

## **Ordovician outcrops in the Hazara basin; constraints from the detrital Zircon U-Pb geochronology**

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### **Abstract**

The detrital zircon U-Pb geochronology provides a powerful dataset to interpret the detrital sources and gives a maximum depositional age for the clastic sequences. We adopted this methodology to constrain the maximum depositional age of the quartzite unit exposed in the Sherwan syncline. This quartzite unit is considered to be the part of Early Cambrian Abbottabad Formation. Recently, it is proposed to be equivalent of the Misri Banda Quartzite (MBQ) having occupied the same stratigraphic position (Qasim et al., 2015). However, the age of the MBQ is well constrained around Ordovician (DiPietro and Pogue, 1992), while the age of Sherwan Quartzite unit is poorly constrained. Therefore, in order to decipher the age of this quartzite unit, two sample representing the bottom and top were collected for U-Pb geochronology. These samples gave a youngest detrital age of  $492\pm 3$ Ma and  $486\pm 4$ Ma for the bottom and top of the formation respectively. This dataset place the Upper Quartzite unit in the Ordovician period. Furthermore, the lithological similarities with the MBQ and the recent U-Pb geochronology indicates the continuation of Peshawar Basin stratigraphy towards the western Hazara Ranges. This evidenced the continuous widespread deposition along the northwestern Indian passive margin during Early Paleozoic.