

ORIGIN OF THE OCELLAR STRUCTURE IN A GRANITE OF THE PEDRA AZUL INTRUSIVE COMPLEX, ESPÍRITO SANTO, SOUTHEAST BRAZIL

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In Espírito Santo various circular zoned intrusive bodies occur showing a compositional gradation from the border to the core from felsic to intermediate/mafic rocks. So does the Pedra Azul pluton with granite at the border to the enclosing rocks (quartzite and paragneisse), passing to granodiorite, tonalite, and diorite to the center. These rocks are frequently associated with mingling zones, which crop out in extensive areas of pillow like and net-veined structures. The igneous lithotypes are separated from the enclosing rocks by a migmatized zone, which shows magmatic piecemeal stoping, lit-par-lit or nebulitic contacts. The aim of this work is to find out the origin of the ocellar texture occurring in a syenogranitic rock. This rock is composed of leucocratic rounded ocelli surrounded by a mesocratic biotitic matrix. The ocelli are essentially sphene-centered aggregates of microcline and quartz, with minor amounts of allanite. Microcline, quartz, biotite, plagioclase and accessory phases (zircon, allanite, opaque minerals and fluorite) form the matrix. This rock crosscuts all magmatic units and host rocks. Methods for this investigation include microprobe and fluid inclusion analysis and geochemical modelling. This texture was described as being formed by magma mixing processes but field evidences, as well as petrographic and geochemical results indicate that the ocellar granite was possibly formed by autometasomatic processes in the late stage of magmatic crystallization, but it was certainly not formed by magma mixing. The origin of the ocellar texture is probably connected to Fe/Ca/Ti/REE exchange and/or migration.