

ON THE ORIGINAL HOMELAND OF *CERATOPTERIS* BRONG. AND ITS PALAEOGEOGRAPHICAL PROVINCE

Ceratopteris Brong. (family Parkeriaceae) is an aquatic or subaquatic annual fern with short, erect rhizome having a few small fuscous palmas. According to COPELAND (1947) the fronds are of moderate size, pinnately decomposed, broad, glabrous and dimorphous; the fertile fronds are larger, more finely divided with longer and narrower pinnules than the sterile ones. The sporangia are sessile, seriate along the veins. Annulus are made up of 10-70 broad, thickened cells; spores in a sporangium are either 16 or 32. This genus, according to HOOKER AND BAKER (1868), is found throughout the tropics in quiet water, Mexico, West Indies, Brazil, from Punjab, southward in tropical Australia, Madagascar, Angola and tropical Africa. LLOYD (1972) assigned 4 species to this genus, viz. *Ceratopteris richardii*, *C. pteridoides*, *C. cornuta* and *C. thalictroides*. CHOWDHURY (1973), however, thinks it has 7 species.

The spores of *Ceratopteris* are very characteristic; similar ones are not found in any other family. They are triangular-subtriangular in shape, generally with distinct trilete mark, and costate on both sides. There are three sets of costae on the proximal side, each set restricted to one inter-radial area. The same set of costae of the proximal side traverses on the corresponding distal side running more or less parallel to each other.

The fossil spores assignable to this genus are known as *Striatriletes* van der Hammen emend. Kar (1979) and it has a wide geographical distribution. GERMERAAD, HOPPING AND MULLER (1968) reported its occurrence from the Oligocene sediments of Caribbean, Nigeria, Venezuela and Malaysia. KAR AND SAXENA (1981) found it from Eocene of Kachchh, Gujarat. SEIN AND SAH (1974) described this genus from Kopili Formation (Eocene) of north-eastern India.

It is obvious from the previous data that the oldest record of *Striatriletes* is from Eocene of India while in other countries it is from Oligocene onwards. Therefore, it could be possible that *Ceratopteris* might have migrated from former to the latter. This genus might have presumably migrated to the equatorial Africa from the western coast of India during Eocene time when according to SMITH, HURLEY AND BRIDEN (1981) India was below the equator and its west coast was more or less running parallel to the eastern coast of Africa and Madagascar. Thereafter, this might have encroached the tropical region of North and South America. It is possible that *Ceratopteris* came to Malaysia through north-east India when at the end of Eocene, India was closely placed to Malaysia. From this country its migration appears to route to tropical Australia and towards north-east to Japan.

Within its roughly 50 million years of existence, *Ceratopteris* has exhibited a wide dispersal covering all the pantropical parts of the world. This palaeogeographical province may be named as *Ceratopteris* or *Striatriletes* province.

REFERENCES

- CHOWDHURY, N. P. (1973). *The pteridophyte flora of the Upper Gangetic Plain*. Navayug Traders, New Delhi.
- COPELAND, E. B. (1947). *Genera Filicum*. Waltham, U.S.A.
- GERMERAAD, J. H., HOPPING, C. A. & MULLER, J. (1968). Palynology of Tertiary sediments from tropical areas. *Rev. Palaeobot. Palynol.* **6**(3 & 4) : 189-348.
- HOOKE, W. J. & BAKER, J. G. (1868). *Synopsis Filicum or a synopsis of all known ferns*. London.
- KAR, R. K. (1979). Palynological fossils from the Oligocene sediments and their biostratigraphy in the district of Kutch, western India. *Palaeobotanist.* **26**(1) : 16-45.
- KAR, R. K. & SAXENA, R. K. (1981). Palynological investigation of a bore core near Rataria, southern Kutch, Gujarat. *Geophytology*, **11**(2) : 103-124.
- LLYOD, R. M. (1972). Species delineation in the genus *Ceratopteris* (Parkeriaceae) Abstract. *Am. J. Bot.* **59** : 676.
- SEIN, M. K. & SAH, S. C. D. (1974). Palynological demarcation of the Eocene-Oligocene sediments in the Jowai-Badarpur road section, Assam. *Symp. Stratigr. Palynol.* 99-105.
- SMITH, A. G., HURLEY, A. M. & BRIDEN, J. C. (1981). *Phanerozoic palaeocontinental world maps*. Cambridge Univ. Press, Cambridge.

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