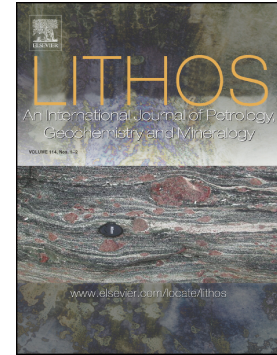


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Using apatite to discriminate synchronous ore-associated and barren granitic rocks: A case study from the Edong metallogenic district, South China

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Abstract

In order to find criteria to discriminate the synchronous ore-associated and barren granitoid rocks, we have determined apatite chemistry associated with ore-associated (Cu-Au) and barren granitoid rocks in the Edong district of the Middle and Lower Yangtze River metallogenic belt, South China. Both rock types give zircon U-Pb ages between 135.0 and 138.7 Ma. Apatite has a higher volatile and Li content (Cl: 0.19-0.57 wt%, average 0.35 wt%, SO₃: 0.08-0.71 wt%, average 0.32 wt%, Li: 0.49-7.99 ppm, average 3.23 ppm) in ore-associated rocks than those in barren rocks (Cl: 0.09-0.31 wt%, average 0.16 wt%, SO₃: 0.06-0.28 wt%, average 0.16 wt%, Li: 0.15-0.89 ppm, average 0.36 ppm). Apatite (La/Yb)_N ratios and Eu/Eu* values are relatively high and show wider variation in ore-associated rocks than those in barren rocks. Apatite (La/Sm)_N and (Yb/Sm)_N show positive correlation in ore-associated rocks but negative in barren rocks. The higher volatile content occurs in

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