Jacutinga type of gold mineralization a unique class of deposit in the Proterozoic Itabira iron formation at Quadrilátero Ferrífero, MG, Brazil

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Jacutinga, defined as a pulverulent, rich iron ore, contains in variable proportions hematite, kaolinite, quartz, muscovite, talc, goethite and pyrolusite. This definition is slightly different from the original work which included tourmaline (Hussak, 1906). The total absence of sulphides in jacutinga is outstanding. It occurs as small pockets and pods, seemingly controlled by ductile to brittle shear zones, with rich palladian gold mineralizations. Fluid inclusion studies in quartz which revealed moderately saline, low temperature fluids in conjunction with paragenetic observations allowed the conclusion that gold and palladium were deposited from acid, oxidising, low temperature (80-150°C) hydrothermal chloridric solutions controlled by the relative proportions of Mn- and Fe-oxides. Muscovite being consumed in favour of kaolinite suggests fluids of higher temperature than the indicated. The lateral distribution of gold concentrations, its impoverishment downward and fluid characteristics indicate that the deposits are relatively shallow which must be followed or prospected according to the concentrations of the mineral assemblage in the jacutinga. Such pattern can be observed at the Gongo Soco, the several deposits at the Itabira district and elsewhere in the Quadrilátero Ferrí
fero. Previous suggestions that the gold within jacutinga was inherited from the underneath greenstones must be reviewed.