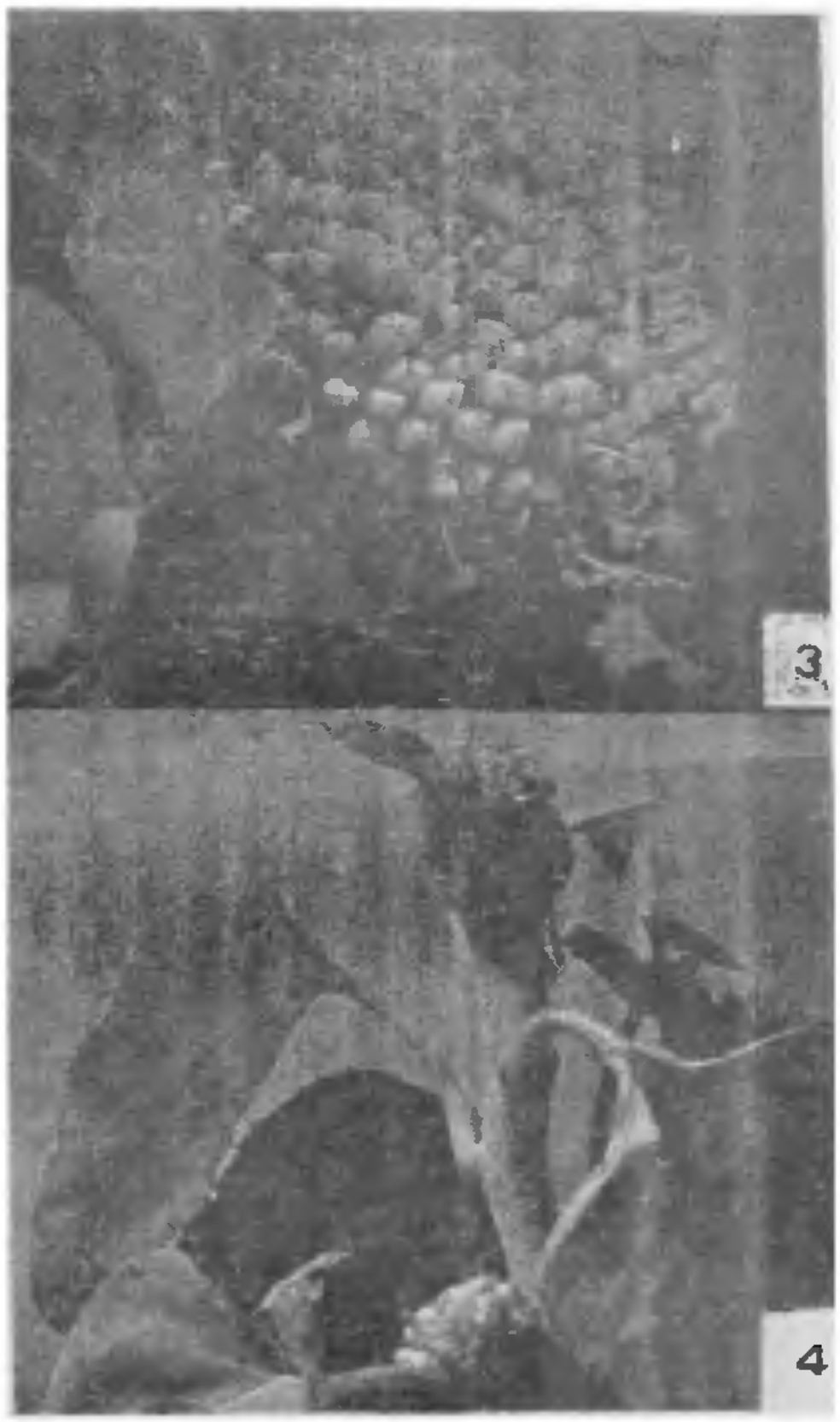
apomixis, permanent heterozygotes could be maintained without loss in vigour or yielding ability. This would be particularly useful in perpetuating F_1 hybrids, without having to resort to fresh hybrid seed production every year.



PLATES 3–4. Plate 3. Appearance of head after the formation of seeds. Note the presence of persistent stigmas. Plate 4. Appearance of heads at the time of flowering. Note the absence of sepals and ray florets.

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SEED MYCOFLORA OF MAIZE WITH REFERENCE TO MYCOTOXINS

BANSWARA and Dungarpur districts of Rajasthan experienced an outbreak of hepatitis affecting men and dogs in October 1974. Several patients died. The maize and other grains used were found affected by *Aspergillus flavus* Link ex Fries which produced Aflatoxin B_1. Krishnamchari *et al.* (1975) have attributed the deaths due to aflatoxicosis. Subsequently in October 1975, Banswara district was surveyed and samples of the grains were collected from 39 villages.

Villages where hepatitis had occurred in October 1974 were also surveyed and maize grains from the produce of *Kharif* 1974 were collected. Similarly cobs covered with husk were also collected from the field to study seed mycoflora already present before grains were collected. The seeds (300), were surface sterilized for two min. with 0·1% mercuric chloride, washed twice in sterile distilled water and plated on salt-malt-agar medium autoclaved for 20 min. at 15 lbs. Petri plates were incubated at 28 ± 1° C for a week and thereafter fungi grown were identified. Their cultures were maintained on potato dextrose agar (PDA).

It is evident from Table 1 that the fungi isolated from the grains of *Kharif* 1974 and from the grains removed from the cobs directly collected from the fields were usually different. The maize cultures of *Aspergillus amstelodami* were toxic to poultry and rabbits (Rabie *et al.*, 1964). *A. flavus* is known to produce aflatoxin B_1, B_2, G_1 and G_2. *A. niger* and *A. ruber* produce aflatoxin B_1 only. Aflatoxin B_1 is more injurious and affects liver. *A. tamarii* produce Kojic acid, a pyrone compound (Yabuta, 1924 which is toxic to most animals. *A. terreus* produce toxic substance-like terric acid, terrin (Raistrick and Smith, 1935 and epidithiapiperazindion (Cosulich *st al.*, 1968). *F. equiseti* produces an unusual mycotoxin named diacetoxyscirpenol (Brian *et al.*, 1961). *F. moniliforme* mycotoxin is an emetic (Prentice *et. al.*, 1959) and/or estrogenic (Christensen *et. al.*, 1965), Outbreaks of mouldy corn poisoning, cheifly infested with *F. moniliforme*, have been reported from Egypt Badiali *et. al.*, 1968). Symptoms indicated a neurological disorder. Joffe (1960) has reported production of toxic metabolites by F. semitectum. Occurrence of these fungi on food grains is almost a natural phenomenon. These fungi became active under congenial conditions. Whenever food grains get wet after harvest, the danger of mycotoxin production becomes imminent.

Some of the fungal metabolites may not be toxic but may potentiate the activity of some other harmful

TABLE I

Fungi isolated from maize grain samples collected from Banswara District of Rajasthan in October 1975

Species	Maize grains of 1974	Maize grains removed from cobs
Acremonium strictum W. Games	—	+
Alternaria tenussima (Kunee ex Pers.) Wiltshire	—	+
Aspergillus amstelodami Thom and Church	—	+
A. flavus	+	+
A. niger van Tiegh	+	—
A. ruber Thom and Church	+	—
A. sejunctus Bainier and Sartory	+	—
A. tamarii Kita	+	+
A. terreus Thom	+	+
A. ustus (Bainier) Thom and Church	+	—
Botryodiplodia theobromae Pat.	+	+
Cochliobolus spicifer Helson	+	+
Curvularia clavata Jain	+	—
C. lunata (Wakker) Boedijin	+	+
Curvularia state of *Cocohlibolus lunatus*	—	+
Cystosphaera mangifera Died	+	—
Drechslera australiensis (Bugnicourt) Subram. and Jain ex M. B. Ellis	—	+
Drechslera state of *Setoshaeria rostrata* Leonard	—	+
Drechslera state of *Cochliobolus carbonus* Nelson	—	+
Drechslera holodes (Drechsler) Subram. and Jain	+	—
Fusarium acuminatum Ell. and Ev.	+	+
F. equiseti (Corda) Sacc.	+	—
Fusarium moniliforme Sheld.	+	+
F. semitectum Berk and Rav.	+	—
Macrophomina phaseoli (Tassi) Eoid.	+	—
Macrophomina sp.	—	+
Nigrospora sphaerica	—	+
Penicillium funiculosum Thom	—	+
Penicillium guniculosum Thom	+	—
Penicillium sp.	—	+
Phoma glomerata (Corda) Wollenw and Hochapf	—	+
Phoma sorghina (Sacc.) Boerema	+	—
Syncephalastrum racemosum Cohn ex Schroeter	—	+

compounds such as aflatoxins. Wogan asd Mateles[10] (1968) have reported that rubratoxin and aflatoxin B_1 act synergistically. Occurrence of several fungi particularly those known to produce toxins, pose this problem on maize. Further investigations are under way to discover as to how the various mycotoxins react with one another when the fungi producing them occur in the same grain lot.

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TWO NEW SOFT ROT DISEASES OF ONION BULBS IN STORAGE

SOME diseased onion bulbs (*Allium cepa* L.) were covered with black spores which were present even in between the scales showing rotting symptoms. Small bits of the diseased bulb scales were surface sterilized with 0·1% $HgCl_2$, washed thoroughly and plated on Czapek's and PDA media. The plates were incubated at 28° C (± 2° C). The fungi showing consistent growth on the bits were isolated, purified and main-