PHOMOPSIS CRINI SP NOV ON CRINUM ASIATICUM

P. N. CHOWDHRY and DURGA GUPTA*

Mycology and Plant Pathology Division, Indian Agricultural Research Institute, New Delhi 110012, India.
* Department of Botany, G. M. College, Sambalpur 768001, India.

A new species of Phomopsis occurring on Crinum asiacicum L is described and illustrated. The type material has been deposited at Herbarium Cryptogamiae Indicae Orientalis, IARI, New Delhi.

Phomopsis crini sp nov

Leaf spots amphigenous, irregular, yellowish brown with brown margin extending from 8–90 mm in length and 5–15 mm in width. Pycnidia scattered or arranged in series, amphigenous, globose, blackish brown, darker round the ostiole, at first concealed by the epidermis, then raising it in a pustule and emerging by a circular opening of 20–50 μm in diam, unilocular, 150–300 μm in diam. Wall 2–3 cells (5–10 μm) thick, composed of thin walled, brownish, isodiametrical cells. Conidiophores densely clustered, persistent, hyaline, cylindrical, straight or bent, 12.5–27 × 1.5–2 μm. α-Conidia oblong-ellipsoid, acute at both ends, usually biguttulate, hyaline, 7–10 × 2–2.25 μm. β-Conidia are not seen (figure 1).

Figure 1. Phomopsis crini sp. nov. A. Pycnidium. B. V. S through Pycnidium. C. Conidiophores. D. α-Conidia.


Phomopsis crini sp nov

Maculae foliariae amphigenae, irregularae, fulvae margin cum brunnceo, a 8–90 mm in longitude et 5–15 mm in latitudinem extendentes. Pycnidia disseminata vel in seriebus disposita, amphigena, plerumque epiphylla, aliquantulum depressa, globosa, furca, magis obscura circa ostiolum, primo abscondita a epidermide, deinde elevantes ea in pustula et emergentes a orificio rotundo de 20–50 μm in diametro, unilocularia 150–300 μm in diametro, Septum 2–3 cellae (5–10μm) crassae, leptodermarum compositum, brunneolorum, cellarum isodiametralium. Conidiophora dense associata, perseverantia, hyalina, cylindricae, recta vel torta, 12.5–27 × 1.5–2 μm. α-Conidia oblongatae-ellipsoidae, acuta terminibus oblong-isobovatis, praeultra biguttulatae, hyalinae, 7–10 × 2–2.5 μm. β-Conidia non sunt visae (figure 1).

In foliis vividis de Crinum asiaticum L, Bhubaneswar (Orissa), 25.11.1977, D. Gupta, H.C.I.O. 32876 (Holotypus).

Crinum asiaticum L belongs to the family Amaryllidaceae and the other eight members of this family do not host any other Phomopsis species except
Chemo-taxonomy of Two Genera of Cynometrae

G. Nageshwar, M. Radhakrishnaiah and L. L. Narayana*

Department of Botany, Nizam College, Osmania University, Hyderabad 500 001, India.

*Department of Botany, Kakatiya University, Warangal 506 009, India.

The chemotaxonomy of the representatives of the tribes Amherstieae, Bauhinieae, Cassieae and Eucaalpinieae of the Caesalpiniaceae R Br has been studied earlier1-4. The present note is on the chemotaxonomy of two hitherto uninvestigated taxa, Cynometra L and Hardwickia Roxb of the tribe Cynometreæ sensu Bentham and Hooker5. The former is represented by sixty species and the latter by two.

The aerial parts consisting of branches and mature leaves of Cynometra polyandra Roxb and Hardwickia binata Roxb collected from the Indian Botanic Garden, Howrah, were analysed for the study of distribution pattern of various secondary metabolites, free amino acids and phenolic acids by standard phytochemical qualitative tests3, uni- and bidirectional ascending paper chromatographic techniques respectively.

In the distribution of the secondary chemical constituents, the two taxa resemble one another in the absence of alkaloids, acubin compounds, cyanogenic glycosides, juglone, lignans, saponins and syringin and presence of catecholtannins, syringyl radicals and similar broad flavonoid patterns. However, Cynometra differs from Hardwickia in the possession of anthraquinones, indoles, leucoanthocyanins, steroids and tannins, absence of methylene dioxy compounds and in being positive to the activity of the enzyme polyphenolase.

Such free protein amino acids as \( \gamma \)-aminobutyric acids, glutamic acid, threonine and tyrosin besides the unknown, presumably non-protein ones of hRF (hundred \( \times \) RF) values 30 and 50 are found common to both the taxa studied. The amino acids such as alanine, nor-leucine, lysin and tryptophan spotted in Cynometra, however, could not be found in Hardwickia. The unknown amino acids of hRF 54 has been found exclusive to Hardwickia, besides leucine, phenyl alanine and serine. The apparent absence of otherwise ubiquitous protein amino acids in the two taxa may be inferred due to their extreme low concentration in the free pool.

Of the several phenolic acids spotted, \( p \)-hydroxy benzoic and vanillic acids, besides the unidentified ones of hRF values 42, 27, 42, 55 and 66/70 are shared by both the taxa. While salicylic acid and an unknown phenolic acid of hRF value 52/50 are found in Cynometra, Hardwickia stands apart in possession of phenolic acids of hRF values 32/30, 68/25 and 68/50.

A numerical assessment of chemical characters is made according to the Jaccard coefficient of similarity\(^*\) \( S_j = n JK/(n JK + u) \) where \( n JK \) = number of positive matches in both \( \text{OTUS} \) and \( u = \) number of characters unmatched in both \( \text{OTUS} \). The data on the distribution of protein amino acids in the free pool, are, however ignored since they are dependent upon the metabolic threshold of the tissue and environmental conditions\(^8\), unlike the other constituents studied, which accumulate in plant tissues, and remain stable under varied environmental conditions\(^10\). It has been found that this pair of taxa has only 0.43 similarity to each other and hence seem to be uneasy tribemates.

The taxonomic treatment of Cynometra and Hardwickia bracketed under Cynometreæ by Bentham and Hooker\(^5\) has been dispensed with by Hutchinson\(^11\), who rearranged the members of Caesalpinieae under five groups placing Cynometra in close association with such genera as Bauhinia L., Trachylobium Hayne and Inisia Thou in one group and Hardwickia with Ceratonia L and Saraca L etc in the other. The pattern of distribution of various chemical constituents in Cynometra and Hardwickia (present study) along with their putatively allied genera such as Bauhinia (17 species) Inisia bijuga (1 species) Trachylobium hormannianum (monotypic) Ceratonia silqua (monotypic) and Saraca (3 species) is presented in table 1.

The percentage of affinity of Cynometra with Bauhinia, Inisia, Trachylobium and Hardwickia calculated according to Ellison et al\(^12\) is 70, 57, 75 and 43.