The South China tectonic block (SCB) is bounded to the north by the Qinling-Dabie orogenic belt, and to the west and southwest by the Tibetan and Indochina blocks. The Permian mafic rocks (e.g. diabase and basalt) are concentrated in the Shijia of western Guangxi, economically significant gold mineralizations are genetically associated with these mafic rocks (Fig.1). However, the causes of magmatism and related gold deposit background are controversial. Here, we present the comprehensive major element, trace element data of ore-bearing mafic rocks with previous published data, detailed discuss the geochemical characteristics of the bulk of Shijia mafic rocks and their petrogenesis.

2 Result

Almost all the mafic volcanic and intrusive rocks from the Shijia that we analyzed are alkaline basalts (Fig.2) The geochemical characteristics of the bulk of Shijia mafic rocks showed a relative high TiO2( > 2.5% ), high Ti / Y

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Fig. 1. Geological map of Guixi (western Guangxi) with showing the Permian mafic intrusive (from Fan et al., 2008).

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ratios, which are similar to ocean island basalt (OIB) and Emeishan high Ti basalts.

The chondrite normalized rare earth element (REE) pattern display that a characterized by a light-REE enriched and primitive mantle normalized trace element pattern similar to that of ocean island basalt (OIB), indicating they were derived from a geochemical enriched mantle (Fig 3). They are enriched in LILE elements with high Ti/V (39.34 ~ 87.07), Zr/Nb (2.55-8.92) and Ba/Nb (2.32-98.6) ratios, showing that they are very akin to the oceanic island basalts (OIB) on geochemical characteristics, suggesting they probably formed in the intra-plate environment. Compared to the basalts of the Emeishan large igneous province, their trace element geochemical characteristics are similar to high Ti basalt series (HT) which is upper to the Emeishan large igneous province, it suggests that they may be related to the magmatism of the Emeishan large igneous province (Fig.3). On the Th/Yb and Ta/Yb trace element ratios co-variations, Shijia mafic rocks plot in the OIB mantle array, indicate the mantle plume source contribution.

Combine the Shijia region located in the outer zone of Emeishan flood-basalt province, we suggest the Shijiao gold-bearing mafic rocks were probably a product of intra-plate magmatism. We suggest the ore forming events and related magmatism were probably related to the Emeishan mantle plume magmatism. It can provide geochemical evidence that the distribution of the Emeishan large igneous province ranges from the Yangtze plate expansion to the northwest, it will also provide a new important scientific basis for the extension of magmatism and spatial and temporal distribution of the Emeishan large igneous province.

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