Comparitive Geochemistry of the Gabbros and Dyke Roks of the Ambadongar Region in the Deccan Volcanic Province (DVP), India: Some Petrogenetic Implications

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The Ambadongar region in Gujarat (well known for it's Carbonatite occurrence) is also characterised by the emplacement of both gabbros as well as dolerite dykes into predominantly flod basalt teerain of the Continental Flood Basalt Volcanism.

The petrographic and geochemical features of the gabbroic rocks and dykes are presented here and implications for petrogenesis are discussed. A first attempt to look into the Platinum Group element (PGE) potential of the gabbros is also made.

The results presented on the gabbroic rocks indicate that the gabbros have been formed as cumulates by slow cooling process in a shallow magma chamber and are petrogenetically linked to the voluminous flood basalt magma eruption and might have been derived from the same source material resulting from plume activity. Preliminary results of PGE compositions of the gabbros warrant detailed investigations for finding out the potential for possible PGE occurrence in these gabbros, since gabbros are normally considered to be potential carriers of PGE.

Incidentally, the accompanying dykes are also related to the gabbros and might have formed after the cumulate gabbros have been emplaced. The dykes have undergone fractional crystallization processes. Magma derived from a mantle plume has played a significant role in the petrogenesis of both these lithologies vis a vis flood basalt volcanics

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