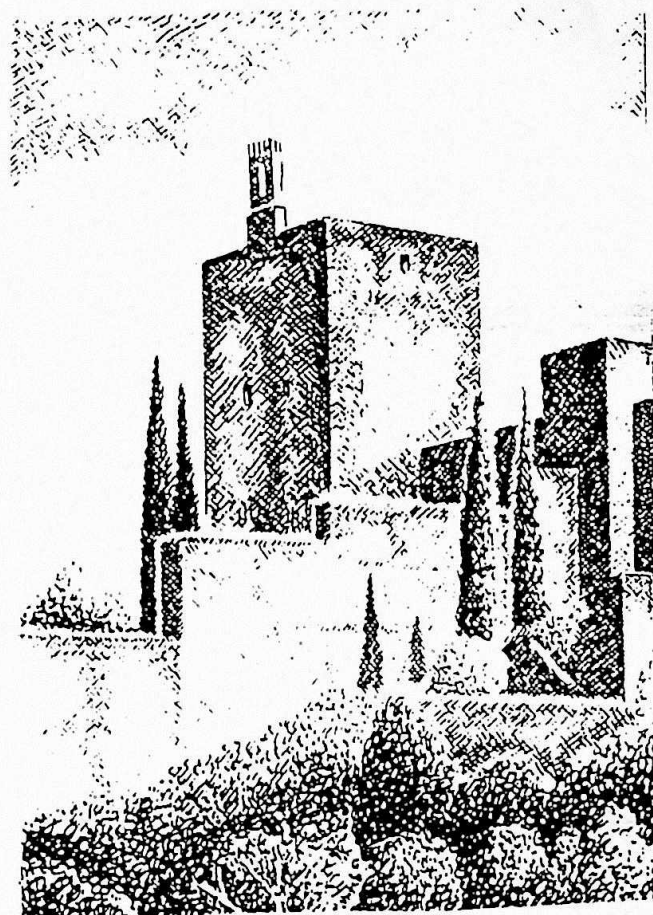


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# GEOCHEMISTRY OF THE EARTH SURFACE AND PROCESSES OF MINERAL FORMATION

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## A B S T R A C T S

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WEATHERING AND SUPERGENE COPPER ENRICHMENT ON THE BIOTITES OF THE COPPER  
ORE DEPOSIT OF SALOBO 3A, SERRA DOS CARAJAS, BRAZIL

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The copper mineralized metasedimentary rocks of Salobo 3A, Serra dos Carajas, Brazil, consist of several lithological facies (magnetitic, biotitic and amphibolitic) which are weathered into a very thick mantle presenting some particularities ; one of those is the preservig of the copper contents even after the sulfide dissolution.

In this paper, we present a study of the biotites evolution during the weathering, through a mineralogical, geochemical and petrographical point of view. Many stages of weathering can be found as regular and irregular interstratified minerals, vermiculite, smectite and kaolinite crystals.

The parent biotites are Cu-depleted, but their earliest weathering products (interstratified minerals and vermiculite) represent a trap for the copper released from the sulfide dissolution, likewise the ferruginous and mangesiferous secondary phases (Groke et al, 1986). All these secondary phases present high copper contents.

The following transformations of the phyllosilicates are smectite and kaolinite, which do not keep the copper previously taken, that is then released for the fissural system.