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At Gouveia, several Hercynian two-mica granites and a porphyritic biotite granodiorite crop out. The granitic magmas intruded the Cambrian schist-metagraywacke complex. They are Variscan, from 304 to 272 Ma old and

some are deformed. The granites contain quartz, microcline, plagioclase,  $Fe^{2+}$ -biotite, chlorite, muscovite, apatite, zircon, rutile and ilmenite. In general,

primary muscovite is more abundant than  $Fe^{2+}$ -biotite. One of the granites also contains garnet and sillimanite, while another presents andalusite. The granodiorite consists of quartz, microcline, plagioclase, Mg-biotite, chlorite, sphene, apatite, zircon, rutile, magnetite and ilmenite. Some of the granitic rocks are porphyritic. The plagioclase of granites is either of albite or albite-oligoclase compositions, while albite-andesine compositions occur in the granodiorite. There are decreases in: a) anorthite content from phenocryst to matrix plagioclase; b) Ba content from phenocryst to matrix microcline. The

$Fe^{2+}$ -biotites from granites coexist with primary muscovite and have compositions similar to those of biotite from aluminum-potassic rock series, while the Mg-biotite from granodiorite has a composition similar to that of biotite from calc-alkaline rocks. Some of the granitic rocks present locally secondary muscovite resulting from alteration of plagioclase, which is poorer in titanium than the primary muscovite. The granites are peraluminous with A/CNK ratios ranging from 1.01 to 1.41, but they are mainly greater than 1.15, while the granodiorite is metaluminous to peraluminous with A/CNK of 0.99-1.10. The

Initial  $^{87}Sr/^{86}Sr$  ratio ranges from 0.708 to 0.724 in granites, but is of 0.7066

for granodiorite.  $\delta^{18}O$  values range from 10.34 to 13.52 ‰ in granites and is

of 8.84 ‰ in granodiorite. Variation diagrams of major and trace elements for the oldest four granites and granodiorite show five independent fractionation trends, suggesting that they correspond to five granitic magmas, which is supported by the REE patterns. The granites are of S-type and were probably originated by partial melting of heterogeneous crustal metasedimentary materials, while the granodiorite is of I-type and may have a mantelic contribution in its origin. Stanniferous granitic aplite-pegmatite sills and veins, Li-bearing granitic aplite-pegmatite veins and quartz veins containing cassiterite and wolframite intruded some of these granites.