Institut Francais de Pondichery
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Modern Pollen and Ecological Studies

ABSTRACT

Research Theme: Modern Pollen and Ecological Studies as Tools to Palaeoecological Reconstruction in South India: A Multidisciplinary Approach

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My study involves understanding the ecology of the present vegetation in relation to climatic, microclimatic, edaphic and biotic factors in conjunction with study of modern pollen rain as well as late quaternary pollen deposits in the Eastern Ghats of South India. This study will enable us to reconstruct the past climate and vegetation pattern of this particular region. The primary tool of this study is pollen; additionally climate, remote sensing and vegetation data are also used. Plant traits used to define plant functional types will eventually be linked to the pollen data generated by this project, which will also be applied to the development of regional to sub regional maps of Biome distribution at the scale of the Indian sub-continent. These plant traits can be related to the climate based on pollen data. This analysis of variations in the pollen assemblages recorded in sediments will give a picture of the history of past vegetations leading to an understanding of past climate, focusing on the more recent Quaternary period.

Pollen analysis has been an important proxy tool in revealing the climate change. The success of this technique is dependent upon a good understanding of the relationship between modern pollen rain and present vegetation of the region. Study of the modern pollen rain can be useful in establishing the pollen-vegetation relationship with a high degree of reliability as the pollen deposits at any site reflect the vegetational events of that particular site. This will be instrumental in better understanding the same relationship in fossil samples, as there is no direct way of reconstructing past vegetation/climate.

My study mainly concentrates on the collection of modern surface samples and sediments and correlating the occurrence/abundance of pollen types or assemblages with present climate and vegetation data. This research will indicate that pollen data analysis has several advantages as a method of palaeoclimatic reconstruction, and when coupled with modern vegetation studies, will be a very good biological proxy record of past vegetation.