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ORIGIN OF AMPHIBOLITES OF CHUKRU AREA, PALAMAU DISTRICT, JHARKHAND, INDIA.

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The amphibolites of Chukru area in general are hornblende-plagioclase rich regionally metamorphosed rocks. Based on field characteristics and fabric elements, two types of amphibolites have been identified in the present area namely massive amphibolites and schistose amphibolites. In a polymetamorphic environment, nature of the primary source material gets blurred and only the amphibolitic rocks, due to the presence of lesser mobile chemical components, like Fe, Mg, Ti, etc. retain their chemical inheritance because during metamorphism, FeO, MgO, TiO_2; etc suffer very little change (Miyashiro, 1973).

Niggli c-mg binary plot is very useful in establishing the parentage of amphibolites. In the Niggli c-mg plot, compositional points of amphibolites from Chukru area show clustering along the trend shown by magmatically derived Karroo dolerites. The compositional points of these amphibolites of Chukru region are placed far away from Para field in Niggli c- (al-alk) diagram and infact they all lie in the ortho field, thus ruling out sedimentary lineage for these amphibolites. The igneous parentage for these amphibolites is also established in Niggli mg vs alk, k and ti plots. The analysis of D.F. (Discriminant Function) for the amphibolites of the present area is also found positive, which suggests an igneous origin of these amphibolites.

A synthesis of these studies provides a decisive evidence that the amphibolites of the Chukru region represent metamorphosed equivalents of magmatically derived basic igneous rocks thus ruling out contribution by calcareous or semi-calcareous pelites in their genesis.

Keywords: Metamorphism, Igneous, Amphibolites, Genesis.