

## ***Corynespora* Blight of Sweet Basil : A New Disease from India**

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**This paper deals with illustration, description and latin diagnosis concerned with Leaf Blight of Sweet Basil caused by *Corynespora cassicola* occurring on Rama Tulsi (*Ocimum sanctum* Linn.).**

**Key words :** Sweet Basil, *Corynespora*, Blight.

During past few years, it has been taken into interest to describe new species of foliicolous hyphomycetous genus *Corynespora* Güssow as pathogen causing leaf blight on a variety of plants from different parts of the India. After the establishment of the genus *Corynespora* a few species were described from different parts of the globe causing the leaf spot diseases on various host plants.

Our research efforts over the past 4 years have focused on the study related to the identification of the main diseases of the sweet basil through survey. Several fungal pathogens have been described on sweet basil, some are restricted to certain areas while others are more wide spread. Now a days, intensive cultivation of the crop favoured the outbreak of severe epidemics of some diseases and the appearance of new ones. Our recent survey of foliar fungi is based on the

Basil Crop field in Azamgarh district. Here nursery of Basil is prepared in May-June and its plantation occurs in the month of July-August. Tulsi leaves are harvested in the month of November-December. The extensive survey of such crop fields resulted in a number of collections of living leaves of sweet Basil exhibiting *Corynespora* blight. No *Corynespora* species causing blight has yet been described on Sweet Basil in this region, as evident from the literature survey.

### **MATERIAL AND METHODS**

Collection of specimens of leaf showing leaf blight were made at regular intervals from Basil crop fields of Azamgarh during crop season. Samples were collected and brought to the laboratory for microscopic examination and identification of causal organism. Scrape mounts were prepared in Lactophenol Cotton-blue mixture. The microphotographs of conidia and conidiophore and stage micrometer are also taken from slide with the help of an advanced camera at same magnification (Fig. 1 to 4).

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**Morphotaxonomic description of causal organism *Corynespora cassicola* (Berk & Curt.) Wei**

Infection spots hyphogenous becoming

amphigenous later on, small to large, sub-circular to irregular, dark brown coloured spots which later become black in colour, 3-10 mm in diam. Colonies

hypophyllous, effuse, brown. Mycelium internal and external, external hyphae septate, thin walled, smooth, branched, light brown. Stromata absent.



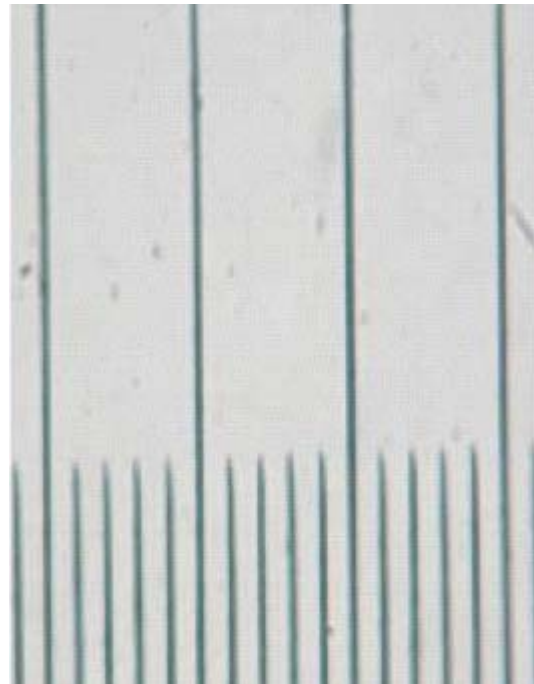
**Fig. 1.** Infected leaf of basil showing spots



**Fig. 2.** Germinating conidia



**Fig. 3.** Conidia and Conidiophores



**Fig. 4.** Stage Micrometer

Conidiophores macronematous, mononematous, arising singly from hyphae, straight to curved, simple, unbranched, multiseptate, upto 10 successive proliferations, pale to mid brown, 120-710 x 5-10 mm in diam. Conidiogenous cells integrated, Monotretic, terminal, scars thickened. Conidia solitary to catenate, simple, cylindrical to obclavate, straight to curved, sub-hyaline to olivaceous brown, smooth, with 5-13 pseudosepta, 35-105 x 8-18 mm in diam; 4-7 mm wide at the truncate base. Germinating conidia with germ tubes are also observed.

Maculae hypogaeae, posterius amphigenae, sub-circulares vel irregulares, atrae brunneae vel atrae, 3-10 mm in diam. Coloniae hypophyllae, effusae, brunneae. Mycelium internum et externum, ex hyphae externae septatae, tenuitunicatae, laeviae, ramosae, pallide brunneae. Stromata absentia.. Conidiophora macronemata, mononemata, singularia, recta vel flexuosa, non-ramosa, septata, usque 10 successive proliferati, pallide vel brunneae, 120-710 x 5-10 mm in diam. Cellulae conidiogaeae integratae, monotreticae, terminalis, cicatrices incrassatae. Conidia solitaria vel catenata, simplicia, cylindrica vel obclavata, recta vel curvata, sub-hyalina vel olivaceo brunneae, laevia, 5-13 distoseptata, 35-90 x 8-18 mm in diam., 4-7 mm lata ad basin truncata. Conidia germinalis notata.

In foliis vivis *Ocimum sanctum* Linn. (Lamiaceae) Organic India Crop Field, Azamgarh, U.P. India, 4 Dec. 2008 leg.; Rupesh Kumar Vishwakarma, S.N.C.A.F. Herb. No. RKV-5 (Holotype).

#### DISCUSSION

Sweet basil is the native of India and an economically important medicinal plant in several Mediterranean countries. The area affected in Azamgarh, due to *Corynespora* blight of Sweet basil, experiences humid sub-tropical climatic

conditions with high temperature rain fall and relative humidity. Foliar diseases thrive with high temperature, relative humidity and soil nitrogen. During the tenure of present study, approximately 75% of plants were found affected with dark brown coloured spots varying in distribution. Severe infection causes the wilting and outward rolling of leaves and plants look stunted. *Corynespora* blight affects the basil crop in both respect, quantitatively as well as qualitatively. The most important significance is the usage of infected plant leaves in which the chemical composition gets altered and even toxicant in preparation of herbal medicines. These can change the quality of the drugs with all probability. The observations of this work when brought to the awareness of the people of at least this region will certainly help in maintaining the quality and standard of the herbal drugs prepared by the professionals.

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#### REFERENCES

1. Ellis, M.B.. Dematiaceous Hyphomycetes. CMI, Kew, U.K., pp. 608 (1971).
2. Gupta, P.K., Sharma, N.D. and Gogoi, R. First Report of *Sclerotium rolfsii* on Tulsi (*Ocimum sanctum*) from India. *Indian Phytopath.* **61**(3) : 370 (2008).
3. Garibaldi, A., Gullino, M.L. and Minuto, G. Diseases of Basil and their management. *Plant Disease*, **81**(2): 124-132 (1997).
4. Jamaluddin, Goswami, M.G. and Ojha, B.M. *Fungi of India* (1989-2001). M/s. Scientific Publi., India, pp. 326 (2004).