

**The Geochemistry of the Alluvial Topaz
associated with the Jurassic
kwandonkaya Granites in North-East
Jos, Nigeria.**

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Abstract:

Occurrences of topaz, associated with cassiterite mineralization within the Jurassic younger granite complex in Nigeria has been mentioned by several authors. This project reports the result of an integrated study of the geology, geochemistry, mineralogy and petrogenetic setting of the alluvial topaz found occurring within the kwandonkaya younger granite complex.

The kwandonkaya granites which field mapping and petrographic studies show to be biotite-granites with slight textural variation most probably bear the euhedral topaz crystals in miarolitic cavities which inundate them. Two major varieties of topaz are found they are the 'colourless' and 'blue' types. Inclusions occurring within the crystals are mainly rutile rods and two phase fluid inclusions containing water and a gas. The associated minerals are cassiterite, quartz of four varieties, pottassic feldspars, fluorite, micas and plagioclase.

Magmatism in the complex was largely restricted to the pneumatolytic phase. A suggested geochemical prospecting method involves using the number of the miarolitic cavities per unit area, this takes into account that a higher density is associated with greater mineralization hence a consequent enrichment of surrounding placers with gemstones and economic metals.

Keywords: Geology/ mineral content/ topaz/ kwandonkya granite/ magmatism/ petrographic studies/ pneumatolytic phase/ miarolitic cavities

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