Application of Rb–Sr ratios to gem exploration in the granulite belt of Sri Lanka

S.J.K. Gamage[a], M.S. Rupasinghe[a] and C.B. Dissanayake[a,b]

[a]*Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka*

[b]*Department of Geology, University of Peradeniya, Peradeniya, Sri Lanka*

(Received 19 November 1991; accepted after revision 10 March 1992)

ABSTRACT

Gamage, S.J.K., Rupasinghe, M.S. and Dissanayake, C.B., 1992. Application of Rb–Sr ratios to gem exploration in the granulite belt of Sri Lanka. *J. Geochem. Explor.*, 43: 281–292.

The geochemical distribution of rubidium and strontium in the central granulite belt of Sri Lanka, where many of the gem deposits are found, was studied. The Rb–Sr ratios, particularly in the stream sediments, were found to be useful in delineating gem-bearing areas from the non gem-bearing or low potential areas. Among the main gem minerals that are mined at present are corundum, spinel, zircon and tourmaline. It was observed that higher Rb–Sr ratios correspond to high gem potential and, even within areas of good potential, barren areas could be delineated using these ratios. During pegmatite formation, Rb is enriched, and there is a marked depletion of Sr yielding a high Rb–Sr ratio. Pegmatites, granites and other magmatic bodies are associated with gem formation under granulite facies conditions and, when used in conjunction with geology, structure, and mineralogy, the Rb–Sr ratio could be used effectively to delineate target areas for further exploration.