

## Some new genera of Triassic seeds

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Cuticular studies of compressed seeds from the Triassic sediments of Nidpur, Sidhi District, Madhya Pradesh have revealed the presence of five new genera, viz., *Savitrismum*, *Nidismum*, *Rotundismum*, *Pyrispermum* and *Pantismum*. The seeds exhibit affinities with Pteridospermales and Cycadales.

**Key-words**—Megafossil, Pteridospermales, Cycadales, Seeds, Triassic (India).

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### सारांश

त्रिसंधी युगीन बीजों की कुछ नई प्रजातियाँ

सुरेन्द्र राघोबा माणिक

सिंधी जनपद (मध्य प्रदेश) में निदपुर के त्रिसंधी युगीन अवसादों से उपलब्ध बीजों के उपचर्मीय अध्ययन से सावित्रीस्पर्मम्, निदिस्पर्मम्, रोटन्डास्पर्मम्, पाइरिफॉर्मस्पर्मम् एवं पन्तियास्पर्मम् नामक पाँच नई प्रजातियों की उपस्थिति व्यक्त हुई है। ये सभी बीज टेरिडोस्पर्मल्स एवं साइकेडेल्स से सजातीयता इंगित करते हैं।

A NUMBER of seeds have been recovered from the bulk maceration of a carbonaceous shale from the Triassic Sequence exposed near Nidpur, Sidhi District, Madhya Pradesh. The seeds show well-preserved cuticle. On the basis of differences in the cuticular features of various seed membranes, five new genera have been established.

### SYSTEMATICS

#### *Savitrismum* gen. nov.

Pl. 1, figs 1, 2

*Diagnosis*—Seed oval; micropylar end curved, having crateriform opening; chalazal end rounded, pollen chamber well-defined; surface smooth, cuticle thin; outer integument consisting of rectangular cells, cell-walls straight; nucellar

membrane tough, cells polygonal having slightly undulating cell-walls; megaspore membrane exhibiting no cellular details.

*Type species*—*Savitrismum crateriformis*.

*Holotype*—Slide no. BSIP 9727.

*Derivatio nominis*—After Late Mrs Savitri Sahni.

*Discussion*—In its curved micropyle the taxon closely compares with seeds of *Umkomasia* Thomas 1933, a branched fructification. *Amphorispermum* Harris 1932 from Greenland resembles in general shape and size but differs in the presence of "spotted layer".

#### *Nidismum* gen. nov.

Pl. 1, figs 3, 4

*Diagnosis*—Seed oval; micropylar end obtusely pointed; chalazal end broadly oval; cuticle thick;

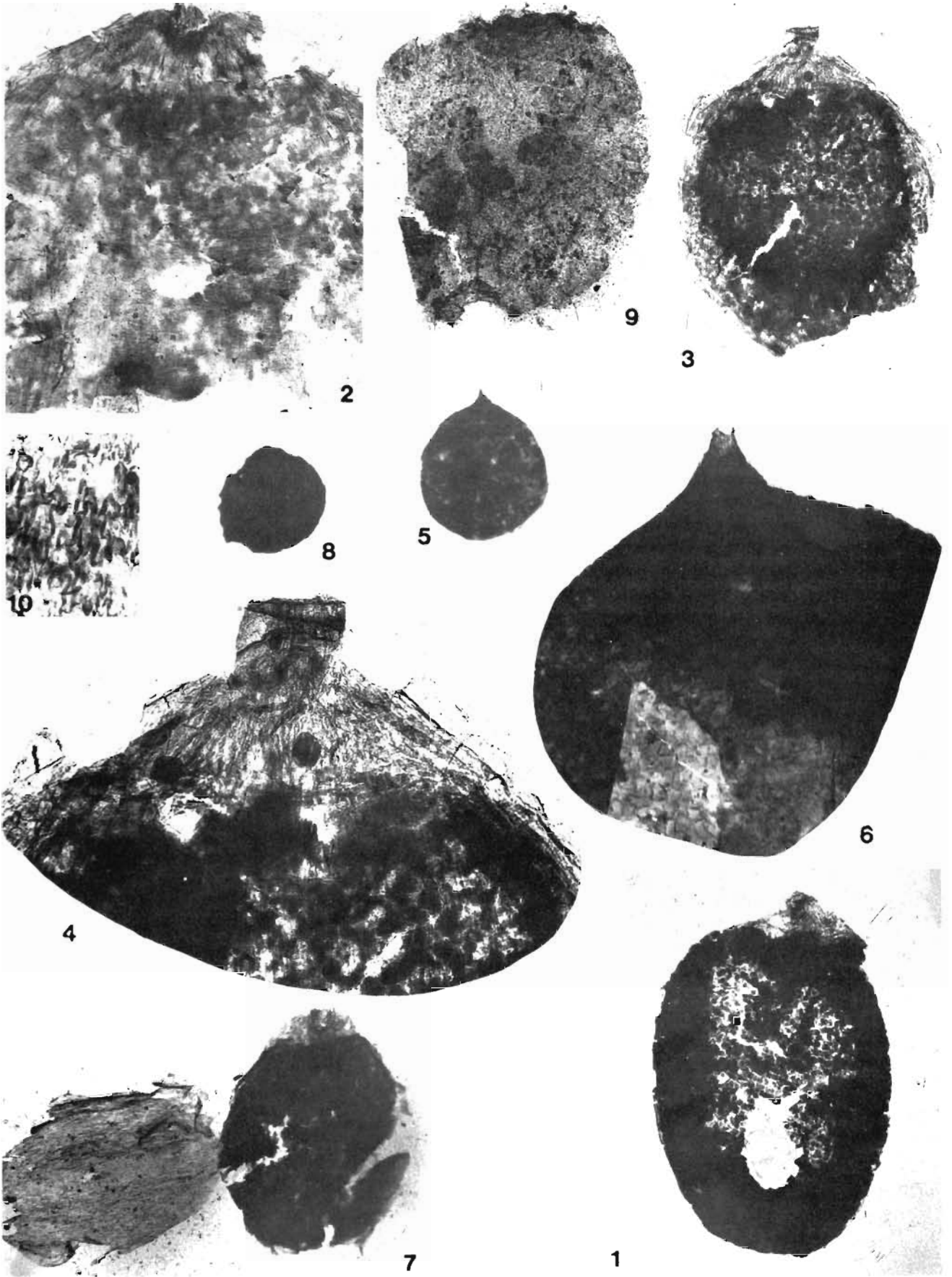


PLATE 1

outer integument tough, smooth or papillate, cells polygonal, straight-walled, nucellar membrane composed of polygonal cells, cells longer than broad; pollen-chamber distinct, pollen-grains present.

*Type species*—*Nidispermum glabrosum*.

*Holotype*—Slide no. BSIP 9729.

*Discussion*—*Nidispermum*, while resembling *Savitrismum* in general shape and size, differs in the absence of a curved micropyle. In its characteristic epidermal structure, *Nidispermum* shows similarity with *Dicroidium nidpurensis* Bose & Srivastava, 1971.

***Rotundaspermum* gen. nov.**

Pl. 1, figs 5, 6

*Diagnosis*—Seed more or less rounded with mucronate micropylar end; cuticle thick; outer integument consisting of polygonal cells with straight lateral- and end-walls; nucellar membrane made up of irregular polygonal cells showing cell-walls with fine undulations.

*Type species*—*Rotundaspermum mucronatum*.

*Holotype*—Slide no. BSIP 9730.

*Discussion*—*Rotundaspermum mucronatum* is distinguished from other seed genera by the presence of mucronate micropylar end.

***Pyriformispermum* gen. nov.**

Pl. 1, fig. 7

*Diagnosis*—Seed pyriform; micropylar end obtusely pointed, chalazal end broadly oval; cuticle moderately thick; outer integument showing

longitudinally elongated cells with smooth surface, cell-walls straight; inner integument delicate, adhering to nucellar membrane; nucellar cuticle thick, cells polygonal; megaspore membrane ill-defined.

*Type Species*—*Pyriformispermum elongatum*.

*Holotype*—Slide no. BSIP 9731.

*Discussion*—Genus *Pyriformispermum* is distinguished by its pear-shaped character.

***Pantiaspermum* gen. nov.**

Pl. 1, figs 8-10

*Diagnosis*—Seed broadly oval to elliptical; micropylar and chalazal ends somewhat rounded; cuticle thick; outer integument robust, bearing thickly-developed papillae, scattered all over the surface obscuring cell outlines; nucellar cuticle thick, cells polygonal or at times irregular; megaspore membrane dark brown in colour with indistinct cellular structure.

*Type species*—*Pantiaspermum cristatum*.

*Holotype*—Slide no. BSIP 9732.

*Derivatio nominis*—After Professor D. D. Pant.

*Discussion*—In the presence of typical papillae *Pantiaspermum* differs from other seed genera.

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**PLATE 1**

(All type slides are deposited with repository of Birbal Sahni Institute of Palaeobotany, Lucknow)

*Savitrismum crateriformis* gen. et sp. nov.

1. Whole mount of seed showing curved micropyle and nucellus; Holotype slide no. BSIP 9727. × 25.
2. Outer integument of seed with differentiated pollen chamber, Slide no. BSIP 9728. × 50.

*Nidispermum glabrosum* gen. et sp. nov.

3. A carbonized seed after alkali treatment showing integument being separated. Holotype, slide no. BSIP 9729. × 25.
4. Micropylar end of seed showing micropylar hole and details of pollen chamber associated with a part of nucellus. Slide no. BSIP 9729. × 80.

*Rotundaspermum mucronatum* gen. et sp. nov.

5. A seed immersed in glycerine showing mucronate micropylar

end. Holotype slide no. BSIP 9730. × 10.

6. Micropylar region of seed showing details of micropylar end and nucellus. Slide no. BSIP 9730. × 50.

*Pyriformispermum elongatum* gen. et sp. nov.

7. Whole mount of seed showing complete outer integument of one face alongwith micropylar opening and pollen chamber, Holotype slide no. BSIP 9731. × 25.

*Pantiaspermum cristatum* gen. et sp. nov.

8. Seed immersed in glycerine. Holotype slide no. BSIP 9732. × 10.
9. A complete outer investment of seed, with distinct micropylar opening, Slide no. BSIP 9732. × 25.
10. Epidermal details of the outer cuticle with strongly developed papillae, Slide no. BSIP 9733. × 150.

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