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RESEARCH NOTE

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A new leaf spot caused by *Alternaria alternata* on *Swertia* spp.

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The study was conducted at VCSG, College of Horticulture, Bharsar, Pauri Garhwal, at an altitude that 1800–2300 m above mean sea level. Swertia spieces, (Gentianaceae), reported indigenous to temperate Himalaya, are considered the most important for their medicinal properties. Its medicinal properties are reported in Indian pharmaceutical codex, and different traditional systems of medicines such as the Ayurveda, Unani and siddha. Its whole plant is used in making different medicine. The principle phytochemical present in *Swertia* herb is amarogentin and widely used by the pharmaceuticals for making drugs against malaria, diabetics and mensturyl syrup etc.

Two *Swertia spp.* (*S. ciliata* and *S.cordata*) (Fig. B and C) were planted at experimental site of the college, it was found that both the species were attacked from a severe leaf spot disease incited by *Alternaria sp.* caused economical damage at flowering stage of crop in the month of October-November. In both species, symptoms start as a pin head light brown spots later increase in size, spherical to oval in shape, scattered over whole leaf blade. In old spots clear zonations were visible. When the disease is advanced the spots coalesce to one another ultimately whole leaves are withered resulting in great toll of quantity and quality of biomass (Fig. A).

The pathogen was isolated on PDA by usual method and pure culture was maintained. Pathogenicity was also confirmed by inoculating artificially spore- cum mycelium suspension of the fungus on healthy leaves of *Swertia* spp. The fungus was also able to infect *Digitalis lanata*, (Tilpuspi), *Picrorhiza kurrooa* (Kutki) and *Cymbidium* orchids in artificial inoculation. A number of pathologist have also established the potentiality of this fungus on several hosts (Tandon and Chaturvedi, 1965; Mehrotra

Table 1 : Morphological characteristics of *Alternaria alternata* isolated from *Swertia* spp.

Structure	Division	*Alternaria alternate*
Conidiophore	Shape	Septate or branched, geniculate
	Size (µm)	25-72.2 x 3.5- 6.5
Conidium with beak	Shape	Muriform ovoid to obclavate
	Size (µm)	13.5 - 45.5 x 7.5 - 14.5
	Septum	Longitudinal (0-4), Transverse (1-6)
	Beak size (µm)	3.2-19 x 3.2 – 5.5
Chlamydospore	Shape	Terminal and intercalary
	Size (µm)	12.3-25.2 in diameter

Fig. A : Symptoms of the disease on *Swertia* sp.

Fig. B : *Swertia ciliate*

Fig. C : *Swertia cordata*

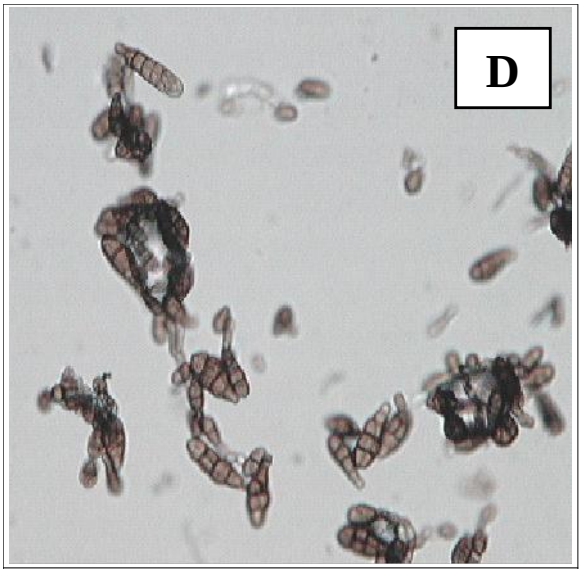

Fig. D : Conidia of the Fungus

and Narain, 1969 and Yadav *et al.*, 2010).

The morphological observation of the fungus were made in nature (host) and on potato dextrose agar through highly equipped microscope (Table 1 and Fig. D).

On the basis of morphological characters, its pathogenecity and host range, the fungus is identified as *Alternaria alternata* (Fr.) Keissler.The morphological characteristics of *Alternaria* sp. agreed with those described by previous workers (Simmons, 1967 and Mathur and Sarbhoy, 1977). *A. alternate* has earlier been reported on a wide host plants but it appears to be the first record of *A.alternata* on medicinal plants (*Swertia ciliate* and *Swertia cordata*).

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