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Morphological changes in garnet crystals from staurolite schists of Aliabad-Damagh area, South of Hamedan, Iran

A. A. Baharifar[*1], K. N. Pang[2], S. L. Chung[2,3]

1- Department of Geology, Science Faculty, Payame-Noor University (PNU), Tehran. Iran
2- Institute of Earth Sciences, Academia Sinica, Taipei 11529, Taiwan
3- Department of Geosciences, National Taiwan University, Taipei P.O. Box 13-318, Taipei 106, Taiwan

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Abstract: Crystal form of almandine-rich garnets from staurolite schists of Aliabad-Damagh, changes from pure {110} to pure {211} and intermediate forms between these two end-members. Compositional zoning patterns of all forms are similar, consistent with one-step growth during prograde metamorphism. Mineral chemical data indicate that (Mn + Mg)/Ca in the ~60-micron rim of the almandine-rich garnet crystals were affected during this process. The ratio is about 8 for {110} and less than 2 for {211} forms. Changes in garnet-forming reactions from net-transfer to exchange reactions during prograde metamorphism, and consequently, changes in cation diffusion rates in the final stage of garnet growth affect crystal forms, since 110 and 211 faces have different growth rates.

Keywords: *garnet; crystal form; chemical composition; morphology; staurolite schist; Aliabad-Damagh; Hamedan.*

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[*]Corresponding author, Tel: 09123216476, Fax: 02435233556, Email: a_baharifar@pnu.ac.ir