

Petrology and geochemistry of surmicaceous enclaves hosted in Chaur granitoids, Himachal Lesser Himalaya, India

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Chaur granitoids of Himachal Lesser Himalaya represent one of the many Pan-Indian (500 ± 25 Ma) granitoids of Himalayan Province. Surmicaceous enclaves (SE) essentially composed of Bt-rich metamorphic rocks have been found hosted in Chaur granitoids but microgranular enclaves are absent. The SE are commonly elongated, lenticular and spotted in shape and vary in size (up to 50 cm across). The contact between SE and granitoids is sharp and diffused occasionally showing reaction rims. The typical mineral association of SE includes Bt-Sil-(\pm Gt) with abundant plagioclase and quartz. Chaur granitoids largely belong to alkali-calcic monzogranite series whereas SE correspond to monzogranite and granodiorite. Both SE (molar $A/CNK \leq 1.4$) and Chaur granitoids (molar $A/CNK \geq 1.5$) are peraluminous. Most of SE has higher ΣREE and lower degree of negative Eu-anomaly compared to that of Chaur granitoids. A few SE have however suggested a partial to complete equilibration with their host granitoids. Based on HFSE, syn-collisional tectonic environment of *protoliths* of Chaur granitoids has been suggested but not the tectonic environment operated on Chaur granitoids.

Chaur granitoids were derived from sedimentary protolith but SE enclosed therein do not represent a typical *restite* ($SiO_2 = 55.21-71.26$ wt%; $Al_2O_3 = 12.49-20.83$ wt%) whereas a few SE ($SiO_2 = 55.21$ wt%) represent the composition of trapped *melt plus restite*. Mineral assemblages of SE do not constraint well the P-T condition as well as extensive break down of biotite appropriate for granite melt formation. It is concluded that SE do not well represent the proper *restite* but provide some information on *source* and *en route* lithology that resisted *anatexis*.