

## CYATHEA BALAKRISHNANII DIXIT ET TRIPATHI — A NEW SPECIES OF TREE FERN FROM INDIA

R. D. DIXIT AND A. K. TRIPATHI

*Botanical Survey of India, Allahabad*

## ABSTRACT

*Cyathea balakrishnanii* (Cyatheaceae) is described in detail with illustrations as new to science. It is one of the common species occurring in Madhya Pradesh, Tamil Nadu and Kerala States in India.

## INTRODUCTION

During the course of revisionary studies of the family Cyatheaceae for India, the authors came across many old and new specimens intermixed with the specimens identified as *Cyathea gigantea* (Wall. ex Hook.) Holtt. but very different in several morphological features. Detailed analysis and studies on these specimens represent a species new to Science. The species is named as *C. balakrishnanii* and is described in detail with illustrations, ecological notes etc. to facilitate easy identification.

## TAXONOMIC ACCOUNT

***Cyathea balakrishnanii*** R. D. Dixit & A. K. Tripathi, sp. nov. (Plates-I & II, Figs. 1-3).

***Cyathea balakrishnanii*** Dixit et Tripathi sp. nov. *C. glabrae* (Bl.) Copel., *C. podophyllae* (Hook.) Copel. et *C. giganteae* (Wall. ex Hook.) Holtt. affinis, a qua tamen imprimis differt frondibus parvioribus, 1-1.5 m longis; pinnulis medianis 5-7 × 1-1.2 cm; pinnulis infirmis parvioribus 1.5-2.5 × 0.7-1.0 cm, margine crenates, omnio non lobatis; pinnulis supermis brevilobatis; lobis omnibus manifeste crenatis; loborum veinis plerumque 2-3-jugatis vel raro 4-jugatis, castis supra glabris vel rare sparsis pilosis. Species haec ab *C. glabra*

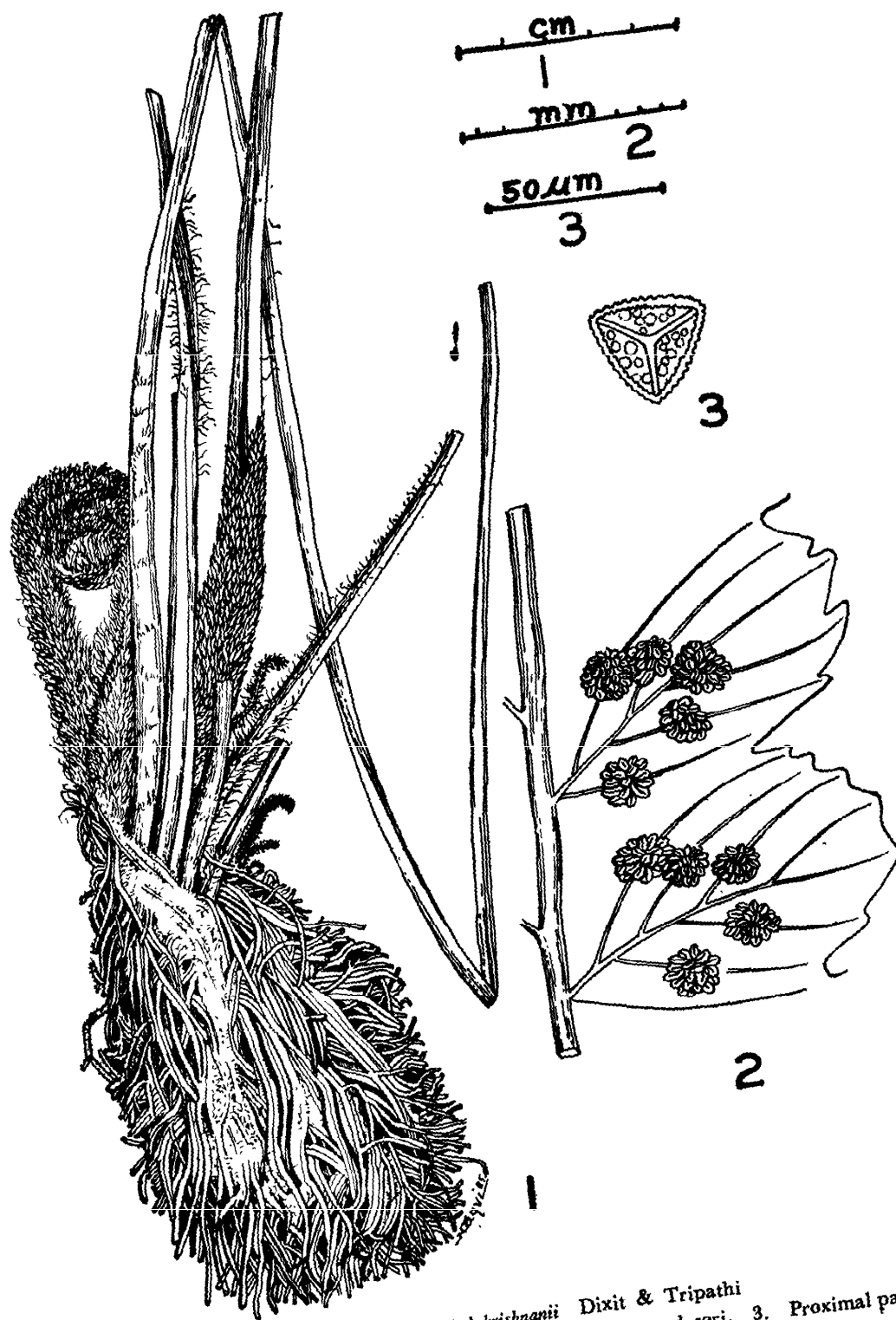
differt pinnularum lobis manifesto crenatis, non laevigatis; et ab. *C. podophylla* squamis margine sine setosis; et ab. *C. gigantea* pinnulis parvioribus, non per specue lobatis loborum venis 2-3-jugatis, simplicibus.

**Holotypus:** MADHYA PRADESH-Pachmarhi: Dhupgarh, ± 1000 m, 16.10.84, Dixit 41231 (BSA).

**Isotypus:** l. c. 41231A (CAL), 41231B (DD).

**Paratypus:** KERALA-Kottayam: Kuttikanam-Peermade, 21.1.1965, Vivekanathan 22928 (MH).

**Other specimens examined:** MADHYA PRADESH-Pachmarhi: Bee fall, ± 800 m, 14.10.84, Dixit 41175, 41180, 41182 (BSA); Dhupgarh, ± 1000 m, 16.10.84, Dixit 41195, 41198, 41202 (BSA); Tridhara, 20.10.84, Dixit 41292, 41293, 41296 (BSA); Wynam Pool, 19.10.84, Dixit 41284 (BSA); Twynam pool, 19.10.84, Dixit 41252 (BSA); Pachmarhi, Feb. 1891, Duthie 10675 (DD); Hoshangabad, 27.7.1964, Panigrahi 4569 (BSA); Pachmarhi fall, 22.2.1962, Panigrahi 6630 (BSA); Bastar: Bailadilla, Panigrahi 6882 (BSA); Chindwara 27.2.64, Panigrahi 4563 (BSA). TAMILNADU-Kanyakumari: Lower Kodayar, ± 600 m, 21.1.1978, Henry 52493 (MH); Tirunelveli: Kanthaparai, ± 800 m, 6.7.1964, Henry 19300 (MH).



*Cyathea balakrishnanii* Dixit & Tripathi  
Figs. 1-3 : 1. Rhizome, 2. Pinna lobes showing venation and sori. 3. Proximal part of spore,



Plate I: *Cyathea balakrishnanii* Dixit & Tripathi  
(Holotype, Dixit 41231)

Plants 1-1.5 m high; rhizome thick, massive, erect; fronds tufted, spreading, stipes thick, fleshy bearing numerous scales in the basal region, scales flabelloid,  $5-15 \times 2-5$  mm, possessing a median band of thick walled dark-brown cells terminating as setiform apex and thin walled pale-yellow marginal cells without setae, fragile in nature, dark-brown to almost black in the basal part, deep purplish to dark-brown or light-brown in the upper part, stipe and rachises with the upper surface bearing many septate unicellular hairs and the lower surface with a few smaller flabelloid scales ending into setiform apex, bipinnate to tripinnate, middle pinnules  $5-7 \times 1-1.2$  cm, shallowly lobed throughout except the acu-

minate, crenate apex, each lobe distinctly crenate possessing 2-3 pairs of simple veins, rarely 4 pairs observed in a few specimens only; the uppermost pinnules united into an acuminate, pinnatifid apex; upper surface of costae dark-purplish, hairy to glabrous, lower surface bearing a few small scales similar to those on rachises; membranous, upper surface shining dark-green in live plants turning blackish-green on drying, lower surface light-green; the lowermost pinnules small,  $1-2.5 \times 0.8-1$  cm, fertile usually crenate throughout the margins or slightly constricted with tendency towards lobing; sori copious, dark-brown, glabular, 2-3 pairs; spores trilete  $25-30 \mu$  m in diameter, verrucoid.

The present species can be easily distinguished from *Cyathea glabra* in its lobes being distinctly crenate, not smooth and from *C. podophylla* in scales without marginal setae, similarly from *C. gigantea* it differs in smaller shallowly lobed pinnules 2 to 3 pairs of simple veins in each lobe as against the longer deeply lobed pinnules and 5 to 7 pairs of simple veins in each lobe of *C. gigantea*.

*Local name*: Jatamanshi in Madhya Pradesh.

*Distribution*: India-Madhya Pradesh, Tamil Nadu, Kerala.

#### ECOLOGY

In Pachmarhi the plants are seen growing along stream sides with a perennial source of flowing water in moist situations among rock boulders in the forest floor or in rock crevices. The massive rhizome with bunches of black thick long roots and tufted fronds forming short thick trunk coming out of surface with spreading fronds draw immediate attention in the forests. The species is quite abundant in the area of occurrence in the forest.

#### ETYMOLOGY

The present species is named after Dr. N. P. Balakrishnan, who was Deputy Director



Plate II. *Cyathea balakrishnanii* Dixit & Tripathi—Habit

in the Central Circle, Botanical Survey of India, Allahabad during the period of discovery of species and the constant interest in critically examining the specimens, manuscript and encouragement evinced by him on the subject.

#### ACKNOWLEDGEMENTS

Grateful thanks are due to Dr. M. P. Nayar, Director, Botanical Survey of India,

Calcutta for encouragement and to Dr. N. P. Balakrishnan, Deputy Director, Central Circle, Allahabad for critically examining the specimens and manuscript, giving fruitful suggestions and latin transcription. Thanks are also due to Sri S. M. A. Naqvi, Artist for inking and drawing the rhizome and Shri M. A. Siddiqui, Photographer for the photograph of type specimen.