

Platyspermic seeds from the Early Permian of Paraná Basin, Brazil

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ABSTRACT

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This paper results from a taxonomic study of platyspermic seeds from taphofloristic assemblage of the “Toca do Índio Ranch”, belonging to the upper portion of the Itararé Subgroup, Municipality of Cerquillo (SP) and a revision of material collected by Millan (1977) from the same area which is deposited in the National Museum of Rio de Janeiro. The assemblage comprises the Transitional Taphoflora (A-B) or the *Gangamopteris-Rubidgea-Stephanophyllites* association from the type-locality of Northeastern Paraná Basin. This taphoflora is Early Permian (Asselian- Early Sakmarian) in age and records the beginning of the colonization of the Paraná Basin by the proto-glossopterid and gangamopterid elements of the *Glossopteris* flora. It is, probably, correlated to the Argentinean “Lubeckense A” Floristic Stage or even a little older. The platyspermic seeds are assigned to the genera *Samaropsis* and *Cordaicarpus*. The assemblage is diversified and includes the taxa *Cordaicarpus brasiliensis* n. sp., *Samaropsis dolianitii* Millan, *S. rigbyi* Millan, *S. tietensis* Millan, *S. cerquilhensis* (Millan) comb. nov., *S. moreirana* (White) Millan, *S. goraiensis* Surange & Lele, *S. rugata* sp. nov. and *S. rohnii* sp. nov. The record of *S. moreirana* (White) Millan in the present study is the oldest from the Paraná Basin and *S. goraiensis* Surange & Lele is recognized for the first time outside India. The wide variety of detached seeds reflect the diversification of the gymnosperms in this assemblage, putatively related to the last interglacial event of the Lower Gondwana glaciation in the Paraná Basin. Biostratigraphic correlation based on seeds is not possible due to apparent endemic nature of the assemblage and further work in this field is required.

Key-words—Platyspermic seeds, Paraná Basin, Early Permian, Lower Gondwana.

Calcareous Green Algae from the Umlatdoh Limestone belonging to Shella Formation (Jaintia Group) of South Jaintia Hills, Meghalaya, India

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ABSTRACT

Sarma A & Ghosh AK 2007. Calcareous Green Algae from the Umlatdoh Limestone belonging to Shella Formation (Jaintia Group) of South Jaintia Hills, Meghalaya, India. *The Palaeobotanist* 56(1-3) : 21-28.

Thin section analysis of Umlatdoh Limestone belonging to Shella Formation exposed in the southern part of Jaintia Hills yielded well preserved calcareous algae. Detailed taxonomical analyses of the algal forms reveal the existence of udoteacean and halimedacean green algae that includes three species of the genus *Ovulites* Lamarck belonging to family Udoteaceae. One species of *Halimeda* Lamouroux belonging to family Halimedaceae also has been described in the present paper. Based on the algal assemblage along with sedimentological and micropalaentological observations interpretations on palaeoenvironment and palaeobathymetry have been made.

Key-words—Calcareous algae, Udoteaceae, Halimedaceae, Taxonomy, Palaeoenvironment, Umlatdoh Limestone, Shella Formation, Meghalaya, India.

Middle Eocene calcareous Nannofossil Biostratigraphy and Taxonomy of onland Kutch Basin, western India

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ABSTRACT

Rai J 2007. Middle Eocene calcareous Nannofossil Biostratigraphy and Taxonomy of onland Kutch Basin, western India. *The Palaeobotanist* 56(1-3) : 29-116.

Rich and diversified nannofossil assemblage comprising 110 species (13 new species and 8 new taxonomic combinations) and 4 calcareous dinoflagellates species are described from the type locality of Harudi Formation and Fulra Limestone Formation of Kutch Basin. The assemblage is dominated by the families Braarudosphaeraceae, Rhabdosphaeraceae and Calyptosphaeraceae. All holococcolith genera except genus *Peritrachelina* are recorded in the assemblage. The assemblage is typically indicative of low-latitude, nearshore, shallow water environment and can be assigned to zone NP 17 *Discoaster saipanensis* Zone (Martini, 1971a emend. Rai, 1988). It also correlates with parts of both P13 *Orbulinoides beckmanni* and P14 *Truncorotaloides rohri* planktonic foraminifera Zones (Blow, 1969) and a part of D11 Dinoflagellate Zone (Costa & Manum in Vinken, 1988) of Bartonian age. Critical reappraisal of published fossil records including age diagnostic planktonic and larger foraminifera species and nannofossil data along with field observations of supratrappeans indicate, three discrete lithounits in ascending order viz., shale-marl-limestone upto terminal Fulra Limestone Formation.

The proposed model questions the presence of marine sediments of Palaeocene, Lower Eocene and Lutetian age in onland Kutch Basin (Biswas & Raju, 1973; Biswas, 1992).

Key-words—Nannofossils, Bartonian, Biostratigraphy, Kutch Basin.

Vegetation and climatic changes around Lamayuru, Trans-Himalaya during the last 35 kyr B.P.

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ABSTRACT

Ranhotra PS, Bhattacharyya A & Kotlia BS 2007. Vegetation and climatic changes around Lamayuru, Trans-Himalaya during the last 35 kyr B.P. *The Palaeobotanist* 56(1-3): 117-126.

Palynological analysis of a 105 m deep palaeolake profile from Lamayuru, Ladakh, Trans-Himalayan region, provides a broad idea of temporal succession of vegetation *vis-à-vis* climatic changes during major part of the last glacial period. The present study suggests that the prevailing semi-arid climate of this region has been continuing at least from prior to 35 kyr B.P. characterized by the *Chenopodiaceae-Ephedra-Artemisia* steppe. Migration of *Betula* around 35 kyr B.P. into the steppe took place when climate was comparatively less arid than before and its further increase around 22 kyr B.P. in the *Ephedra-Artemisia-Chenopodiaceae* steppe suggests comparatively favourable climatic conditions. Subsequently the climate had turned to be cooler and drier with the expansion of steppe taxa.

Key-words—Trans-Himalaya, Palaeo-vegetation/climate, Palynology, Late-Pleistocene.

Triassic Conifer wood from the Tiki Formation, South Rewa Basin, Madhya Pradesh, India

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ABSTRACT

Ram-Awatar & Rajanikanth A 2007. Triassic Conifer wood from the Tiki Formation, South Rewa Basin, Madhya Pradesh, India. *The Palaeobotanist* 56(1-3): 127-132.

The present paper records a conifer wood from the Triassic sequence of the Tiki Formation, ~3 km NE of Tiki Village, district Shahdol, Madhya Pradesh, India. Since Triassic wood records are hardly known from India when compared to leaf fossils, the present report of podocarpean wood provides additional evidence for the existence of conifers in the otherwise pteridosperm dominated fossil flora of South Rewa Basin during the Carnian-Norian times.

Key-words—Conifer wood, Triassic, Tiki Formation, South Rewa Basin, India.

Permian megaspores from Godavari Graben, India: Present Status

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ABSTRACT

Tewari R & Jha N 2007. Permian megaspores from Godavari Graben, India: Present Status. *The Palaeobotanist* 56(1-3) : 133-138.

A survey of megaspore studies from Permian of Ramagundam, Chelpur, Mailaram, Rampuram, Gundala and Kachinapalli areas of Godavari Graben, Andhra Pradesh indicates their qualitative and quantitative richness during the Late Permian. Out of seventy nine megaspore taxa recorded from Indian Lower Gondwana, twenty three are represented in this graben. Presence of *Biharisporites sparsus* in the Raniganj Formation of Kachinapalli area is particularly significant because it was previously recorded from Triassic and thus indicates an early appearance of Triassic taxon in Godavari Graben in Late Permian. Additionally, the survey also records a higher (eighteen) number of megaspore taxa in the Raniganj Formation. A distinct evolutionary trend is observed since exosporia of megaspores from the Barakar Formation are simple and those of the Raniganj Formation are complex and more diversified.

Key-words—Megaspores, Permian, Gondwana, Godavari Graben, India.

Systematic study of the leaf impressions from the Churia Formation of Koilabas area, Nepal and their significance

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ABSTRACT

Prasad M & Dwivedi HD 2007. Systematic study of the leaf impressions from the Churia Formation of Koilabas area, Nepal and their significance. *The Palaeobotanist* 56(1-3) : 139-154

Detailed study of the leaf impressions collected from the Churia sediments of Koilabas area, western Nepal reveals the occurrence of eight taxa, viz. *Berchemia nepalensis* sp. nov. (Rhamnaceae), *Canthium siwalicum* sp. nov., *Nauclea seriensis* sp. nov. and *Randia miouncaria* sp. nov. (Rubiaceae), *Alyxia koilabasensis* sp. nov. and *Alstonia nepalensis* sp. nov. (Apocynaceae), *Antidesma miocenica* sp. nov. (Euphorbiaceae) and *Artocarpus nepalensis* Prasad and Awasthi (Moraceae). The habit and habitat of the modern equivalent of leaf impressions indicate

existence of evergreen forest thriving under warm humid climate in the Koilabas area during the Middle Miocene as compared to mixed deciduous forests growing at present under reduced precipitation.

Key-words—Leaf impressions, Churia Formation, Middle Miocene, Palaeoclimate, Koilabas, western Nepal.