

TAXONOMIC OBSERVATIONS ON THE GENUS *SEWARDIOXYLON* GUPTA — A JUNIOR SYNONYM OF *FASCISVARIOXYLON* JAIN

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ABSTRACT

In the present article the systematic position of *Sewardioxylon* Gupta (1971) has been discussed and proposed to consider *Sewardioxylon* Gupta as a junior synonym of *Fascisvarioxylon* Jain (1964). A new combination *Fascisvarioxylon sahnii* (Gupta) has been made.

INTRODUCTION

FROM the Jurassic of India Gupta (1960) reported the occurrence of a cycadean wood from the Rajmahal Hills, Bihar, as *sewardioxylon sahnii*, but no illustrations or photographs were incorporated which made it an invalid publication according to the Article 38 of the international Code of Botanical nomenclature (Lanjouw *et al.*, 1966, p. 39) for the purposes of systematics. Later Jain (1964) discovered a wood piece with well preserved anatomical details and established a new genus *Fascisvarioxylon*. Recently Gupta (1971) has revived his previous genus redescribing the full details, and has compared it with *Fascisvarioxylon* Jain.

Genus — *Fascisvarioxylon* Jain 1964

Selected Synonymy

1960 — *Sewardioxylon* Gupta, p. 428.

1971 — *Sewardioxylon* Gupta, pp. 160-166; pls. 35-36; figs. 1-22.

Remarks — Gupta (1971, p. 163) states, "Among the fossil cycadopsida it resembles very closely *Fascisvarioxylon mehtae* in having medullary and cortical bundles, parenchymatous pith and cortex without mucilage canals. The irregular course of vascular bundles through the pith seems also somewhat similar in both. But *Sewardioxylon* differs from the latter in many important respects; two rings of vascular cylinder in *Sewardioxylon* and one in *Fascisvarioxylon*, mesarch protoxylem in the latter while endarch in the former. The absence

of one to many celled medullary rays in our fossil makes it quite distinct from the other fossil wood from the Indian Jurassic".

The two rings of vascular cylinder in *Sewardioxylon* have been described as inner and outer ring; the protoxylem position is exarch and endarch in inner and outer ring respectively. This condition corresponds exactly with the centripetal and centrifugal xylem of the single vascular cylinder in *Fascisvarioxylon* which shows all the three types of protoxylem orientation, viz., endarch, exarch and mesarch. This has been further confirmed after re-examining the type slides of *Fascisvarioxylon* that the centripetal (inner ring) xylem has exarch and centrifugal (outer ring) has endarch protoxylem but at places the mesarch condition is also observed when the centripetal and centrifugal xylem are placed very closely opposite to each other which seems not occurring in the wood pieces of *Sewardioxylon*. The so-called two rings (inner = centripetal and outer = centrifugal) have been considered here as a single cylinder because of the variable orientation of vascular bundles at different lengths. It also appears to me, as indicated by Gupta (1971, p. 162) that the two rings might have resulted from a mesarch stele. Since small wood pieces have been studied, it would be best at present to interpret the inner and outer rings as the components of a single vascular stele which shows distinct changes when traced from top to bottom to the extent that the centripetal xylem (inner ring) becomes almost insignificant or absent (Jain, 1964, p. 140). The exact original nature of the normal vascular system remains an open question.

The absence of one to many celled medullary rays in *Sewardioxylon* can be treated as a specific rather than a generic difference.

Since there are no distinct characters of generic level in *Sewardioxylon* to distinguish

it from *Fascisvarioxylon*, it is, therefore, proposed here to consider *Sewardioxylon* Gupta as a junior synonym of *Fascisvarioxylon* Jain and transfer *S. sahnii* to *Fascisvarioxylon*.

Fascisvarioxylon sahnii (Gupta) Comb. nov.

Synonymy

1960 — *Sewardioxylon sahnii* Gupta, p. 428.

1971 — *Sewardioxylon sahnii* Gupta, pp. 160-166; pls. 35-36; figs. 1-22.

Remarks and comparison — For the description of this species see Gupta (1971, pp. 160-163). *F. sahnii* resembles very

closely with the type species *F. mehtae* Jain in most of the features but differs mainly in having bordered pits with spiral tertiary thickening in the radial walls of the tracheids, in the absence of one to many celled medullary rays and no development of mesarch protoxylem. The last feature may be a variation due to the variable nature of vascular bundles.

The scheme of classification proposed by Gupta to include *Sewardioxylon* and *Fascisvarioxylon* under a new order Sewardioxyles parallel to cycadales and Bennettitales seems early and for the present can easily be accommodated under the order cycadales.

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