



Zircon U-Pb Geochronology, Geochemistry and Sr-Nd Isotopes of Biotite Monzonitic Granite from Shadian Intrusion in North Jiangxi

WU Qiong¹, FENG Chengyou^{2,*}, QU Hongying¹ and WANG Hui³

¹ *MLR Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing, 100037, China.*

² *Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China*

³ *School of Earth Sciences and Resources, Chang'an University, Xi'an 710054, PR China*

Citation: Wu et al., 2019. Zircon U-Pb Geochronology, Geochemistry and Sr-Nd Isotopes of Biotite Monzonitic Granite from Shadian Intrusion in North Jiangxi. *Acta Geologica Sinica* (English Edition), 93(supp.2): 54.

Abstract: Shadian intrusion in North Jiangxi Province is located in east part of Jiangnan Orogenic Belt, which is a collision zone between Yangtze Block and Cathaysia Block. This study reports LA-ICP-MS zircon U-Pb and geochemical data of biotite monzonitic granite, with the aim to constrain its petrogenesis and tectonic setting. LA-ICP-MS U-Pb dating results of zircons from the rocks indicate that the rocks were formed in the Early Cretaceous (121.1 ± 1.6 Ma). Geochemically, the compositions of these rocks fall into the high potassium calc-alkaline, aluminous series granitoids, characterized by high SiO_2 contents ($\text{SiO}_2 = 69.46\% \sim 71.44\%$), high alkali contents ($\text{Na}_2\text{O} + \text{K}_2\text{O} = 7.69\% \sim 7.81\%$). The rocks have the total REE content $\Sigma\text{REE} = 141 \text{ ppm} \sim 217 \text{ ppm}$ and $\text{Eu}/\text{Eu}^* = 1.09 \sim 1.15$. In the primitive mantle-normalized trace element patterns, these rocks are enriched in Rb, Th, U and depleted in high field strength elements (Nb, P, Ti) and depleted in Ba, Sr relatively. The $10000\text{Ga}/\text{Al}$ ratios of these rocks vary from 2.68 to 2.87, $\text{Zr} + \text{Nb} + \text{Ce} + \text{Y}$ contents vary from 374 ppm to 495 ppm, all these characteristics indicate the rock belongs to A-type granite. They have high initial $^{87}\text{Sr}/^{86}\text{Sr}$ ratios of 0.71507 to 0.71567, $\epsilon_{\text{Nd}}(t)$ values of -6.47 to -5.95 , and T_{DM2} ages of 1398 to 1440 Ma. Combined with Nb/Ta, La/Nb and Ba/La ratios of granites, we consider that granite originated mainly from partial melting of

Shuangqiaoshan Group. Combined with regional tectonic evolution and discrimination of tectonic setting, we suggest the granites formed in the crustal extension setting because of Pale-Pacific slab rollback.

Key words: zircon U-Pb chronology, geochemistry, Shadian intrusion, A-type granite, North Jiangxi

Acknowledgement: This work is granted by the National Key Research and Development program of China (Grant No. 2016YFC0600205).

About the first author

WU Qiong, Female, born in 1991, doctor of Chinese Academy of Geological Sciences, major in mineralogy, petrology, and ore deposit. E-mail: 757047499@qq.com.

About the corresponding author

Feng Chengyou, male, born in 1971, researcher of Xi'an Center of Geological Survey, China Geological Survey, engaged in study on mineral deposit and geochemistry. E-mail: fengchy@cags.ac.cn.

* Corresponding author. E-mail: fengchy@cags.ac.cn