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PETROGRAPHY AND GEOCHEMICAL STUDIES OF UPPER PALEOZOIC SANDSTONES FROM THE TETHYS HIMALAYA, SPITI VALLEY, HIMACHAL PRADESH

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Abstract

Sandstones from the shale-sandstone association of Permo-Carboniferous sequence of the Kanawar Group of Spiti region are taken-up for detailed petrographic and geochemical investigation. Compositionally, they are quartz-arenite, sub-litharenite and sub-arkose. Their chemical index of alteration (CIA) values range from 53 to 78 i.e., indicating low to intense chemical weathering. The point counts shows the presence of quartz as a dominant framework mineral with varying amounts of rock fragments (mainly chert, phyllite, gneissic components) and feldspars andindicate cratonic interior and recycled orogenon the Qt (quartz)-F (feldspar)-L (lithic fragments) triangular diagram, suggesting their derivation mostly from stable cratons. The integrated petrographic and geochemical studies suggest that sandstones from the Tethys Himalaya, Spiti region, are derived probably from a felsic (granitic) dominant source occurring to the south of the basin.

Keywords: Permo-Carboniferous Sandstones; Petrography; Geochemistry; Spiti Valley; Tethys Himalaya.