

Modern Pollen Assemblage and Micro-morphometric Analysis of Arboreal and Non-arboreal Taxa from Lucknow District of Central Ganga Plain, India: A Window to Palaeoclimatic Studies



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Abstract The present study was intended to establish a modern pollen analogue from the open-land areas of the Lucknow district as well as to investigate pollen morphological attributes from the same region to resolve and refine the taxonomic categorization and pollen identification. The flowers of 29 plant taxa belonging to 18 different families have been procured from the premises of BSIP and BBAU including the forest edge and open land localities of Lucknow district. Detailed pollen micro-morphological investigation of twenty nine plant taxa has been carried out under the Light Microscopy (LM). The pollen morphological characteristics like aperture number, position and character (NPC), pollen shape, size, exine sculpturing and thickness play a vital role in assigning different pollen taxa to genera, species and families. The palynological studies in the surface soil samples aids in tracing the marker pollen taxa which reflects the current vegetation pattern and climatic condition and hence have a plausible role in the palaeoclimatic interpretation. The pollen assemblage in the surface soil sample reflects the complete dominance of non-arboreal taxa (78.07%) over the arboreal taxa (9.99%). The prominent non-arboreal taxa are represented by Caryophyllaceae, Acanthaceae, Amaranthaceae, *Celosia argentea*, Lamiaceae, Brassicaceae and Asteroideae, followed by *Kydia* sp. The arboreal taxa are mainly represented by *Butea monosperma*, *Emblica officinalis*, *Alstonia scholaris*, *Holoptelea integrifolia*, *Lagerstroemia parviflora*, *Terminalia bellirica*, Meliaceae and *Syzygium cumini*. The distribution of marshy and aquatic taxa is less prominent. Thus, the overall palynological study would help in the precise identification of the pollen in the surface soil and the sedimentary sections for the formulation of the

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