Geochronology Characteristics of Diabase Porphyrite in Bama, Western Guangxi Province



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Abstracts: The South China block consists of the Yangtze block to the northwest and the Cathaysia block to the southeast (Fig. 1). The late Paleozoic (Hercynian) magmatism was less reported (Hu et al., 2011; Yu et al., 2013), and recently a gneissic granite with the U-Pb age of 313 ± 4 Ma was found in northeastern Fujian Province in the Cathaysia block (Yu et al., 2013). But in the Yangtze block, the Hercynian magmatism was rarely reported. The Late Paleozoic orogeny in the eastern South China block is coincident with the significant Hercynian magmatism in Europe

and assembly-breakup orogeny of the Late Paleozoic Pangea supercontinent (Yu et al., 2013). This study determines a Late Paleozoic diabase porphyrite in the Yantan town, Bama County of western Guangxi Province, which is important for the Late Paleozoic magmatism in the South China block and its relationship with the Late Paleozoic Pangea supercontinent. The tectonic framework of the South China block in the Late Paleozoic is a long-debated issue. Some researchers believed that the South China block was in the extensional continental rifting



Fig. 1. Simplified geological map of the sampling locations

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setting (Hu et al., 2011; Yu et al., 2013) while some suggested to be in the subduction-related arc setting (Li et al., 2012) in the Late Paleozoic.

It is well known that the mafic dike is the product of regional extensional tectonic movement, which is of great significance to understand the characteristics of continental lithosphere mantle and tectonic background of diagenesis (Olsson et al., 2011). Therefore, the study of diabase porphyrite is of great significance to study the tectonic evolution pattern of the South China block.

In this study, 36 zircon grains were collected from a diabase porphyrite in Yantan town, Bama County of western Guangxi Province for the U-Pb dating. The ages of zircons are concentrated at 317.5 ± 1.5 Ma (Fig. 2) and one of the metamorphic zircon is removed. The intrusive age of rock mass is Late Carboniferous (Hercynian). In this study, we suggest the occurrence of a Late Paleozoic orogeny in the western Guangxi, western South China block. However, the tectonic setting of the diabase porphyrite in the Late Paleozoic, the distribution and nature of the Late Paleozoic orogen in the western Guangxi and its relationship with the Pangea supercontinent magmatism still need further study.



Fig. 2. Concordia diagram for the U-Pb ages of zircon grains analysed from the diabase porphyrite in Bama

Key words: Zircon U-Pb dating, the Late Paleozoic, tectonic setting, western Guangxi Province

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