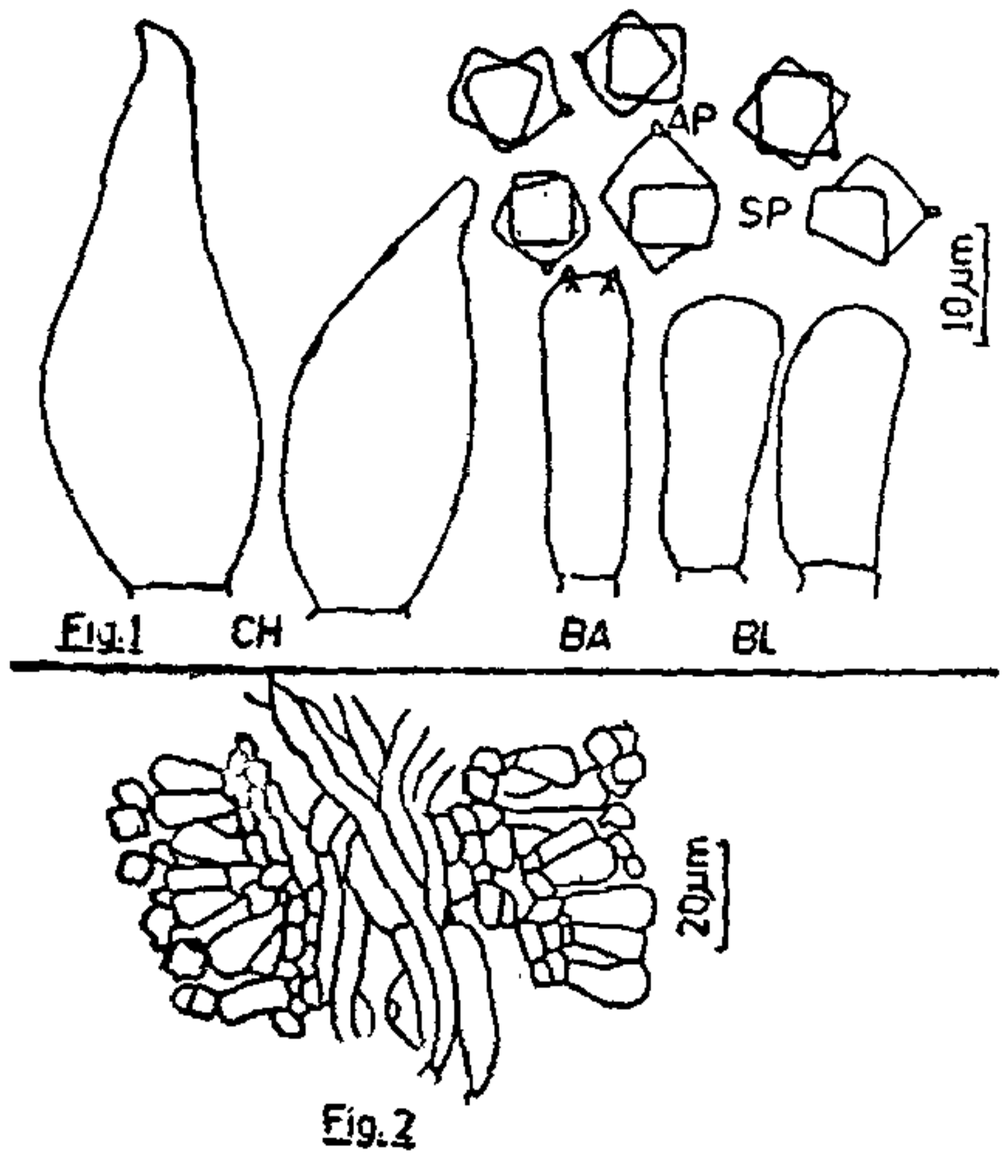


Fig.1

Fig.2

FIGS. 1–2. Fig. 1. Camera lucida drawings showing : Cheilocystidia (CH); Basidia (BA); Basidiole (BL); Spore (SP) with Apicule (AP). Fig. 2. Camera lucida drawing of part of V.S. gill.

lamellar surface euhymenial; subhymenium well differentiated, 8·6–16·8 µm wide; pleurocystidia absent; basidioles hyaline, clavate, 17·2–22·9 × 8·6–11·4 µm; lamellar edge sterile with cheilocystidia, 28·6–48·6 × 14·3–17·1 µm hyaline, fusoid with conical rounded apex.

Stipe : 1·5–3·1 × 0·5–0·3 cm; concolorous with pileus but paler; central; smooth; cylindric, dilated at apex; stuffed.

Hyphal System : Monomitic, generative hyphae thin-walled without clamp connections, 5·7–14·3 µm broad in pileus; 5·7–14·3 µm broad in lamellae; 2·1–14·3 µm broad in stipe, non-amyloid, strongly cyanophilous.

Basidiospores : In mass salmon coloured when fresh, changing to light ochreous; (7·1) 8·6–10·7 µm; cuboid; non-porate; with lateral apicule — 0·7 µm long; wall smooth, pale ochreous in ammonia solution, non-amyloid, strongly cyanophilous.

Habitat : On forest soil.

Growth type : Solitary

Material Examined : AMH 4037 (M–548) Holotypus.

Latin Diagnosis :

Entoloma ochrospora sp. nov. Sathe and Kulkarni

Habitus Tricholamatoideus. Plicus 1·5–2·5 cm latus, hemisphericus ad plano-convescens, infundibuliformis in exsciccatus pallide luteous, glabrus, carnosus; integri margo, inflexa siccitate; pilei pagina epicute constata hyphis pariete tenui, prunneola; hyphis fibulis nullis; subcutis constata 3–4 strata, 40–55 µm lata, hyphis 10–14·3 µm lata, hyalino; pili nulli pileocystidia nulla; contexus 270–330 µm latus, pallidus luteo brunneo. Lamellae emarginatae; inaequales habentes lamellulae tri longitudum; salmonei ubi vivae, ochraceae ubi exciccatae; carnosu; 77–121 µm lati ad bases, 44–65 µm latu ad apices; dispositae ad 330–350 µm intervalla; trama subirregulares mediostrates definifibus; paginarum euhymenio; subhymenio formosis 8·6–16·8 µm lata; pleurocystidis nullis; basidiolis, hyalinis, clavatis, 17·2–22·9 × 8·6–11·4 µm; marginibus, sterilis, cheilocystidis 28·6–48·6 × 14·3–17·1 µm; hyalinus, fusiformis rotundatis apice. *Stipes* 1·5–3·1 × 0·15–0·3 cm, pilei coloratised pallidi; centralis, cylindricus glabrum; dilatatem ad apicem; farctus flyphis monomiticus, generatibus, parietibus tenuibus fibulatis nullis, pilei 5·7–14·3 µm lato, lamellae 5·7–14·3 µm lato, stipetis 2·1–14·3 µm lato, non-amyloidis, valde cyanophilis. Basidis 20–25 × 7·1–10 µm; tetrasporis; hyalinis; cylindricis, non-siderophilus. Basidiosporis salmonis novis mutatis ochraceous, in massis cubiformibus nonporis, apiculo lateralibus 0·7 µm longis, pariete glabro pallide ochro, non-amyloideo, valde cyanophilus.

Habitato : teraphilo.

Typus locus : Sawantwadi (Maharashtra) in parte Indiae austro-occidentali.

Holotypus : AMY 4037 (M–548).

The authors are thankful to the Director, M.A.C.S., Pune 4, for providing the laboratory facilities. The present work is supported by Department of Science and Technology, Government of India, under the Grant No. HCS/DST/361/76 and the authors are thankful to the authorities concerned.

Maharashtra Association for the Cultivation of Science, Research Institute, Law College Road, Pune 411 004, *May* 12, 1979.

A. V. SATHE,
S. M. KULKARNI.

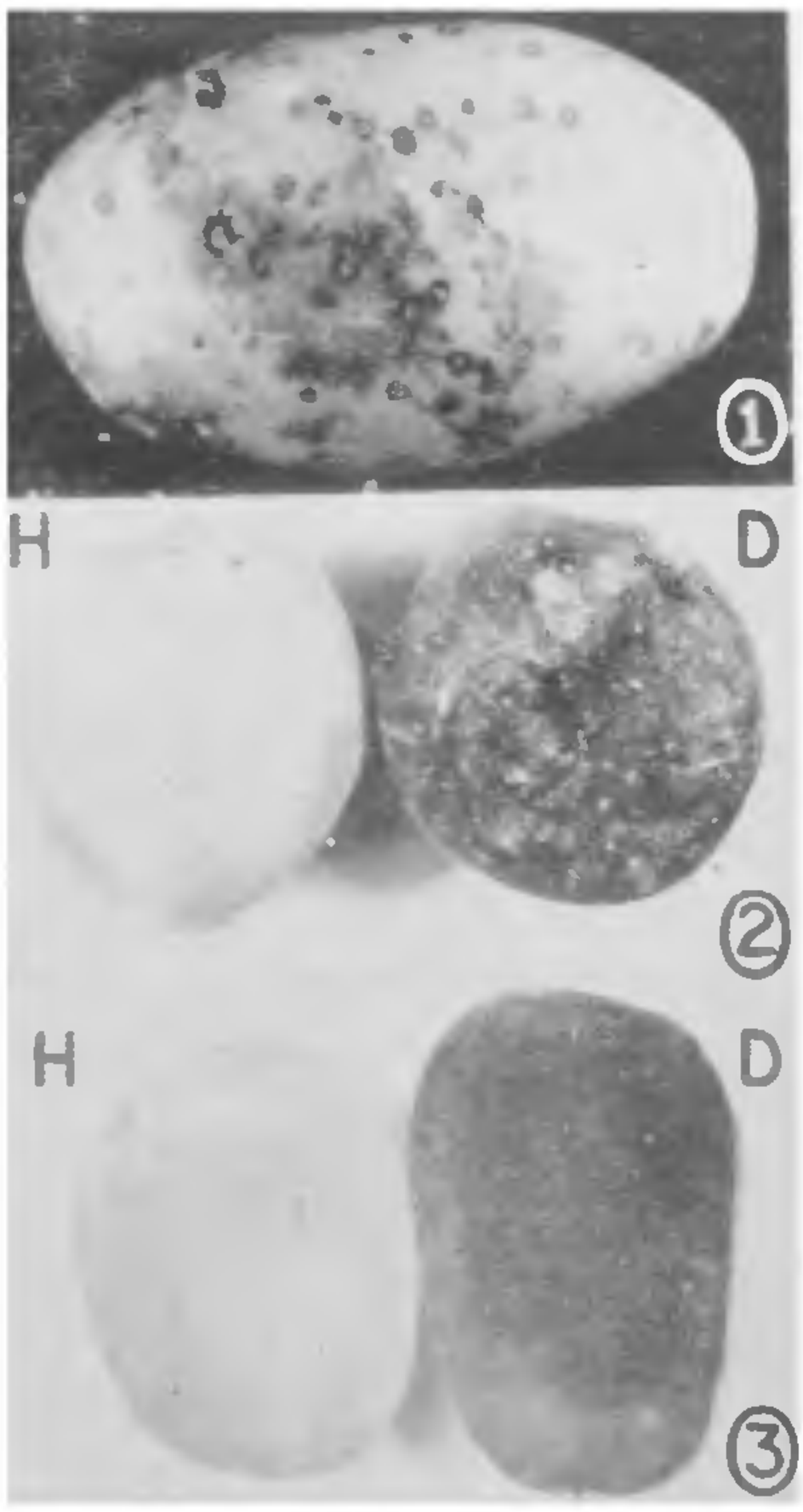
1. Pegler, D. N., *Kew Bull.*, 1977, 32, 189.

FUSARIUM EQUISETI (CORDA) SACC. CAUSING DRY ROT OF POTATO TUBERS—A NEW REPORT

DURING January-February 1978, freshly harvested tubers of potato variety, Kufri Chandramukhi from the autumn crop grown at Central Potato Research Station, Daurala (U.P.), India, revealed unusual brown spots on their surface. Since the symptoms were uncommon, studies were carried out on the identification of the disease, its causal organism and reaction

on important commercial varities/hybrid and the findings are presented hereunder.

The symptoms consisted of circular or oval, light brown to purple, small (2–5 mm diam.) independent lesions around lenticles. As the disease progressed many of these lesions coalesced to form bigger (1–1·5 cm diam.) patches (Fig. 1) covering a major portion of the tuber surface. Further storage of such tubers at 15–20° C for about a fortnight resulted in discolouration of the tuber skin (Fig. 2). When cut open, the affected tubers exhibit deep browning of flesh (Fig. 3). At later stage, wrinkles characteristic of tuber dry rot developed. In high humidity, the tubers rotted completely.



FIGS. 1-3

The tuber tissue from young lesions were plated on potato dextrose agar (PDA) after surface sterilization and incubated at 25° C. After 48 hr. pure fungal colonies developed. The fungus colony was at first white with floccose aerial mycelium tinged with peach but later changed to deep olive buff. The conidia were falcate with a well-developed pedicillate footcell and attenuated apical cell. Mature conidia had 4–7 thin septa and measured as follows :

3 septate 22–45 × 3·5–5 μm
5 septate 40–58 × 3·7–5 μm
7 septate 42–60 × 4–5·9 μm.

The isolate was identified as *Fusarium equiseti* (Corda Sacc. at C.M.I., Kew (IMI 230654).

The pathogenicity was confirmed by two different methods: (*a*) Healthy tubers (after surface sterilization) of varieties, Kufri Chandramukhi and Kufri Jyoti were buried in pathogen infested soil in 6 inch pots. The tubers were initially bruised at specific locations. Sterile water was used to moisten the soil and pots covered with polythene were held at 24° C. Adequate controls were maintained. On the 10th day the tubers showed brown lesions only at the sites of bruisings. These lesions spread and coalesced to form bigger patches on incubation for another 7 days. Circular wrinkles as found in case of dry-rot caused by *F. solani* var. *caeruleum* also developed. However, the control tubers remained healthy. (*b*) Healthy tubers were inoculated with the fungal mycelium after making 2–3 mm deep punctures. These were finally sealed with wax and incubated at 24° C. On the 3rd day sunken areas started developing around the inoculaton sites and by the 15th day more than 50% area of the tuber was involved. Wrinkles were formed on the affected portion. Using this method of inoculation, tubers of seven different varieties/hybrid, *viz.*, Kufri Chandramukhi, Kufri Jyoti, Kufri Lauvkar, Kufri Deva, Kufri Sindhuri, Kufri Alankar and SLB/Z 405*a* were tested and all were found equally susceptible.

Reisolations from the inoculated tubers revealed the presence of the same fungus.

A number of *Fusarium* spp. have been reported to affect potato tubers inciting different types of rots[3–8]. Initial manifestion of disease symptom on tubers infected with *Fusarium coeruleum*, *F. solani*, *F. solani* var. *minus*, *F. trichothecoides* and *Fusarium oxysporum* is in the form of dark brown sunken lesions. As these spots enlarge a greater portion of the tuber is involved ultimtely resulting in the shrinkage of tissue and formation of wrinkles on the affected areas. However, in the case of infection with *F. equiseti* the initial lesions are not sunken (Fig. 1) and further development of these lesions result in dry-rot symptoms which are exactly similar to the one caused by the other *Fusarium* spp. Booth[1] has mentioned the isolation of *Fusarium equiseti* from potato tubers and leaves but its pathogenic behaviour on this host is not indicated. Similarly the fungus has been isolated from potato leaves as a surface organism[2] but its role as a pathogen is not known. This constitutes the first record of this pathogen inciting dry-rot on potato tubers from India.

The author is thankful to Dr. A. Johnston, Director, C.M.I., Kew, for identification of the pathogen. Sincere thanks to Dr. S. B. Lal, Head, Division of Plant Pathology, for taking keen interest in the study and also finalising the manuscript. Necessary facilities received from the Director, C.P.R.I., Simla, are sincerely acknowledged.

Division of Plant Pathology, R. P. Rai.
Central Potato Research Institute,
Simla 171 001, India,
May 18, 1979.

1. Booth, C., *The Genus Fusarium*, C.M.I., Kew, 1971, p. 159.
2. Das, C. R. and Pal, A., *Phytopath., Z.*, 1968, **63**, 40.
3. Mitra, A., *Ind. J. Agric. Sci.*, 1935, **6**, 637.
4. Nema, K.G. and Agarwal, G. P., *Proc. Nat. Acad. Sci.*, 1960, **30**, 57.
5. Padwick, G. W., *Mycol. Pap.*, 1945, **12**, 11.
6. Shrivastva, S. K., *Ind. Phytopath.*, 1970, **23**, 503.
7. Uppal, B. N., *Ann. Rep. Agric. Bombay Presidency* for 1933-34, 1955, p. 174.
8. Rao, V. G., *Lab. dev. J. of Scil and Tech.*, 1969. **7**, 254.

A NEW VIRUS DISEASE OF RICE IN INDIA

Rice plants (cv. *Taichung Native* 1) at the maximum tillering stage were found to be severely diseased (50–60%) with an unknown etiology in the Central Rice Research Institute experimental farm. Attempts were made to isolate the pathogen, using conventional procedures, involved therein. Neither a bacterium nor a fungus was found to be associated with the disease. Hence, trials were made to inoculate 20 day old healthy rice seedlings (cv. *Taichung Native* 1), raised under insect proof condition, with the sap prepared from the affected leaves in sterile distilled water and 0·01 M phosphate buffer (pH 7·8) separately and to transmit the symptom by using the common pests of rice.

Insect transmission done using *Nephotettix nigropictus* (Stal), *N. virescens* (Distant) and *Nilaparvata lugens* (Stal) proved to be negative. Initial symptoms of the pale yellow streaks measuring 0·5–3·0 mm in length appeared on the leaves of plants inoculated with sap prepared in distilled water as well as in buffer 6 days after inoculation. With the advancement of disease, white chlorotic patches developed at the base of leaves together with mosaic mottling of leaves. Long yellow chlorotic streaks parallel to the veins with interveinal chlorosis was noticed on the leaves. Appearance of small brownish (later on necrotic) spots at the base of leaves as well as on leaf sheath and culm were noticed. Development of the disease resulted yellowing of leaves, much less tillering and spreading growth habit of inoculated plants. However, no significant reduction in height of the infected plants could be observed.

Sap transmissible nature[1] and the absence of either a fungus or a bacterium in the tissues provided evidence for the viral nature of the causal organism. Under artificial inoculation, cultivars like *IR*-8, *Karuna* and *Ratna* were also found to be susceptible. Preliminary observations indicated that the virus is also transmissible through soil since seedlings planted in soil used to maintain the diseased plants also exhibited positive symptom development[1,2].

Since the symptoms were found to be closely related to rice necrosis mosaic virus[3] attempts were made to detect the presence of X-bodies reported to be present in necrosis mosaic virus infected rice seedling[3,4]. The leaf sheath section stained with iodine under microscopic examination revealed the presence of oval-shaped X-bodies measuring 5 0–8 2 × 6·8–15·3 μ in inner epidermal cells.

These observations indicate that the new disorder, was similar to rice necrosis mosaic virus and quite distinct from rice dwarf virus since this virus (*a*) is not transmitted by *N. nigropictus*, (*b*) is sap transmissible, (*c*) does not cause significant reduction in plant height and (*d*) also can be transmitted through soil. This has been observed for the first time in India.

Author is grateful to Dr. H. K. Pande, Director for his keen interest, to Dr. N. K. Chakrabarti, Head, for providing facilities and to Dr. R. Sridhar, Division of Plant Pathology, Central Rice Research Institute, for his useful criticism during the present investigation.

Division of Plant Pathology, S. K. Ghosh.
Central Rice Research Institute,
Cuttack 753 006, Orissa,
June 25, 1979.

1. Fujikawa, T., Tomiku, T. and Sato, S., *Agr. Hort.*, 1969, 44, 1731.
2. Fujii, S., Okamoto, Y., Idei, T. and Shiomi, M., *J. Agr. Soc, Okayama Prefecture*, 1968, **7**, 10.
3. —, *Shokubutsu Boeki* (Plant Prot.), 1967, **21**, 188.
4. — and Okamoto, Y., *Agr. Hort.*, 1969, **44**, 1818.

INFLUENCE OF POLLEN ON THE GERMINATION OF CONIDIA OF *DRECHSLERA TURCICA* (PASS.) SUBRAM. AND JAIN

Various physical, chemical or nutritional and biological factors are known to influence spore germination and establishment of infection by pathogenic fungi on different hosts. Among the biological factors, the role of bacteria, fungi and yeasts are well established.