



## ULTRASTRUCTURE OF A LOWER EOCENE LEAF SURFACE IMPRESSION IN AMBER, VASTAN LIGNITE MINE, GUJARAT

N. SAHNI<sup>1</sup>, M. P. SINGH<sup>2</sup>, U. BAJPAI<sup>3</sup>, A. AGARWAL<sup>3</sup>, H. ALJMOHAMMADIAN<sup>1</sup> and N. SARKAR<sup>2</sup>

1. CENTRE OF ADVANCED STUDY IN GEOLOGY, PANJAB UNIVERSITY, CHANDIGARH-160014

2. GEOLOGY DEPARTMENT, LUCKNOW UNIVERSITY, LUCKNOW-226007

3. BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, LUCKNOW-226007

### ABSTRACT

Scanning Electron Microscopy of fossil leaf surfaces imprinted on amber nodules illustrate the potential of this technique in understanding the fine resolution details at the cell level including the density distributions of stomata and trichomes. Isolated trichomes are commonly found in certain ambers but are here described in a spatial cuticular context. Stomatal distribution and density are also recorded.

About 15 fragments of an unidentified fossil leaf from the Vastan Lignite Mine, near Surat were studied and provide morpho-structural details of the cuticular surface, mode of preservation and an interpretation of palaeoecological conditions and depositional palaeoenvironments. Using multi-imaging techniques it has been possible to obtain three-dimensional images of body fossils as well as surface impressions of plant and insect remains from the same material.

**Keywords:** Ultrastructure, leaf surface, Lower Eocene, Amber, Vastan Lignite Mine, Gujarat