

## Modern pollen deposition in relation to different vegetation types in the Jaintia Hills of Meghalaya, Indo-Burma region: implications for palaeoecological reconstructions

SADHAN KR. BASUMATARY<sup>1</sup>, SWATI TRIPATHI <sup>1</sup>, KSHIPRATIV BASUMATARY<sup>2</sup>,  
BISWAJEET THAKUR<sup>1</sup> & POOJA TIWARI<sup>1,3</sup>

<sup>1</sup>Birbal Sahni Institute of Palaeosciences, Lucknow, India, <sup>2</sup>Department of Botany, Gauhati University, Guwahati, India,  
<sup>3</sup>Department of Geology, Lucknow University, Lucknow, India

### Abstract

This study documents the relationship between modern pollen deposition and vegetation types in the Jaintia Hills of Meghalaya, India. Five characteristic modern pollen assemblages are recognised based on the representation of marker pollen taxa observed in the surface soil samples obtained from different areas based on vegetation types and land use. The *Pinus–Alnus–Betula–Quercus–Schima–Impatiens* assemblage is associated with subtropical pine forest with a relatively cold and wet climate. The *Schima* forest is characterised by the *Schima–Cinnamomum–Alnus–Quercus–Pandanus–Impatiens* pollen assemblage. The evergreen forest is characterised by the *Mesua–Syzygium–Duabanga–Ilex–Nepenthes–Dendrophthoe* assemblage, indicative of the warm and wet climate in response to the high rainfall activity in this region. The grassland was characterised by the presence of the non-cereal–Cyperaceae–*Pandanus–Schima–Asteroideae–Cichorioideae–Impatiens* assemblage in the Jaintia Hills. The cropland was represented by cereal–*Polygonum–Pinus–Schima–Nepenthes–Impatiens* palyno-assemblages. Multivariate principal component analysis (PCA) was applied and showed a close correlation between the recorded pollen assemblage in relation to the different vegetation types in Jaintia Hills. The different forest types, especially evergreen and *Schima wallichii* (DC.) Korth., forests, along with the consistent recovery of *Nepenthes* and *Pandanus* pollen reflect the vicinity of coastal habitats in this part of the Indo-Burma region. This investigation demonstrates that this newly developed modern pollen analogue could be a potential proxy for the interpretation of palaeovegetation and palaeoclimate in the Jaintia Hills and other adjacent regions of the Indo-Burma biodiversity hotspot.

**Keywords:** *Anthropogenic activity, northeast India, palyno-assemblage, rainfall, surface sample, vegetation*