

A NEW LEAF SPOT DISEASE OF *BILBERGIA NUTANS* H. WENDL., CAUSED BY *PHOMA JOLYANA* PIROZY AND MORG.

H. S. SOHI AND I. B. PRASHER

Department of Botany, Panjab University
Chandigarh 160 014, India

DURING a survey of the botanical gardens at Panjab University, Chandigarh, in the month of October, 1979, majority of the plants of *Bilbergia nutans* H. Wendl. were found to be severely infected by a leaf spot disease. The symptoms appeared as minute creamy white, oval to rounded spots on the upper surface of the leaf lamina which turned darker and irregular and were finally brown to brownish black with a light margin. Numerous spots coalesced forming large patches covering a major portion of the leaf lamina (Fig. 1). The severely attacked plants looked sickly with poor growth.

The fungus *Phoma jolyana* Pirozy and Morg. was isolated from the infected tissues and inoculation tests with its pycnidiospore suspension produced typical symptoms in 30-40 days.

In culture, the pycnidia were globose to sub-globose, light brown to black, ostiolate, thick walled, 145-160 \times 70-105 μ in diameter; conidia were single-celled,



FIG. 1. Symptoms in the advanced stage of infection.

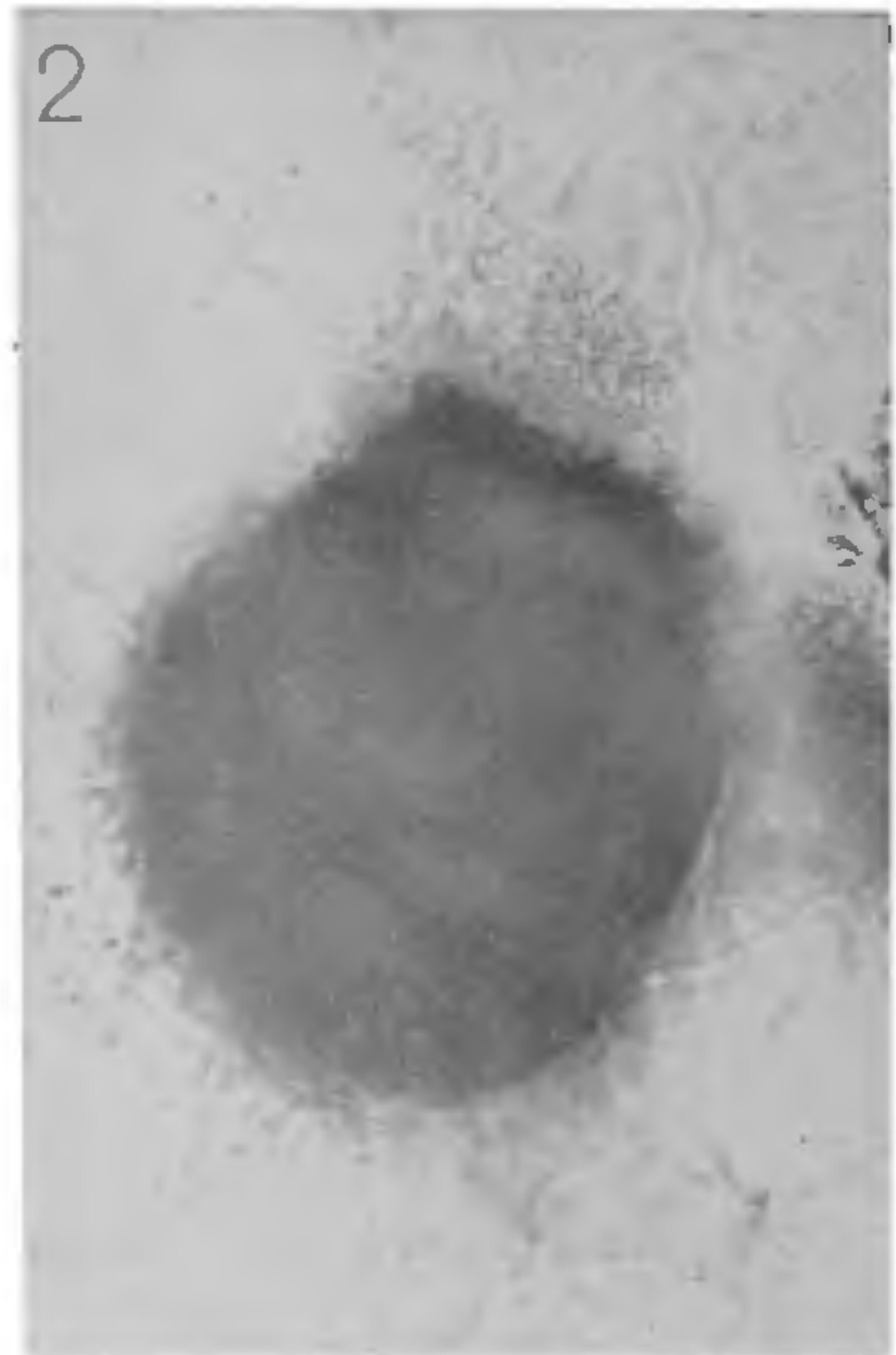


FIG. 2. Photomicrograph showing pycnidiospores oozing from the pycnidium (\times 280).

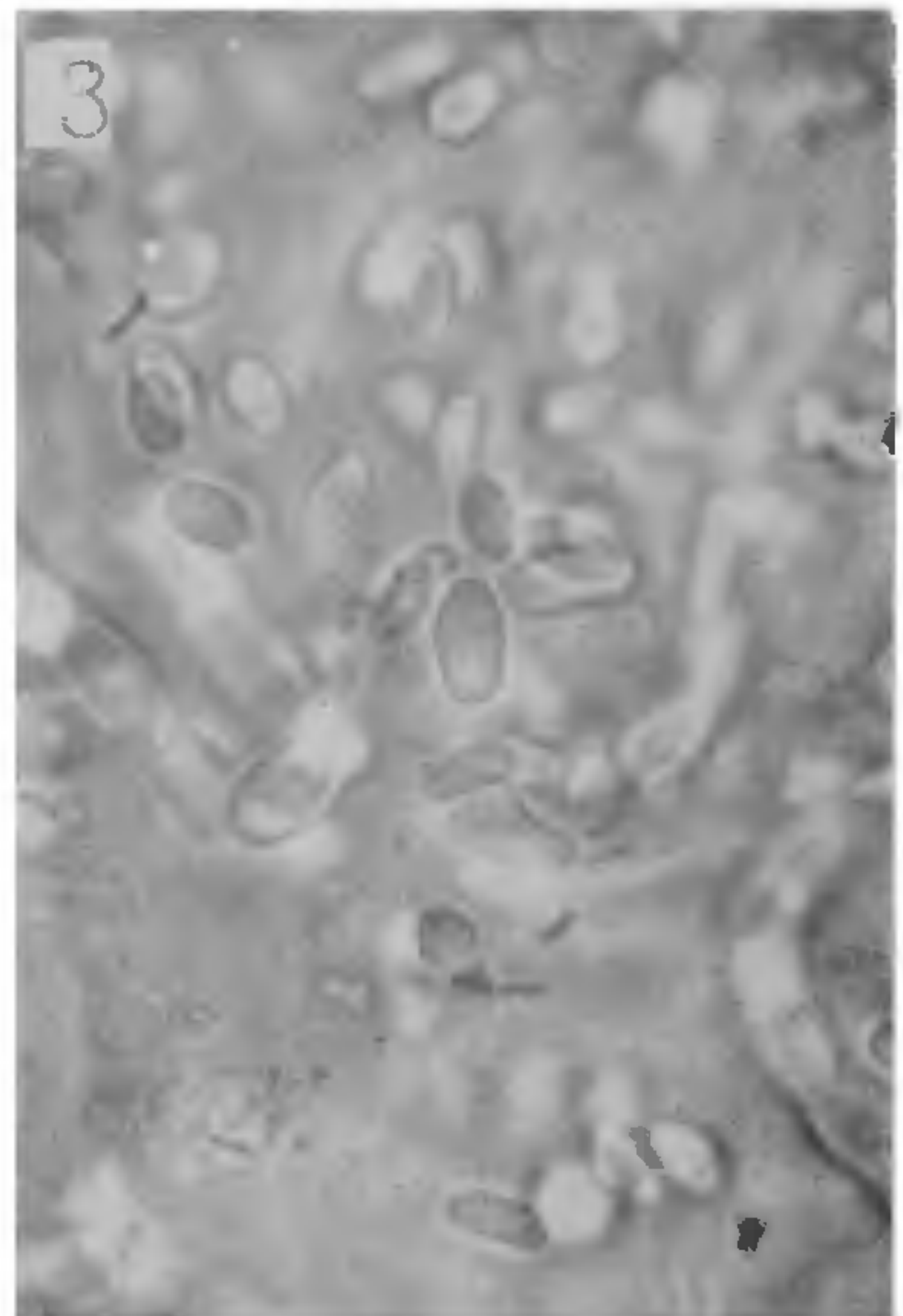


FIG. 3. Photomicrograph showing pycnidiospores (\times 1120).

hyaline, oval, $2.8-8.5 \times 2.7-5.5 \mu$, rounded at both the ends (Figs. 2 and 3).

The identity of culture was confirmed by CMI, Kew, Surrey, England, and was deposited under IMI. 2450004.

Phoma jolyana Pirozy and Morg. has been reported to cause leaf spot disease in *Citrus aurantifolia*¹ and pre-harvest rot of Banana fruits² in India. But its occurrence on *Bilbergia nutans* is a new record.

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2. Khare, M. N. and Dhingra, O. D., *Sci. and Cult.*, 1975, 41, 117.

ABNORMAL STOMATA IN THE BULB-SCALES OF *ALLIUM CEPA* L.

PARVEEN FAROOQUI (NEE KIDWAI)*

Department of Botany, The University, Allahabad, India

FOSTER¹ has mentioned the presence of "abortive" or "abnormal" stomata on the epidermis of the bulb-scales of onion, but no details are given. Scott *et al.*² have categorically stated that "no stomata are present" in the epidermis of the bulb-scale. In view of the contradictory observations, it was thought worthwhile to re-examine the epidermis of the bulb-scales of onion.

The epidermis from the adaxial as well as abaxial surfaces of the local variety of onion were separated and mounted and examined in safranin glycerine jelly.

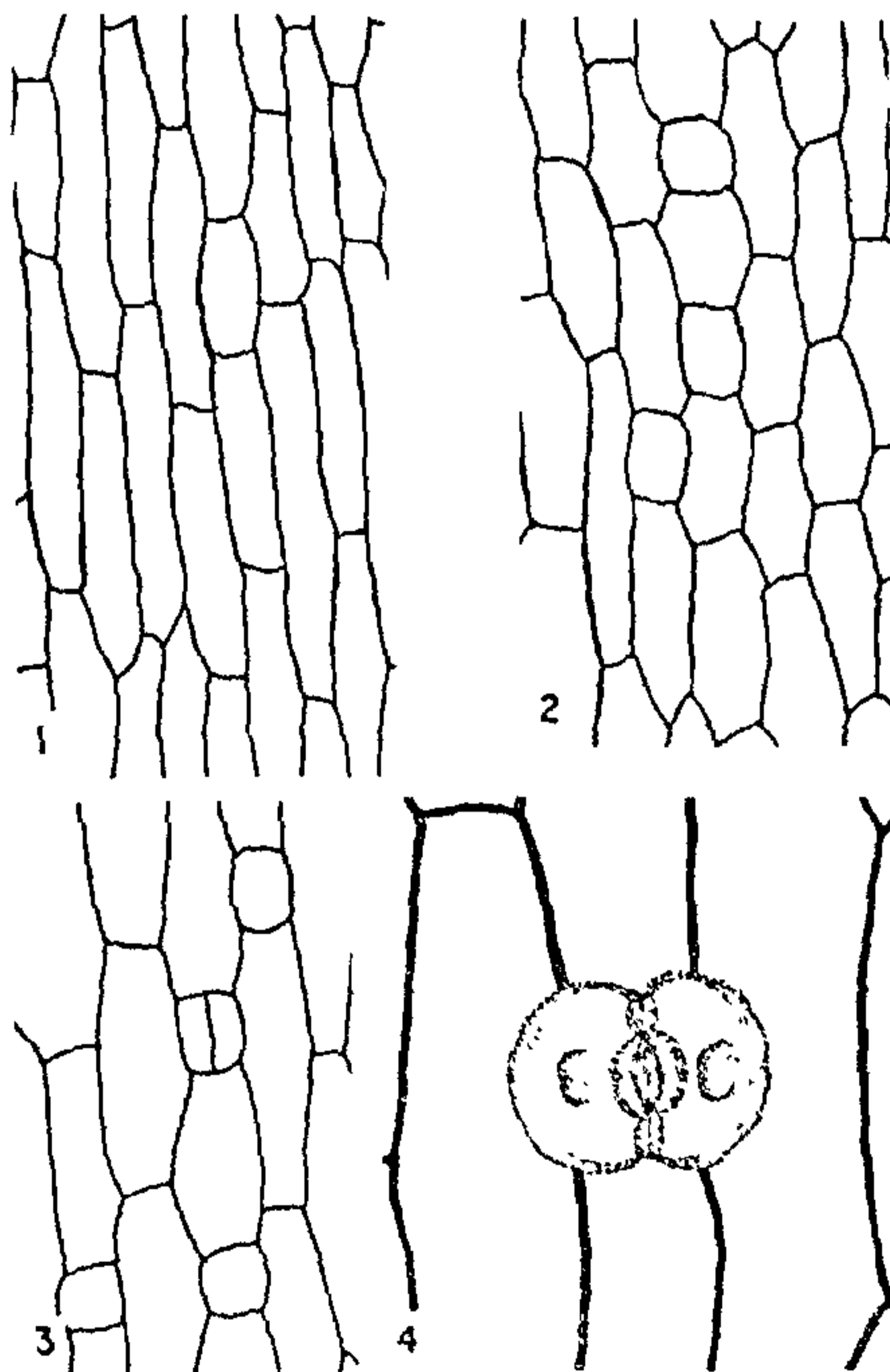
The cells on both the epidermal surfaces (Fig. 1) are longitudinally elongated and regularly arranged. They are about $250 \times 50 \mu$ in size and show simple pits in their walls. Those of the abaxial surface are somewhat smaller and narrower. The following types of aberrant stomata were noticed.

1. *Arrested stomata*: These occur intermixed between the elongated cells on both the epidermal surfaces in the form of short (about $80 \times 50 \mu$), somewhat rounded cells (Fig. 2). Some of these are divided into two by a wall parallel to the long axis (Fig. 3). The arrested structures are more common on the

scales towards the outside of the bulb obviously because they are exposed to the outer atmosphere and light, whereas, the deeper unexposed layers lack such stomata.

2. *Apparently nonfunctional stomata*: Small stomata (about $55 \times 59 \mu$) with the pore walls, strongly thickened and almost obliterating the pore, are also present. These stomata also have polar lamellae and the epidermal wall of the guard cells is thickened (Fig. 4).

Onion bulb-scales form ideal material for the study of stomatal abnormalities. Morphologically they are leaves and presence of stomata could be expected but as they function as storage organs, the stomata are modified and non-functional. In the present study, two different types of abnormalities were noticed. Different types of aberrant stomata have recently been reviewed in detail by Farooqui³ but even she has not mentioned the non-functional stomata as described here.



FIGS. 1-4. *Allium cepa*—Abaxial epidermis of bulb-scale. Fig. 1. Ordinary epidermal cells from inner scale ($\times 340$). Fig. 2. Arrested stomata ($\times 340$). Fig. 3. Arrested stomata, one showing division into guard cells ($\times 340$). Fig. 4. Apparently non-functional stoma with thickened walls ($\times 820$).

* Present Address: Forest Research Centre, Coimbatore 641 002, India.