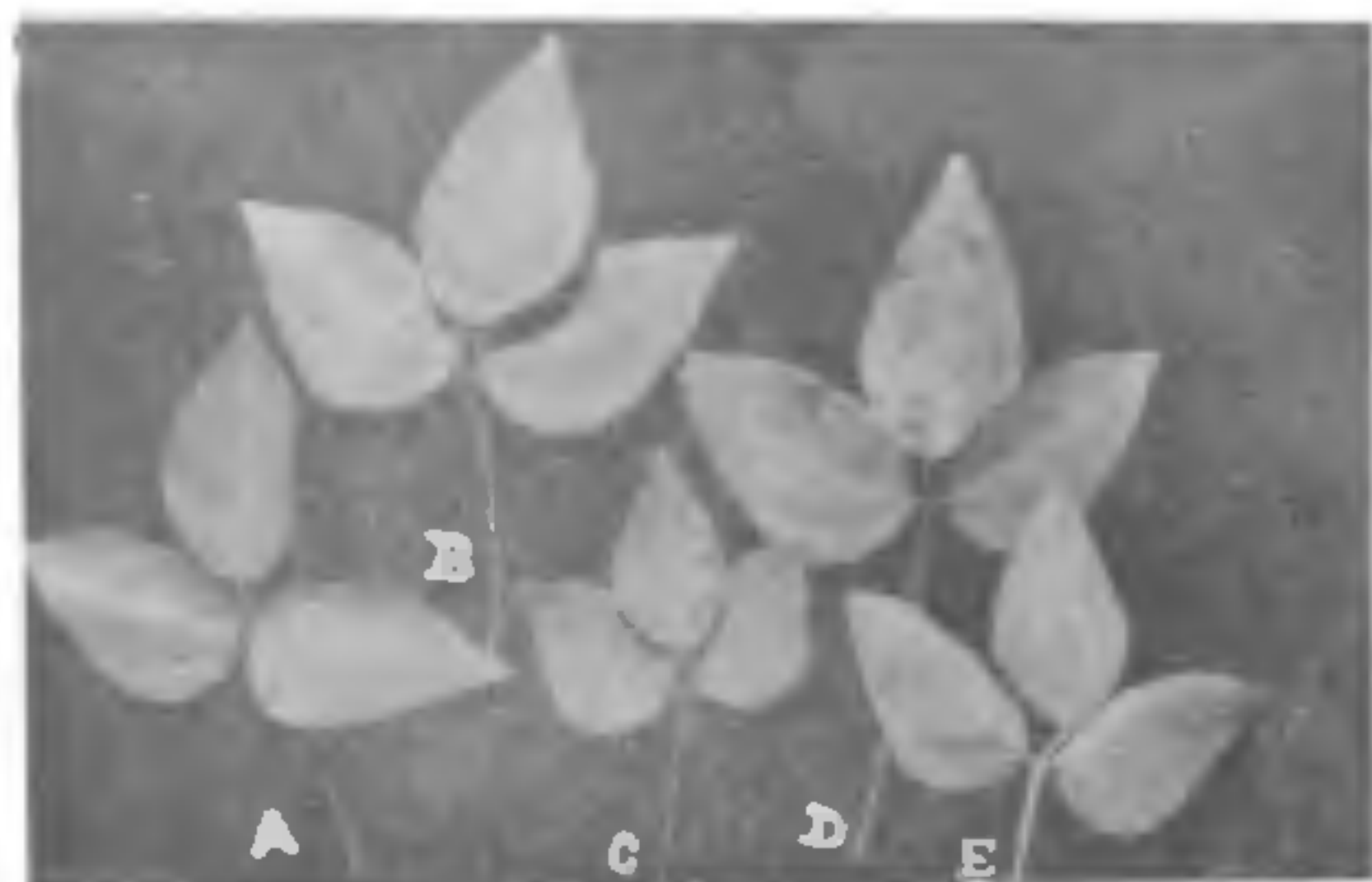


PLATE 1. A—Healthy leaf, B, C, D—Developmental stages of the disease symptoms; E—Symptoms on the lower surface of the leaf.



PLATE 2. Conidiophores with conidia in chain on host cell, $\times 192$.

The mycelium is superficial, creeping, hyaline, septate and branched. In the absence of any cleistothecial bodies the exact species of the pathogen could not be ascertained. From the shape and mode of formation of the conidia the fungus is identified

as species of *oidium*. Pathogenicity of the causal organism was proved by dusting dry conidia on the young healthy leaves of the plants. The disease symptoms appeared on the 5th day after inoculation.



PLATE 3. Conidia in chain, $\times 192$.

The author is grateful to Professor S. G. Abhyankar, Head, Department of Plant Pathology, for guidance and to Dr. S. B. Kadrekar, Associate Dean, for providing facilities. Thanks are also due to Mr. V. C. Lele, Mycologist, IARI, New Delhi, for identification of the pathogen.

Dept. of Plant Pathology, J. S. SARDESHPANDE,
College of Agriculture,
Dapoli, Dist : Ratnagiri,
Maharashtra State, March 8, 1978.

1. Rangaswamy, G., *Diseases of Crop Plants in India*, 1972, p. 269.

INDUCTION OF SPORULATION IN *CLATHRIDIMUM CORTICOLA* (FCKL.) SHOEM. AND MULLER

CONIDIAL state of *Clathridium corticola* (IMI 191203) has earlier been reported to cause a serious fruit rot disease of apple¹. Repeated isolations from the diseased tissue on potato dextrose agar medium yielded a fungus with vegetative growth only. It was grown on a