

# Palynology: A Tool to Decipher the Impact of Anthropogenic Activity on Palaeo-Vegetation—A Review Based on Fossil Pollen Records from India



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**Abstract** The applications of palynology to understand palaeo-environment and palaeo-vegetation changes have been well established from deposits ranging from the Palaeozoic to the Quaternary. The Holocene epoch has best witnessed the impact of anthropogenic activities lead by a quantum jump in human population. Vegetation distribution and its variations due to exogenous influences are evident in the fossil and modern pollen records globally. Palynology has proved to be a tested tool to decipher these changes in the environmental dynamics and changing floral compositions, as a consequence of anthropogenic activities. We have made an attempt to understand the pattern of preservation of these anthropogenic marker taxa in the pollen records across the different physiographic regions of India. The spatio-temporal distribution patterns of the occurrence of anthropogenic marker taxa have been discussed and their use in deciphering related human activities. We provide an overview of the palynological records which evidently state the presence of the marker taxa with a clear reporting of anthropogenic influence in the different regions. Here we review the Holocene pollen records across India to specify the presence of anthropogenic pollen in the vastly populated and agriculture dominated regions of the country.

**Keywords** Holocene · Palynology · Paleoenvironment · Paleoclimate · Anthropogenic activity

## 1 Introduction

Human activities have changed the ecological landscape globally altering the land-use and land-cover dynamics consequently disturbing the various forest types. The complex entanglement of climate, vegetation and human activities have caused alteration of the floral compositions in the various biomes. The presence of evidence of

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