

Short communication

INTERCEPTION OF DOWNY MILDEW (*PERONOSPORA MANSHURICA* (NAUMM.) SYD.) IN WILD SOYBEAN (*GLYCINE SOJA* SIEB. AND ZUCC.)

P.C. Agarwal, Usha Dev, Indra Rani, Ram Nath and A. Majumdar

National Bureau of Plant Genetic Resources,
New Delhi 110 012.

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Three hundred and four accessions of wild soybean strains (*Glycine* spp.) were received from USDA-ARS Urbana, Illinois in June, 1996 for quarantine clearance. On microscopic examination two accessions viz. PI-483464-B and PI-423999-A were found to carry dull milky white to pale-brown crust of oospores of downy mildew (*Peronospora manshurica* (Naum.) Syd.). Further information collected from GRIN (U.S.A.) revealed that PI-483464-B is a strain of *Glycine soja* Sieb. and Zucc. and was donated by Chinese Academy of Agricultural Sciences in 1984; PI 423999-A also belongs to *G. soja*, and was donated by N.I. Vavilov All Russian Scientific Research, Russian Federation, in 1976. Both the accessions are reported to be highly susceptible to Soybean Mosaic Virus (SMV).

Downy mildew of soybean which has a wide geographical distribution is not yet reported from India. However, it has been intercepted in soybean seed introductions from several countries (Mukewar *et al.*, 1980; Ram Nath *et al.* 1985; Agarwal *et al.* 1990 and Majumdar *et al.* 1991) including Malaysia and Indonesia where it is not reported as well (Agarwal and Khetrpal, 1985; and Anitha *et al.*, 1993).

Soybean seeds are known to play a vital role in the dissemination of this dreaded pathogen (Richardson, 1990). The present interception emphasizes the need for utmost care and vigilance while processing soybean germplasm for quarantine clearance in view of the destructive nature of the pathogen, existence of a large number of physiological races (Dunleavy, 1977; Lim *et al.*, 1984; and marcinkowska, 1987) and zero tolerance prescribed for quarantine purposes (Neergaard, 1977).

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REFERENCES

- Agarwal, P.C. and R.K. Khetrpal. 1985. Interception of *Peronospora manshurica* in imported soybean seeds. *FAO Plant Prot. Bull.* **33**: 39.
- Agarwal, P.C., A. Majumdar, Usha Dev, Ram Nath and R.K. Khetrpal. 1990. Seed-borne fungi of quarantine importance in exotic germplasm of soybean (*Glycine max*). *Indian J. of Agric. Sci.* **60**: 361-363.
- Anitha, K., P.C. Agarwal and Ram Nath. 1993. Interception of *Peronospora manshurica* (Naum.) Syd. in soybean seeds imported from Indonesia. *FAO Quarterly Newsl. for Asia and Pacific Plant Prot. Commission* **36**: 1.
- Dunleavy, J.M. 1977. Nine few races of *Peronospora manshurica* found on soybean in the Mid West. *Plant Dis. Repr.* **61**: 661-663.
- Lim, S.M., R.L. Bernard, C.D. Nickell and L.E. Gray. 1984. New physiological races of *Peronospora manshurica* virulent to the gene Rpm in soybeans. *Plant Dis.* **68**: 71-72.
- Majumdar, A., Usha Dev, P.C. Agarwal, Ram Nath, A.K. Lambat and K.D. Sharma. 1991. Pathogenic fungi intercepted in introduced germplasm. *Indian J. Pl. Genet. Resources* **4**: 34-40.
- Marcinkowska, J. 1987. Incidence and variability of *Peronospora manshurica* (Naum) Syd. on soybean and susceptibility of soybean to fungus. *Wddawnictwo SSG WAR 67* pp ISBN 83-00-02100-0.
- Mukewar, P.M., Ram Nath, A.K. Lambat, Usha Kapoor, R.K. Khetrpal and Indra Rani. 1980. Interception of *Peronospora manshurica* in imported seeds of soybean. *Seed Res.* **8**: 170-173.
- Neergaard, P. 1977. *Seed Pathology*. Macmillan press Ltd., London, U.K. 1187 p.
- Ram Nath, Indra Rani, P.C. Agarwal, R.K. Khetrpal, P.M. Mukewar, J.L. Varshney, Usha Dev, P. Kaur, A. Majumdar and A.K. Lambat. 1985. Pathogenic fungi intercepted in imported seed and planting material during 1976-81. *Indian J. of Agric. Sci.* **56**: 115-120.
- Richardson, M.J. 1990. An annotated list of seed-borne diseases. *ISTA Zurich, Switzerland* pp 387.