protein production per plant is calculated by multiplying seed protein percent and grain yield, divided by 10 in order to adjust in a single histogram. The protein yield superiority is maintained constantly by the mutant in 5 generations of testing. This enhancement, may, however, represent the protein-yield threshold in this genotype beyond which further increase of one trait is likely to go at the cost of other. The slightly increased shoot height of IRm-6 (table 1) is not detrimental because it exhibits resistance to lodging. Isolation of an early, productive, salt-tolerant, fine-grained mutant of IR-8 represents a progress in rice improvement through induced mutations. Thus induced mutations seem to have a great potential in rice as the two improved mutants in Jhona-349 and a long fine-grained recombinant of these mutants were developed recently in this crop[6].

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## TWO NEW DISEASES OF ORNAMENTAL PLANTS: FUSARIUM ROT OF *GLADIOLUS* AND *MAMMALARIA* SPECIES

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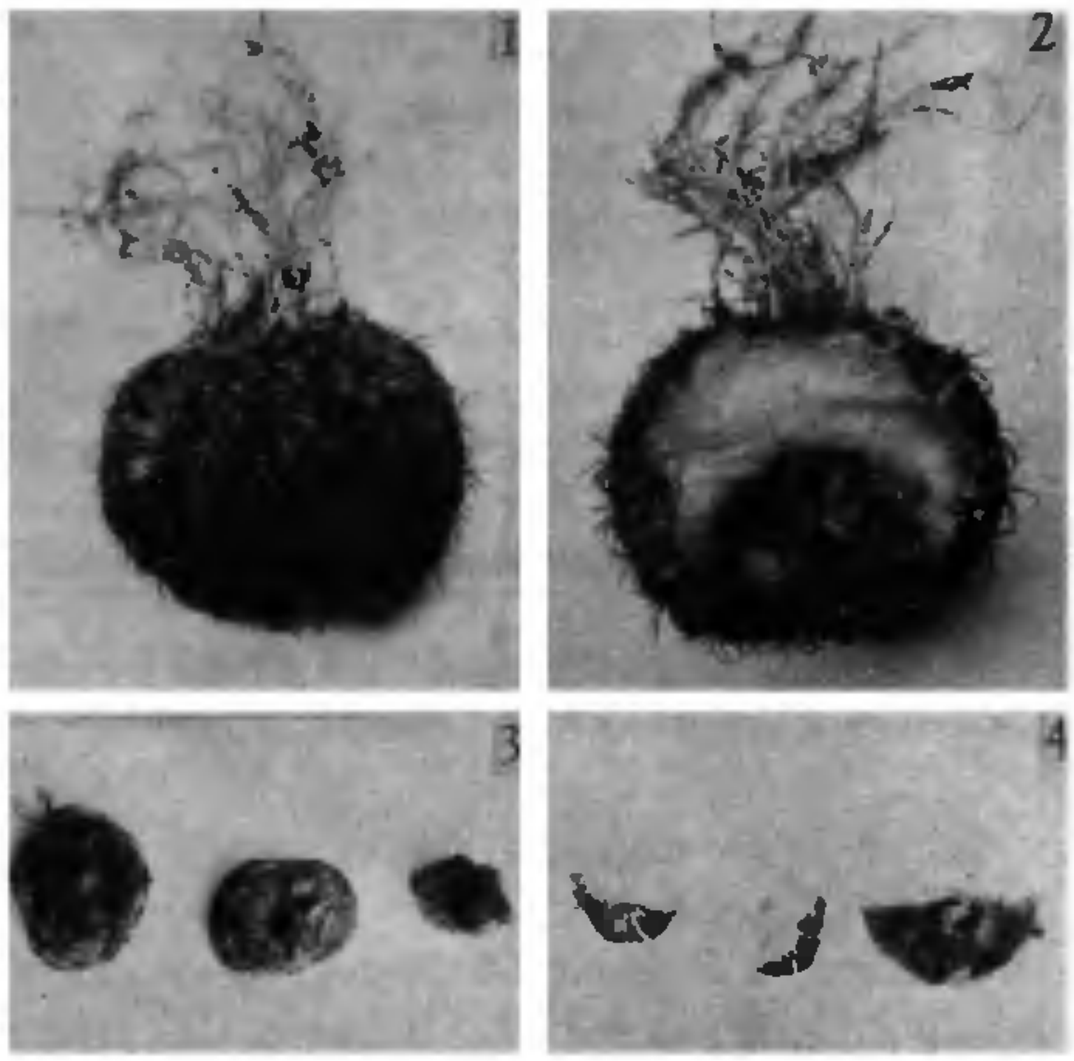
DURING a survey in the vicinity of Delhi and also in private orchards, rotting of corms and bulbs of *Gladiolii* and *Mammalaria* was prevalent resulting in heavy losses as examined in storage of the above treated and semitreated seed lots (figures 1–4).

Infected bulbs and corms on splitting open showed symptoms of soft rotting of the cells emanating pungent odour. They became discoloured from the central region which gradually extended upwards. Under high humidity conditions followed by suitable temperature (25 to 30° C) infection appeared in the form of heavy growth of the fungus mycelium which is



**Figures 1–4. 1.** *Mammalaria* sp. A Healthy corm. **2.** Diseased corm on splitting open. **3.** *Gladiolii* sp. Healthy bulbs. **4.** Diseased bulbs overgrown with *F. solani*.

white in colour, bearing spore masses. Gradually the fungal growth encircles the whole of the bulb and corm and finally rotting sets in.

The fungus was isolated on PDA and the morphological studies of the fungus were made at 25 ± 1° C. The causal organism was identified as *Fusarium solani* (Mart.) Sacc. in both the plants. A survey of the literature[1,2] reveals that *F. solani* is being reported on these hosts for the first time from India.

The pathogenicity of the fungus was established by confirming Koch's postulate in both the cases. The culture of the fungus has been deposited in Indian Type Culture Collection (ITCC No. 1804), Mycology Division, IARI, New Delhi.

Four systemic fungicides *viz* Thiram, Bavistin, Agalol and Mercuric chloride were tested for their relative efficacy *in vitro* at 0.1–0.5% dissolved in 1000 ml of water. The affected bulbs and corms were dipped in the above solutions ranging from 5–30 min. These were then air-dried and resown in earthen pots. It was observed that of all the fungicides tested Agalol gave best emergence at the concentration of 0.5% followed by mercuric chloride and Bavistin (as compared with the control).

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## ISOLATION OF *BORDETELLA PERTUSSIS* FROM A PUBLIC TELEPHONE

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THE isolation of *Bordetella pertussis* has been attempted by many workers[1,2]. In a study of 62 clinically-diagnosed cases of whooping cough in Bombay[3], not even a single strain of *B. pertussis* could be isolated. Similarly 52 children (aged between 1.5 months to 11 years) clinically suspected to suffer from whooping cough, were studied in Chandigarh[4]. The organism could be isolated in only four cases. The present study concerns the extra-human isolation and identification of a *B. pertussis* strain to understand the microbiological pattern of pertussis infection.

A specimen was collected from a telephone available for general use by public, at the Head Post-Office of Jabalpur City. Sampling was done by swabbing the telephone mouthpiece with sterile swab moistened with casein-hydrolysate basal medium[5] and stabbing into a tube of transport medium (Oxoid charcoal agar with 0.25 unit of benzyl penicillin/ml). Within two hours the swab was streaked gently on plates of Oxoid charcoal agar cm 119 (with 10% horse blood, 0.25 unit of benzyl penicillin/ml and 2 $\mu$g/ml of M & B 938) and Oxoid Bordet-Gengou medium cm 267. Growth appeared after three days of aerobic incubation at 35° C. Colonies were smooth and raised with glistening appearance and pearl-like lustre. Further incubation gave them a greyish white colour. A mucoid substance was produced by the culture and the growth was stickly and tenacious.

Microscopic examination of the culture revealed that it is a small coccobacillus (1–1.4 $\mu$ long and 0.2–0.5 broad). The organism was gram-negative, non-motile and non-sporing. The bacterium was not able to utilize the citrate as the sole source of carbon and could not be grown on plates of 5% sheep blood agar and peptone agar medium. Acid production and oxidative nature of organism were determined by oxidation-fermentation medium[6]. The organism was identified by slide agglutination test with standard sera of Burroughs-Wellcome, England. The isolated strain belongs to sero-type 1,3.

Fresh encapsulated culture showed pathogenic potentiality in mice when inoculated intranasally as well as by intraperitoneal route. Prolonged laboratory passage led to pleomorphism and the capsule and virulence were lost.

*B. pertussis* is a common cause of whooping cough in children upto the age of 10 years[7]. Since children of this age group are not generally users of a public telephone, no link could be established between infectant transmission and contaminated telephone. However, epidemiological importance of this report cannot be ignored as preponderance of 1,3 type strain is worldwide[8]. To our knowledge, this is the first isolation of *B. pertussis* reported from a non-clinical specimen. The technique described may allow the detection and isolation of *B. pertussis* from a wide range of inhabitants where it is present and at the same time facilitates the understanding of the ecology of the bacterium.

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