

Phytolith Analysis of Intrabasaltic Palaeosols (Bole Beds) from the Deccan Volcanic Province of Western India: A Preliminary Study

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Abstract : Phytolith studies were carried out for the intrabasaltic bole beds occurring in the western part of the Deccan Volcanic Province. This preliminary study indicates the presence of multiform phytoliths both in red and green boles. Red bole indicates well preserved elongate phytoliths from Acanthaceae plants while bulky Bulliform phytoliths mainly from Pleioblastus/ Andropogonea/reeds plants. Degeneration of few phytoliths from red bole indicates either leaching/etching or some other activity that is responsible for such post-preservation conditions. Phytoliths from the green bole, however, seem to be well preserved as compared to those from the red bole. The phytoliths from green bole are mainly of Festucoid types (especially small square and rectangular types) indicating the presence of Chrysobalanaceae type of vegetation followed by elongate phytoliths from Acanthaceae plant types. The Multiform Trichomes seems to be derived from Panicoid/Andropogonoid/Burseraceae/Fabaceae while Bulliforms from Pleioblastus/Andropogonea/reeds. Presences of silicified woody elements from both red and green boles indicate the presence of dicotyledonous plants which could have been in the form of small shrubs. The degenerated phytoliths in red bole suggest leaching/etching or higher intensity of weathering suggesting the existence of well-drained conditions during its formation that enhanced the leaching activity while the presence of well-preserved phytoliths in green bole point towards the existence of damp and desiccated conditions during its formation. The prevalence of dry condition during red bole formation could suggest their formation under higher temperature as compared to green bole. Based on the phytolith analysis it is too early to comment on the palaeoclimates which could have prevailed during the bole bed formations. However a detailed micromorphological, as well as phytolith analysis of more samples, can throw light on the palaeoenvironmental conditions as well as the biological activity during their formation.

Keywords : Deccan volcanic province, intrabasaltic bole beds, palaeoclimate, phytoliths

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