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[P-T-fo2] relations in fayalite (+quartz) assemblage in Gokanakonda Syenite, Prakasam District, Andhra Pradesh, India

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The two magmatic episodes of the Settopalle complex constitute sub-alkaline and alkaline rocks. The earlier sub-alkaline magmatic episode involves intrusion of gabbro-fayalite-clinopyroxene (FC-) syenite-fayalite-quartz (FQ-) syenite, in that order. The fayalite-bearing syenite rock assemblages have earlier been reported and discussed from other parts of eastern and southern Peninsular India, as at Sivamalai in Tamil Nadu and Errakonda in Andhra Pradesh, India. Microprobe analysis of fayalite syenites reveals that the olivine composition ranges from Fa and the petrochemistry suggests that they are successive in that order. The assemblage (fayalite+magnetite+quartz) in these syenites suggests a pressure of 11.5 kb and temperature of 900°C under constant fo. The present contribution focuses attention on the mineral chemistry and genesis of the Gokanakonda fayalite-bearing syenites, bearing recorded for the first time in India though they have been reported from different parts of the world.

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