

Short Communication

Taxonomic Identity of Parasitic Algal Genus *Cephaleuros* (Trentepohliaceae, Chlorophyta) from Nepal

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Cephaleuros species are known to be parasites of several plants in tropical and subtropical regions (Suto et al., 2014). In most cases, *Cephaleuros* is confused with a fungus because the symptoms show erect, yellow to red filaments and hair like fruiting bodies that rise to the leaf surface and match the characteristics of rust fungi (Marlatt & Alfieri, 1981). *Cephaleuros* species infects several plant parts, such as stems, fruits, leaves and forms a thallus bearing sporangiophores and sporangia (Pitaloka et al., 2015). It belongs to the division Chlorophyta, class Ulvophyceae, order Trentepohliales and family Trentepohliaceae, consisting of 19 species distributed worldwide (Guiry, 2024).

Cephaleuros species have a wide range of host plants. Various studies reported *Cephaleuros virescens* Kunze ex E.M. Fries infecting plants like *Camellia japonica* L., *Ficus benghalensis* L., *Hevea brasiliensis* (Willd. ex A. Juss.) Müll. Arg., *Monoon longifolium* (Sonn.) B. Xue & R. M. K. Saunders, etc. (Han et al., 2011; La et al., 2009; Pitaloka et al., 2015; Suto et al., 2014). The disease caused by *Cephaleuros* has been reported from various places in Asia, such as Bangladesh, India, Sri Lanka, Indonesia, Malaysia, China, Japan and Taiwan (Guiry, 2024). In Nepal, Gyawali et al. (2021) simply mention the algal leaf spot on Guava leaf but did not give the taxonomic identity. Similarly, this species has not been included in Algal Flora of Nepal Vol. 2 (Rai & Dhakal, 2024). Therefore, this paper aims to assess the taxonomic identity of algal leaf spot on *Camellia sinensis* (L.) Kuntze.

Leaf samples as well as herbarium specimens of *Camellia sinensis* (L.) Kuntze., an economically important shrub, was collected from National Botanical Garden (NBG) Godawari, Bagmati Province of Central Nepal. The disease appeared on

the leaf surface as burnt orange to brown spots on the leaves; the upper epidermal layers were peeled out; temporary slides were prepared and observed under a HumaScope LED microscope and photomicrographs were taken via a TOUPCAM camera under different magnifications. The specimens collected are housed at National Herbarium and Plant Laboratories (KATH), Godawari. Both morphological and reproductive characteristics and identification measures were observed. Identification was done with the help of various literatures (Suto et al., 2014; Zhu et al., 2017).

Cephaleuros virescens Kunze ex E.M. Fries forms circular or blotchy raised disk-like thallus; the diameter of the thallus 1-5 mm. The edges of the thallus are wavy. Thalli grow subcuticularly on the upper leaf surface. Filamentous cells are long, cylindrical, 20-30 µm long and 9-11 µm broad. Sporangiophores project from the thallus of the upper leaf surface, being cylindrical, erect, 80-110 µm long and 9-11 µm wide with 3 or 4 cells, solitary or in tufts. Head cells are borne terminally on the sporangiophores and produce sporangiate laterals, zoosporangia and their suffultory cells. Zoosporangia are elliptical yellow to orange (Figure).

***Cephaleuros virescens* Kunze ex E.M. Fries (1832)** in *Systema mycologicum: sistens fungorum ordines, genera et species, huc usque cognitae, quas ad normam methodi naturalis determinavit / disposuit atque descripsit*. Vol III, p. 202.

Specimen examined: C. NEPAL, Lalitpur district, National Botanical Garden, Godawari, 27.5963°N, 85.3833°E, 1490 m (S. Dhakal, Collection No. 20230826, 26th August 2023, KATH).

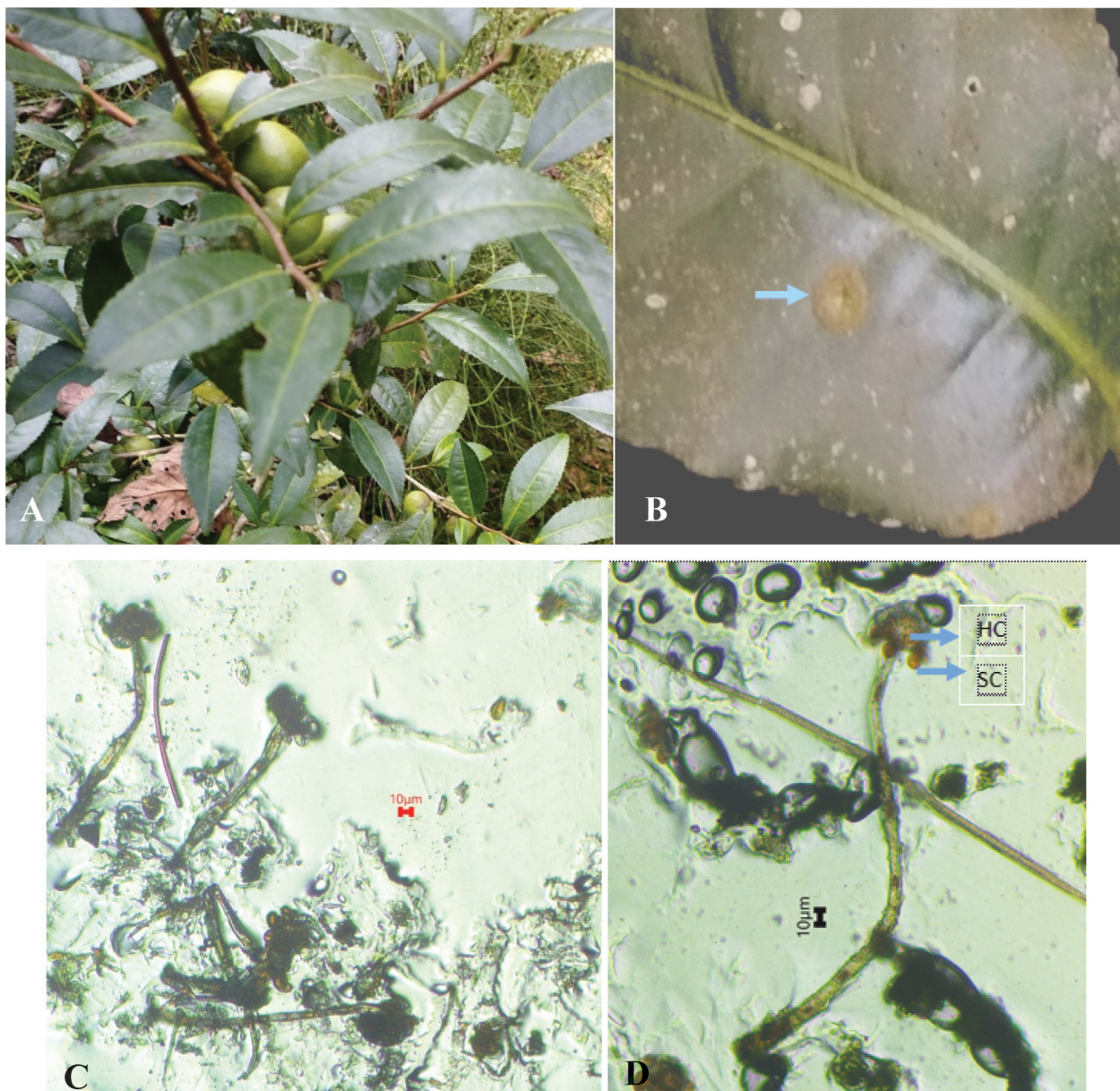


Figure : *Cephaleuros virescens* in *Camellia sinensis*, (A) Host plant, (B) Thallus on upper surface of leaf (arrowhead), (C) Sporangiohores, (D) Single sporangiophore with sporangium, HC- Head cell and SC- Suffultory cells under HumaScope LED microscope (Magnification: 40x +0.5x).

Distribution: Nepal, Europe, North America, South America, Africa, Australia and Asia.

Ecology: Parasitic on leaves of *Camellia sinensis* (L.) Kuntze, family Theaceae.

The taxonomic identity of *Cephaleuros virescens* reported from NBG of Godawari, Lalitpur district helps us to overcome the problem of identification as well as species inclusion in the algal flora of Nepal.

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