Some clue of coupling relationship between Dongchuan copper and the breakup of Rodinia

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Dongchuan copper ore field locate in Huili-Dongchuan aulacogen which verged on the Sichuan and Yunnan passive continent in china. many geochemistical evidences indicate the metallogenic substance is deep phreatic. a)_ ^{34}S values are -0.5‰~+16.7‰ the modal value of _ ^{34}S is 2‰~11‰._ $^{18}O_{H2O}$ values are -0.5‰+16.7‰ b) Most Pb isotope of copper ore are under the natural Pb evolutionary curve, a few sample are up the natural Pb evolutionary curve. c) Co/Ni value of chalcopyrite and pyrite are over 5.0, S/Se value are normal over 500, which Cr , Sn and Ti contents are high. Cobalt pyrite, skutterudite and cobaltite appeared in mineral assemblage, and Co/Au/Pb/Zn/Mo/Sn is reformed during the ore were consumingly superimposed reformed and alterated.

By sum up, metallogenic substance is deep phreatic. Some dates (Qiu Huaning et.al.,1997) indicate that metallogenetic epoch of Tangdan deposit was 712±33Ma-794±71Ma, which tallies with the breakup of Rodinia. There are many basic volcanic rocks (gabbro and diabase) and acid rocks (I stype granite), which is Jinning-Chenjiang period (616-1059Ma) (Jiang Jiashen,1998). Those magmas contain many deep phreatic compositions, and time are similar with the breakup of Rodinia, the most importitent is that copper mineralization were strengthened in the area where magmas emplace. All of those indicate that there are a coupling relationship between Dongchuan copper and the breakup of Rodinia.

References

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Isolation of an alkaliphilic metal-reducing bacterium from a saline pond containing high concentrations of boron

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Microbial iron reduction influences biochemical cycles of important elements (e.g., Fe, C, S, P) in natural systems. The purpose of this study was to isolate Fe(III)-reducing bacteria from an extreme environment of high salinity, alkalinity, and boron concentrations.

Enrichments and isolation were performed in a Tris-buffered medium containing sodium chloride, borax and ferric citrate. The isolate, designated as strain 011-A, is a Gram-positive, strict anaerobic rod. Based on the nearly complete 16S rRNA gene sequence analysis, it has 96% similarity with *Alkaliphilus transvallensis*. Profile of phospholipid fatty acids of 011-A indicates predominance of two compounds 16:0 (35.7%) and 16:1w7c (34.2%). The temperature range of strain 011-A was between 10°C and 50°C with an optimal of 30°C. The pH range was between 7.0 and 11.0, with an optimum of 9.5. At pH 9.5, the optimal NaCl concentration for growth was about 2%. Strain 011-A was able to use lactate, acetate, glucose, and hydrogen as alternative electron donors and ferric citrate, ferric-EDTA, Co(III)-EDTA, Cr(VI), and AQDS as sole terminal electron acceptors. Yeast extract (0.025%) was required for growth.

Strain 011-A may represent a novel group of microorganisms, which can reduce a variety of heavy metals at elevated pHs. This isolate may have potential application for bioremediation of metal-contaminated sites. Studies of this bacterium may also expand our understanding of metal reduction in alkaline environments.

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