

THE HILÁRIO FORMATION (CAMAQUÃ BASIN, RIO GRANDE DO SUL, BRAZIL) IN VISTA ALEGRE REGION: A HIGH POTASSIC CHALC-ALKALINE EVENT

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The Hilário Formation (590 m.a.) is represented in the Vista Alegre region (Lavras do Sul city) by lava deposits and hypoabissal manifestations. Petrographically, they correspond to andesites, trachyandesites and sub-alkaline basalt. The mineralogy is similar in all petrographic types, and the mineral chemistry shows that the plagioclase phenocrystals, when not albitized (Ab 99-97 and Ab 81-90), are slightly zoned, ranging from An₅₂₋₅₀ in the center to An₄₇ at the rims; the micas correspond to aluminous biotites. There is also clinopyroxene and magnetite. The groundmass may have devitrified glass, or be replaced by microcrystalline quartz, besides sheet of plagioclase. The subalkaline basalts are silicified and are characterized by also containing feldspathoids. The geochemical patterns (immobile elements and rare earths) indicate rocks with typically orogenic behavior, high potassic calc-alkaline and metaluminous, which were generated by fractionated differentiation from a homogeneous mantle source. All of them are markedly enriched with slight rare earth as compared to the heavy ones, probably due to the partial fusion of a mantle of lherzolite spinel or lherzolite garnet, garnet being an important residue of fusion. The spidergram illustrate the enrichment in low-field strength elements, as compared to the high-field strength elements, with negative anomalies of Nb, Ti, Y and a low Ta/Th ratios, that are typical of orogenic rocks. The use of trace-elements suggests that the rocks studied were generated in an arc domain, with the participation of subduction, indicating an active continental margin environment.