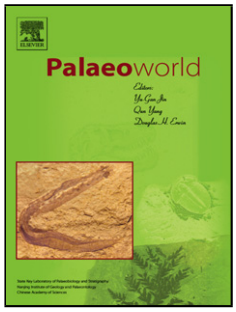

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Macroscopic charcoal remains as evidence of wildfire from late Permian Gondwana sediments of India: Further contribution to global fossil charcoal database

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Abstract

Although there have been numerous reports of the occurrence of charcoal from the Indian Permian sediments (Kashmir and the Domodar Basin), here we report a new occurrence of charcoal from the Lopingian sediments of Central India, which is evidence of wildfire occurrence in the Permian of Gondwana and an addition to the global fossil charcoal database . Charcoal, a product of incomplete combustion of vegetation, is extensively reported from the Permian sediments of southern and northern hemisphere. Numerous reports have been generated from palaeobotanical and petrographical aspects of Gondwana sediments of India but the presence of macroscopic fossil charcoal has been somewhat overlooked until the past few years by many researchers, though the fusinite (charcoal equivalent term in petrographical studies) from many coalfields of Indian Gondwana has been attributed to pyrogenitic origin. Our study was carried out on macroscopic charcoal fragments retrieved from an exploratory drill core MBKW-3 from Mand-Raigarh Coalfield in the central part of the Mahanadi Basin, eastern India. The analysis involved Scanning Electron microscopy for study of anatomical features and reflecting microscopy for estimation of the temperature of fire of charcoal formation where the inertinite reflectance data (average