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A NEW STEM ROT OF SWEET CLOVER IN INDIA

A. KUMAR* and H. K. JOSHI**

Plant Protection Division, Indian Grassland and Fodder Research Institute, Jhansi 284 003, India.

Present addresses: *CAZRI, Regional Research Station, Pali 306 401, India.

**CHES, Civil Lines, Ambawadi, Godhra 389 001, India.

Sweet clover, the sweet clover (*Melilotus indica* Juss.) is a common leguminous forage crop of Rabi season in the northern India. The crop is highly palatable and nutritious being rich in protein content. However, it is vulnerable to a few fungal diseases viz. damping off caused by *Pythium* sp. and crown and stem rot, caused by *Sclerotium trifoliorum*¹.

In March 1985 a new stem rot was observed in the experimental plots at the Central Research Farm of IGRI, Jhansi. The disease was characterized by the appearance of pale brown spots on the stems. During the advanced stage of infection fructifications in the form of acervuli appeared in abundance. About 15% of the stem was covered with the lesions. In the case of larger lesions, the affected portions dried, shrivelled and toppled down due to



Figure 1. Broken stem of sweet clover due to weakening of the tissues in diseased plants.

weakening of the stem tissues (figure 1). On an average 30% incidence of the disease was recorded. The host is a new record for this fungus in India².

Direct examination of the fructifications revealed *Colletotrichum lindemuthianum* (Sacc. et Magn.) as the disease inciting agent. Typical symptoms of the disease were reproduced on leaves of healthy plants inoculated with a conidial suspension after six days of incubation at $28 \pm 1^\circ\text{C}$ under high humidity. The setae were few, none to sparsely septate, longer than conidial mass, dark brown in colour and measured $13.2-95 \times 2.5-5 \mu$ ($50.7 \times 4.5 \mu$). Conidia were hyaline, oblong to dumb-bell-shaped, one-celled, straight, ends rounded, measured $10-22.5 \times 6.2-7.5 \mu$ with an average of $12.1 \times 5.1 \mu$ (figure 2).

The damage potential of the disease was estimated using yield parameters viz. plant height, root length, number of leaves, number of branches on main stem, stem girth and dry and fresh weight ratio. The results presented in table 1 indicate that the affected plants showed considerable decrease in all the attributes at 50% flowering stage. The dry wt/fresh wt ratio of 50 diseased plants was observed about three times high in comparison to their healthy counterparts, apparently due to rapid necrosis and drying.

Table 1 Assessment of losses in yield at 50% flowering stage due to stem rot on sweet clover

Plant	Average* height of plant (cm)	Average root length (cm)	Average number of leaves/plant	Average number of branches on main stem	Average stem girth (mm)	Dry wt/** fresh wt ratio
Healthy	75.6	12.6	149.0	19.0	20.0	0.24
Diseased	26.7	4.0	9.3	3.4	6.4	0.78

* Average based on 10 plants, ** based on 50 plants.

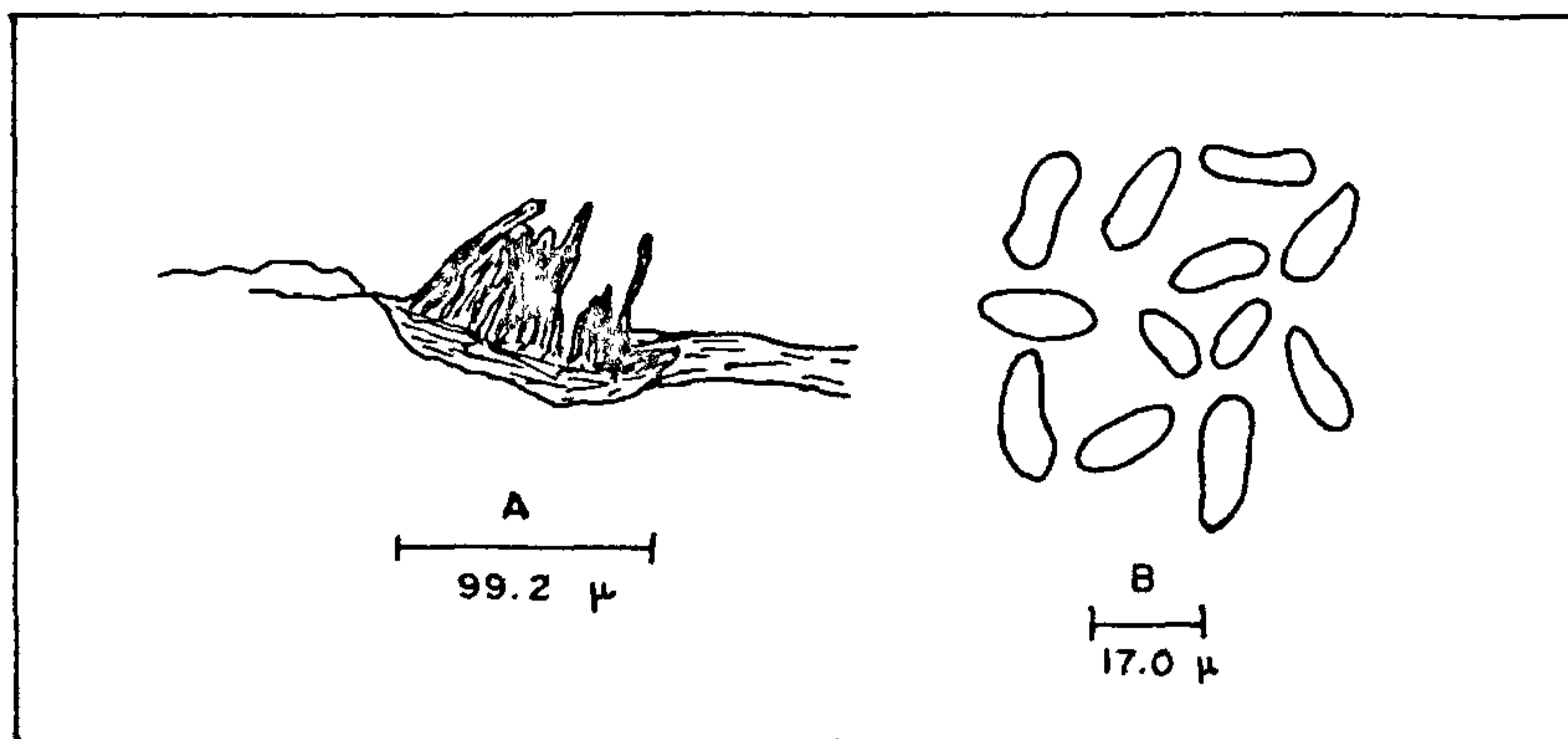


Figure 2A,B. Morphological characters of *Colletotrichum lindemuthianum*. A. Acervulus with setae, and B. Conidia.

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Research Station, Sri Ganganagar. The disease first appeared as small, scattered and pale to light brown spots on the upper surface of leaves. With advancement of disease the spots became circular to irregular and dark brown in colour.

The causative fungus was isolated on potato dextrose agar (PDA) and identified as *Scopulariopsis brevicaulis* (Sacc.) Bainier (IMI No. 299368). Pathogenicity was tested successfully by inoculating 7-day-old cultures into healthy chickpea plants. The characteristic symptoms were observed eight days after inoculation. The fungus has been recorded

A NEW LEAF SPOT DISEASE OF CHICKPEA INCITED BY *SCOPULARIOPSIS BREVICAULIS*

R. B. GAUR, R. S. RATHORE* and R. D. SINGH**

Department of Plant Pathology, Agricultural Research Station, Sri Ganganagar 335 001, India.

Present addresses: * Department of Plant Pathology, Agricultural Research Station, Mandor 342 304, India.

** Department of Plant Pathology, A.R.S. Durgapura, Jaipur 302 015, India.

CHICKPEA (*Cicer arietinum* L.) commonly known as "Chana" occupies an important position among the legume crops in India. Rajasthan has the third largest area under chickpea cultivation among Indian states and Sri Ganganagar district alone accounts for 0.6 million ha¹. During Rabi 1985 and 1986, a new leaf spot disease of chickpea was observed in the experimental plots at Agricultural

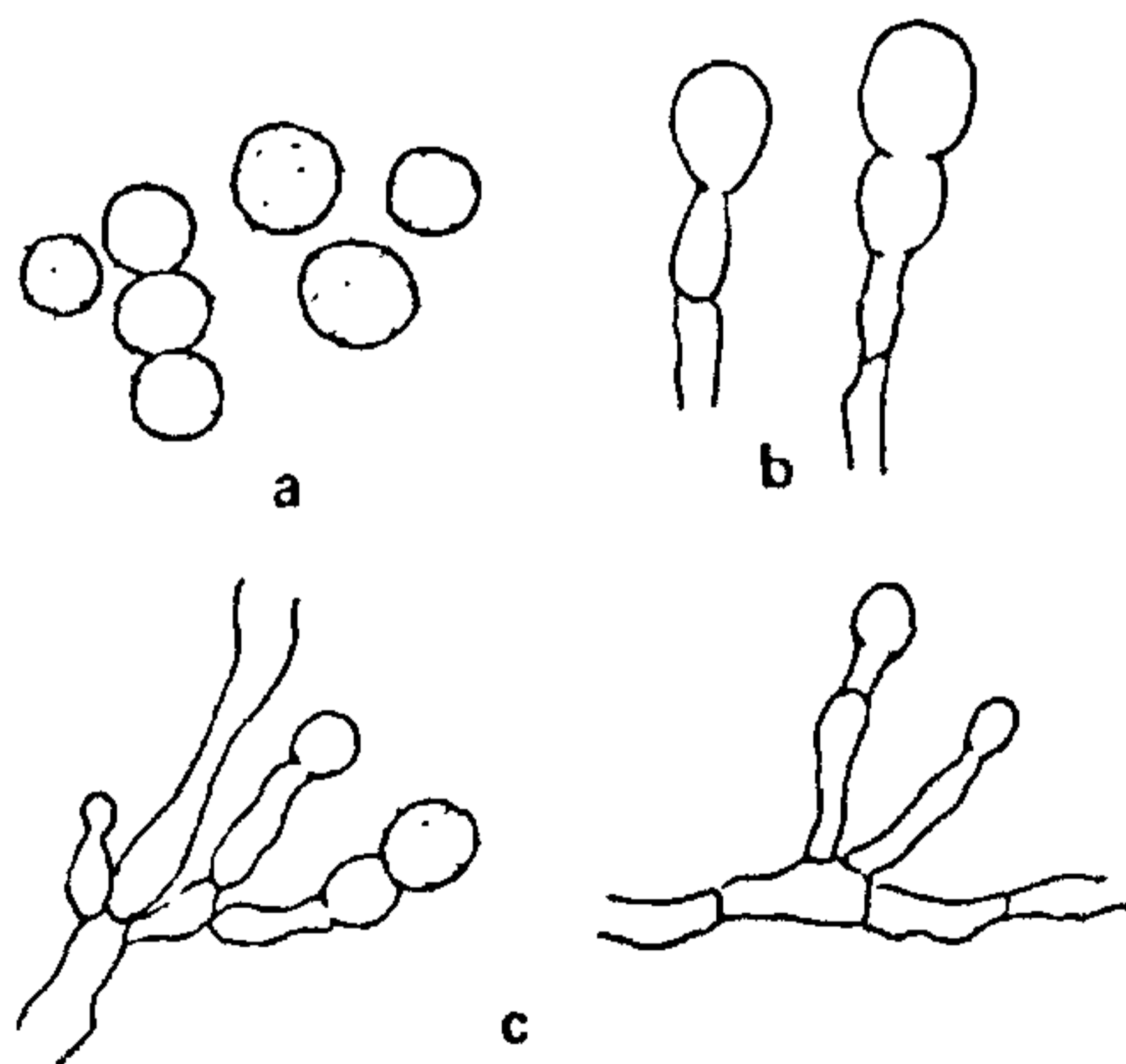


Figure 1a-c. *Scopulariopsis brevicaulis*. a. Conidia; b. Conidiophores bearing conidia, and c. Hyphae ($\times 900$).