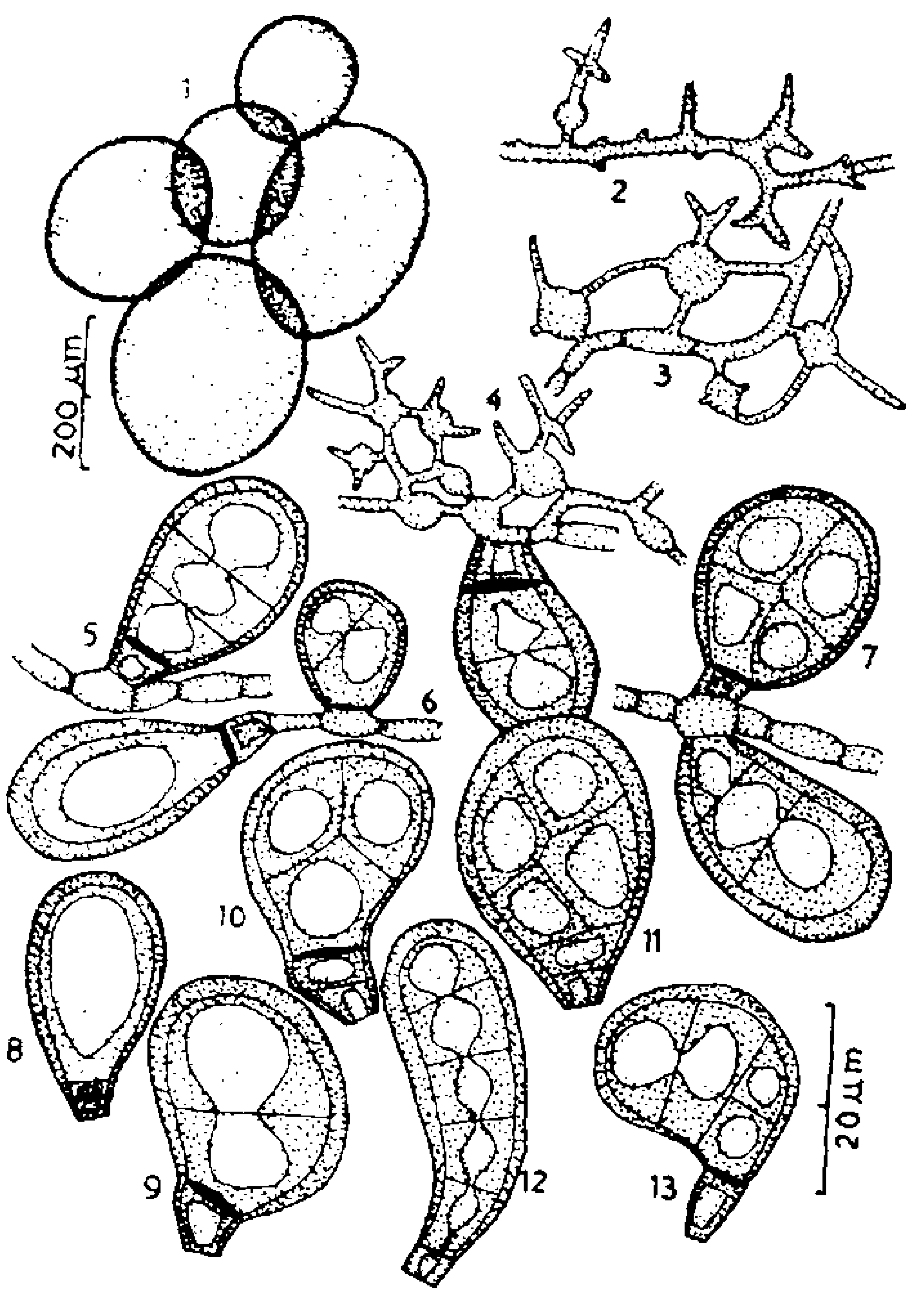

Figures 1–13. 1. Conidiomata of *X. stegonsporioides*, **2–4.** Conidiomatal hyphae with numerous bulbils with mycelioid, bi- or trifurcated structures, **5–7.** Conidia arising from aerial mycelium, **8–13.** Conidia from conidiomata.

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EFFECT OF AMMONIA ON ASSOCIATED SURFACE MYCOFLORA, SEED GERMINATION AND SEEDLING GROWTH OF *ABELMOSCHUS ESCULENTUS* L.

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FUNGAL deterioration of stored grains is high in tropical countries including India where the temperature and the relative humidity provide conducive environments for fungal growth. Ammonia is found to be effective in the treatment of grain against mould growth[1]. Ammonia is also known to have toxic effects on seeds and seedlings at a higher concentration[2,3]. In view of this the present study was undertaken to find out the effect of ammonia on associated surface mycoflora, seed germination and seedling growth of *Abelmoschus esculentus* L.

The experiments were performed in specially designed air sealed polythene chamber (1 m^4). Various concentrations of ammonia were applied by using the techniques of Tyagi *et al*[2]. Surface mycoflora was isolated by using the blotter technique[4] and agar plate method[5,6]. The isolated fungi were then grown and maintained on Sabouraud's Dextrose Agar. A loopful of conidia from these fungi was plated on agar plate and exposed to different concentrations (table 1) of ammonia for 30 min, simultaneously with the soaked and unsoaked seeds of *Abelmoschus esculentus* L. These treated seeds (5 seeds in each plate) were then grown in petri plates containing sterilized sand for five days. The agar plates were also incubated at $29° \pm 1$ for five days. Two replicates of each treatment and their corresponding control sets were also maintained. Radial growth of fungal colonies and root and shoot length of the seeds were measured after 5 days.

The experiments revealed that ammonia proved beneficial for seed germination and seedling growth at low concentration (5 ppm) for both the soaked and the unsoaked seeds (table 1). The higher concentrations (10 and 15 ppm) proved toxic to soaked seeds and 20 to 50 ppm proved toxic to unsoaked seeds while 20 to 50 ppm proved lethal to the soaked seeds. In the case of unsoaked seeds, 10 and 15 ppm concentrations of ammonia promote the growth of the shoot and root length while 20 and 50 ppm inhibit the growth of root and shoot length. The observation further shows that unsoaked seeds resist the inhibitory effect of ammonia better than soaked seeds; this might be due to their tough seed coat.

Table 1 *Effect of various concentrations of ammonia on* % of germination and seedling growth of *Abelmoschus esculentus L.*

Treatment (Conc. in ppm)	% of germination		Linear growth in cm.			
			Soaked		Unsoaked	
	Soaked seeds	Unsoaked seeds	Shoot	Root	Shoot	Root
Control	80	80	5.9	1.9	4.8	1.5
5	100	100	7.5	2.5	7.5	3.0
10	60	100	3.1	2.1	5.6	2.5
15	60	100	3.0	2.2	5.3	2.5
20	0.0	20	0.0	0.0	4.6	1.0
30	0.0	20	0.0	0.0	4.4	1.0
50	0.0	20	0.0	0.0	4.5	1.0

Ammonia doses at 5 and 10 ppm are fungistatic for *Aspergillis niger*, *Alternaria alternata* and *Fusarium* sp *Curvularia* sp hardly shows any inhibitory effect at 5 ppm, but it does show inhibitory effect at 10 and 15 ppm. However, *Cladosporium* sp does exhibit a fungicidal effect at all the concentrations of ammonia used in this experiment (table 2).

The inhibitory effect of ammonia is perhaps due to the inhibition in the production of ATP in the mitochondrial electron transport system. These results indicate the possibility of using ammonia in store houses for periodical fumigation only at low concentration.

Table 2 *Effect of various concentrations of ammonia on fungi associated with the seeds of Abelmoschus esculentus L.*

Name of Fungi	Treatment (Conc. in ppm)	Radial size of colony	Inhibition %
Aspergillus niger	Control	2.1 × 1.9	0
	5	1.5 × 1.9	37
	10	1.1 × 1.0	80
	15	0.0 × 0.0	100
Alternaria alternata	Control	3.0 × 2.5	0
	5	1.6 × 1.9	60
	10	0.9 × 0.9	89
	15	0.0 × 0.0	100
Cladosporium sp.	Control	0.7 × 0.8	0
	5	0.0 × 0.0	100
	10	0.0 × 0.0	100
	15	0.0 × 0.0	100
Fusarium sp.	Control	1.0 × 1.0	0
	5	1.0 × 1.0	0
	10	1.0 × 0.7	30
	15	0.7 × 0.4	72
Curvularia sp.	Control	6.0 × 4.8	0
	5	5.5 × 4.5	15
	10	3.0 × 0.5	90
	15	1.6 × 1.6	90

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VEGETATIVE PROPAGATION AND ITS ADVANTAGES IN EGGPLANT (*SOLANUM MELONGENA* L)

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ALTHOUGH eggplant is grouped under self-pollinated crops, variation in open-pollinated varieties/pure lines over the years, has been observed to occur. Studies have shown that 60 to 70 % fruit set in eggplant takes place through the agency of insects, of which Bumble bees are the most active vectors of pollination[1]. Interplant cross-pollination in Annamalai[2] was 1.9 to 10.9 %. In Delhi[3] cross-pollination occurrence ranged between 0.2 and 1.99 %. Certain isolation distance is, therefore, recommended for preserving the genetic purity of a variety.

Sometimes, land limitation or other constraints may cause contamination in the seed crop. To overcome such factors and to preserve the genetic purity of a