Petrology and metallogeny of alkaline magmatic formations in Northern Vietnam

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Based on the results of study on geologic, petro-minralogic characteristics, geochemistry of major and trace elements and isotopes of alkaline magmatic formations in Northern Vietnam as well as their related mineral resources, the authors have defined 3 alkaline and sub-alkaline petro-magmatic provinces. They were formed in diferent tectonic settings in Early Paleozoic- Late Triassic, Late Jurassic- Early Cretaceous and Late Cretaceous-Paleogene periods. Correspondingly, there were also defined 3 tectono-metallogenic alkaline magmatic provinces including 7 metallogenic regions, 16 ore and mineralization zones with typical deposits, ore points and mineralization occurrences.

The discovery of new mafic – ultramafic alkaline formations in Viet Bac craton has made the previous points of view on metamorphism, origin and geodynamic settings to form these magmatic formations to be changed. The researched results above mentioned has opened a series of problems on geology, metallogeny, petrology- geodynamics related to alkaline magmatic activity in Northern Vietnam that need to be detailedly studied in the future.

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Survival strategies during bacterial biomineralisation: Evidence from cyanobacterial precipitation of hydrozincite in Sardinia, Italy

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In spring of 2006, we collected water samples and bio-precipitates from the Rio Naracauli which drains Pb-Zn mine waste piles in SW Sardinia, Italy. The objective is to study downstream trends in hydrogeochemistry, mineralisation textures and trace metal partitioning between water and hydrozincite. Microscopic studies of the bio-precipitates reveal a characteristic botryoidal morphology with a porous texture consisting of microscopic and nanoscopic plates. While the association with photosynthetic organisms suggests that bio-precipitation is a passive process [1], laboratory experiments suggest that the presence of organic molecules is critical to produce this morphology. We hypothesize that the texture arises via agglomeration of nanoscopic and microscopic crystals by extracellular polymeric substances [2], or nucleation of plates within organic globules produced by metabolising cells [3]. The bacterial surface therefore plays a critical role in determining the texture of the bio-precipitate, such that the porous structure facilitates nutrient/metabolite exchange in the face of mineral precipitation.

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