## Supplementary figure captions

**Figure S1.** (a) Synoptic view of Penzi-la area on Google Earth image showing the location of different field photographs and study site. (b) Downstream view of the Zanskar Valley from Penzi-la. (c) Field photograph showing the Drang-Drung glacier. (d) The study site (i.e., the kettle-hole lake on Penzi-la pass). (e) Local herbaceous vegetation growing along the moist places in Zanskar Valley, representation of C3 vegetation.

**Figure S2.** Climate Research Unit data showing the average temperature and precipitation around the study area (PNZ =Penzi-la; PDM =Padum).