

## **ANALYTICAL METHOD DEVELOPMENT FOR MAJOR, MINOR AND TRACE ELEMENTS IN GEOCHEMICAL AND HYDROGEOCHEMICAL SAMPLES**

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### **Abstract**

During the last three decades, need based analytical methods for 15 elements of strategic importance, including uranium, thorium, rare earth elements (REE's), a host of major, minor and trace elements-some of which being the path finder elements for uranium-as well as certain anions in hydro geochemical samples have been suitably developed for their accurate determination by analytical instruments like, UV-Visible Spectrophotometer, Fluorimeter (both laser and conventional), Atomic Absorption Spectrophotometer (flame as well as non-flame), ICP-AES, etc. Analytical method have also been developed for  $\text{Fe}^{3+}$ ,  $\text{Fe}^{2+}$ , Ti, Nb, Mn, U, Th, rare earth elements REE's (total), Au, V, Mo, Zr, F, Cl,  $\text{NO}_3^-$  and  $\text{NO}_2^-$ , for application to geological samples. The present paper encompasses a brief account of the methodologies developed in the present and earlier work for the rapid, selective and accurate determination of major, minor, and trace elements in geological/hydrogeochemical samples of diverse matrices.

*Keywords:* Analytical method development, Major, Minor, Trace, Rare Earth Elements, Spectrophotometry, AAS, ICP-AES.