RESEARCH ARTICLE


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RESEARCH COMMUNICATIONS

U–Au occurrence in Nogli Valley, Shimla District, Himachal Pradesh

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Anomalous gold values in association with uranium have been found in the Middle to Lower Proterozoic formations southwest of Kasha village in Nogli Valley, Himachal Pradesh. This is the first significant occurrence of gold from this part of the Higher Himalaya.

Uranium occurrences in the Nogli Valley, Shimla District, Himachal Pradesh, are known since the early sixties but gold mineralization, or uranium-gold association in particular, has not been reported so far from the Precambrian formations of this part of the Higher Himalaya. This note presents the first account of gold mineralization in association with uranium in the Rampur Group of rocks in the upper reaches of the Nogli Valley.

The area under reference occupies the southeastern corner of the Rampur Window, about a kilometre south—southwest of Kasha village on the left bank of Nogli Gad (Figure 1). Stratigraphically the mineralization is confined within the Rampur Group of rocks, which are tectonically overlain by paragneisses and

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Figure 1. Location map of U–Au occurrence in Nogli Valley

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The sample analysing 20 ppm gold has not been included in the calculations for mean and standard deviation.

Studies are in progress to evaluate the economic viability of this occurrence as well as paragenetic relationship of uranium and gold. The uranium–gold association enhances the resource potential of this area and opens up the possibility of locating gold mineralization in other parts of the Rampur Window and Himalaya under similar lithostructural settings. Airborne radiometric surveys could help in quick identification of such occurrences.


ACKNOWLEDGEMENT. We thank Dr S. Viswanthan for valuable suggestions.

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**Fluorescence characteristics of 1,3-, 1,4-, 2,3- and 2,7-dihydroxynaphthalene radical cations**

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We have recorded excitation and fluorescence spectra of 1,3-, 1,4-, 2,3- and 2,7-dihydroxynaphthalene radical cations in a rigid matrix. While the parent compounds give rise to broad and structureless emission bands, the ionic spectra exhibit, in addition to an intense band, a few weaker bands. Excitation wavelength and fluorescence maxima for the cations are shifted towards longer wavelength compared to those for the parent molecules. The characteristic features of the spectra are explained in relation to the position of −OII groups in the molecule.

Many naphthalene derivatives are fluorescent, a property attributed to π-electron excitation. A substituent group such as −OII has unshared electron pairs that can be transferred into vacant π orbitals belonging to the aromatic ring. This effectively raises the ground-state energy of the π-electron system. Thus the absorption and fluorescence of the −OII-substituted molecule occur at lower frequencies. When two donor groups are attached to the aromatic ring, the positions of absorption and fluorescence bands are usually

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*For correspondence.

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