International Letters of Natural Sciences *Online: 2015-05-17*
ISSN: 2300-9675, Vol. 40, pp 16-18
doi:10.56431/p-78d8a4
CC BY 4.0. Published by Academic Open Access LTD, 2015

First report of *Nigrospora sphaerica* causing leaf spots on *Celtis australis* from Himachal Pradesh, India

Ajay Kumar Gautam

Faculty of Agriculture, Abhilashi University, Mandi-175045 (H.P.), India

E-mail address: a2gautam2006@gmail.com

Keywords: Celtis australis; leaf spot; Nigrospora sphaerica; India

ABSTRACT. *Nigrospora sphaerica* collected on living leaves of Celtis australis L. (Cannabaceae) from Himachal Pradesh, India is a new host record. Symptoms of the disease on leaves appeared in the form of small, circular to irregular, brown - coloured spots surrounded by a yellow zone. The fungus isolated was identified as Nigrospora sphaerica (Sacc.) E.W. Mason, on the basis of cultural and morphological characters. The fungus is described and illustrated.

1. INTRODUCTION

Celtis australis L. belongs to family Cannabaceae, is an important deciduous tree species of India. It was distributed worldwide from southern Europe, North Africa to Asia. The plant leaves and twigs are used as fodder in dry seasons while wood as good quality timber. Extracts from the tree are used to treat edema, headache and boils [1,2].

A leaf spot disease was observed on *Celtis australis* L. plants growing in Mandi, Himachal Pradesh, India during a mycological survey of deciduous forest in the area. The fungus is described and illustrated in detail in the present study.

2. MATERIAL AND METHODS

Infected tissues were collected from several localities and surface sterilized in 95% ethanol (20 s) and 0.5% NaOCl (60 s). After washing three to four times with sterilized distilled water, tissue was transferred aseptically to Potato Dextrose Agar (PDA) media. Hyphal tips that grew from lesions were subcultured on PDA containing 50 mg/l streptomycin sulphate as antibacterial agent and incubated at 25±2º C for 6–7 days under 12 h light and dark conditions. Morphological and microscopic examinations of isolated pathogen were carried out and the pathogen was identified from all infected leaf samples.

3. RESULT AND DISCUSSION

Symptoms of the disease on leaves appeared in the form of small (2-7 mm), circular to irregular, brown - coloured spots surrounded by a yellow zone (Fig. 1). Repeated isolations from the infected tissues yielded the same fungal organism, which grew profusely on PDA and exhibited white colonies initially, becoming light to dark grey with the onset of sporulation with black, spherical to sub-spherical single-celled conidia (17-20 × 10-13 μm), which were born on a hyaline vesicle at the tip of the conidiophores (7.5-17.7 μm) (Fig.2).

This paper is an open access paper published under the terms and conditions of the Creative Commons Attribution license (CC BY) (https://creativecommons.org/licenses/by/4.0)



Figure 1. Disease symptoms on leaves of *Celtis australis.*

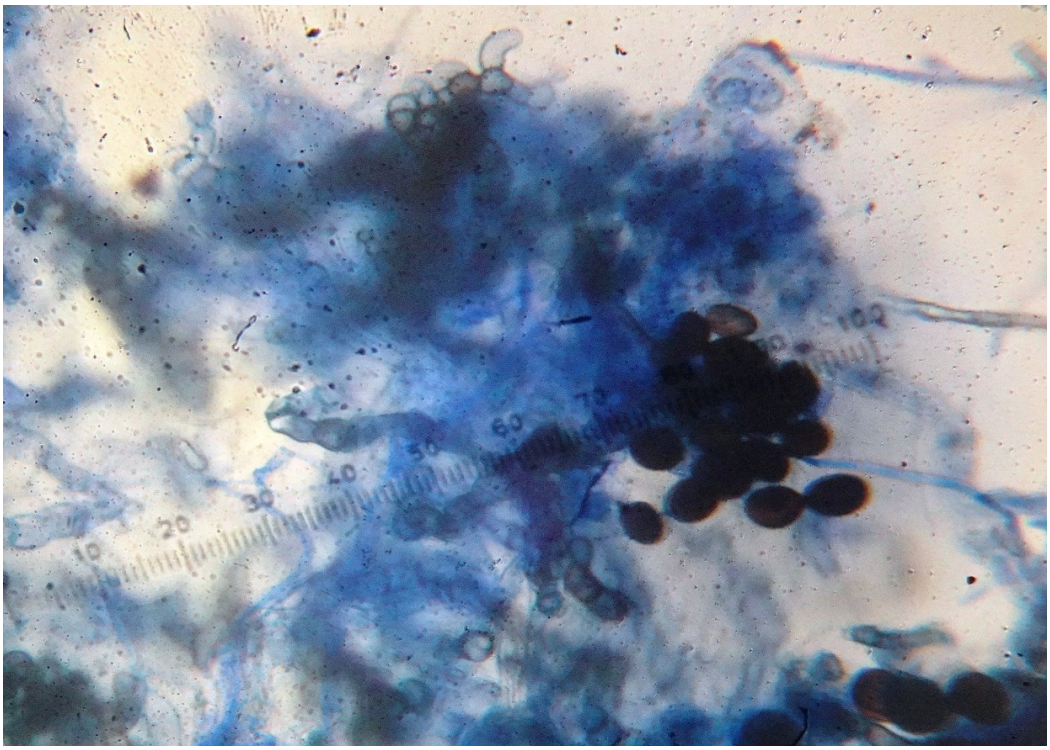

Figure 2. Microscopic details of mycelium, conidiophore and conidia of *Nigrospora sphaerica*.

The fungus on PDA was identified as *Nigrospora sphaerica* (Sacc.) E.W. Mason, on the basis of cultural and morphological characters. These morphological characteristics of the isolate were consistent with the description of *N. sphaerica* [3]. Upon conducting pathogenicity tests, the fungus was reisolated from the infected plants. *N. sphaerica* is a known pathogen for several hosts but has not been previously reported on *Celtis australis*. However, *N. sphaerica* was reported earlier on

Glycyrrhiza glabra [4]; *Canna indica, Bambusa arundinacea, Bougainvillea spectabilis, Calotropis gigantea, Bryophyllum pinnatum*, *Dracaena* sp., *Ficus religiosa* and *Nyctanthes arbor-tristis* [5]; *Wisteria sinensis* [6] and *Mangifera indica* [7]. Some fungi like powdery mildew caused by *Erysiphe kusanoi* from Himachal Pradesh [8] and wilting, dieback, and death by *Phytophthora megasperma* from Italy [9] were reported on *C. australis*. To best our knowledge, this is the first report of the *N. sphaerica* on *Celtis australis* India and a new host record for the pathogen.

ACKNOWLEDGEMENTS
Authors wish to thank head, department of Botany, Abhilashi Institute of life sciences, Mandi, Himachal Pradesh, India for providing help in the identification of host plant.

References

[1] Singh RV. Fodder trees of India. Oxford & IBH Co. New Delhi, India, 1982.

[2] Hocking D. Trees for Drylands. Oxford & IBH Publishing Co. New Delhi, India, 1993.

[3] Ellis MB. Dematiaceous Hyphomycetes. Kew, Surrey, England, Commonwealth Mycological Institute (1971) 608.

[4] Verma OP, Gupta RBL. *Pl Pathol.* 57 (2008) 782.

[5] Pandey SK, Roy AK, Agarwal DK. *Indian Phytopathol.* 62 (2009) 273.

[6] Soylu S, Dervis S, Soylu EM. *Pl Dis.*95 (2011) 219.

[7] Pandey A, Pandey S, Awasthi AK, Jamaluddin. *J Mycol Pl Pathol.* 43 (2013) 255.

[8] Gautam AK. *Pl Pathol Quaran.* 4 (2014) 14–16.

[9] Luongo L, Haegi A, Galli M, Berti S, Vitale S, Belisario A. *Pl. Dis.* 99 (2015) 155-156.