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อำเภอพิษณุโลก จังหวัดพระนครชัยศรี

นางปะประชาติ นพภัทธ

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PETROGRAPHY AND GEOCHEMISTRY OF INTRUSIVE ROCKS AT BAN PHO-SAWAN AREA,
AMPHOE BUNG SAMPHAN, CHANGWAT PHETCHABUN

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การศึกษาครั้งนี้มีวัตถุประสงค์ในการหาความสัมพันธ์ระหว่างกันของหินอันธกิจแทรกซ้อนบริเวณบ้านโพธิสาร์ อำเภอปทุมทิน จังหวัดพระประแดง. (PETROGRAPHY AND GEOCHEMISTRY OF INTRUSIVE ROCKS AT BAN PHOSAWAN AREA, AMPHOE BUNG SAMPHAN, CHANGWAT PETCHBUN) ที่ปรึกษา: ผู้ช่วยศาสตราจารย์ ดร. สมชาย มหาสงวนราช, น.ศ.ปรีกนันท์ หักขุน.
The main objective of this thesis is to find out a relationship among intrusive rocks that occur in the Ban Phosawan area, Amphoe Bung Samphan, Petchabun province, which show several field-notable features. The study area covers approximately 176 km² and is located on the so-called “Eastern granite belt” of Thailand. It contains both extrusive and intrusive rocks. Based on petrography, whole-rock chemistry, and mineral chemistry, intrusive rocks in the study area can be divided into four types: namely gabbro, diorite, quartz-diorite, and hornblende-biotite granodiorite, with a composition ranging from mafic to felsic respectively. Most of them are high-alumina and calc-alkaline series. Their trace element characteristics suggest that most of them were emplaced in a setting of volcanic arc and their whole-rock compositions may have been affected by clinopyroxene and plagioclase fractionation. Rare earth spider diagram patterns suggest that most of them originated from a similar magma source. The Al-in-hornblende barometry and amphibole-plagioclase thermometry reveal that the most probable ranges of pressure and temperature for these four intrusive rocks are 2.5 to 2.8 kbar, and 609 to 677°C, respectively. The U-Pb age from two in situ zircon grains dated by laser ablation – ICP MS technique yield 230 ± 4 Ma, middle Triassic period.

Based on all results above, the four rock types seem to relate to one another as a 'zoned pluton' which emplace as a unique mass of magma, consequently, in situ differentiation was took place in the kind of side-wall accretion or inward crystal fractionation.
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