

# **Boron isotopic composition of the organic phase in loess-paleosol sediments from Chinese Loess Plateau of Linxia**

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Boron (B) possesses two stable isotopes, <sup>10</sup>B (19.82%) and <sup>11</sup>B (80.18%), with a significant mass difference (~ 10 %) and its high solubility in water coupled with its reactive chemical nature, resulting in varying boron isotope ( $\delta^{11}\text{B}$ ) values across different geological environments, exhibiting over 100 ‰ isotopic variation. Thus, B isotopes may provide new geochemical indicators for the Quaternary paleoenvironmental changes.

Numerous work have shown that loess-paleosol records are good archives for paleoclimate study and could be well compared with ice core and speleothom records. Hence, we studied B isotopic composition from the Linxia section on the northwest of the Chinese Loess Plateau (CLP). The samples are treated by sequential extraction procedure. The boron content and isotopic compositions are analyzed using MC-ICP-MS. The boron contents varies within the range of 0.386  $\mu\text{g g}^{-1}$  to 1.268  $\mu\text{g g}^{-1}$  and  $\delta^{11}\text{B}$  values varied from - 27.18 ‰ to - 9.33 ‰. The  $\delta^{11}\text{B}$  value of loess were negative than those of paleosol. There are significant correlations between boron content,  $\delta^{11}\text{B}$  and biomass. Therefore, we suggest that Lithium contents and isotope can reflect the biomass history on the CLP and can be regarded as an alternative proxy of paleomonsoon changes.