

## Geochemical Characteristics and Significance of Yingcheng Volcanic Rocks in Southern Songliao Basin

LIU CHANGLI, PIAO YONGXIN

College of Earth Science, Jilin University  
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**Abstract:** The volcanic activity is intense in the forming period of the Cretaceous Yingcheng group in southern Songliao basin, the volcanic rocks mainly compose of rhyolites with minor basaltic trachyandesites and dacites. By element analysis, it is found that, in major elements, acid volcanic rocks consist of  $\text{SiO}_2$  contents of 65.7% - 75.2%, total alkali ( $\text{K}_2\text{O} + \text{Na}_2\text{O}$ ) of 3.29% - 7.71% and  $\text{Mg}^\#$  of 21.68 - 39.24, and basic volcanic rocks consist of  $\text{SiO}_2$  contents of 49.32% - 56.4%, total alkali ( $\text{K}_2\text{O} + \text{Na}_2\text{O}$ ) of 4.4% - 7.60% and  $\text{Mg}^\#$  of 33.49- 59.51. In trace elements, the volcanic rocks have chondrite-normalized REE patterns with the right-inclined type, enriching in light rare elements(LREEs) and large ion lithophile elements, and depleting in heavy rare elements(HREEs) and high field strength elements. According to the characteristics of these elements combined with the diagrams of  $\text{SiO}_2$  versus total alkali, the diagrams showing petrogenesis for acid volcanic rocks and the diagrams showing tectonic setting for rhyolites ,etal, it is suggested that ①The magma of basic volcanic rocks in Yingcheng group is mainly derived from the mantle and the magma of acid volcanic rocks in Yingcheng group is mainly derived from the earth's crust; ②The formation of Yingcheng volcanic rocks is related with the delamination of the lithosphere under a subduction setting of the westward-movement of the Paleo-Pacific plate underneath the Eurasian Continent.