Combined X-Ray spectrometry and neutron activation analysis for the study of rare earth elements in Egyptian ores

Thesis

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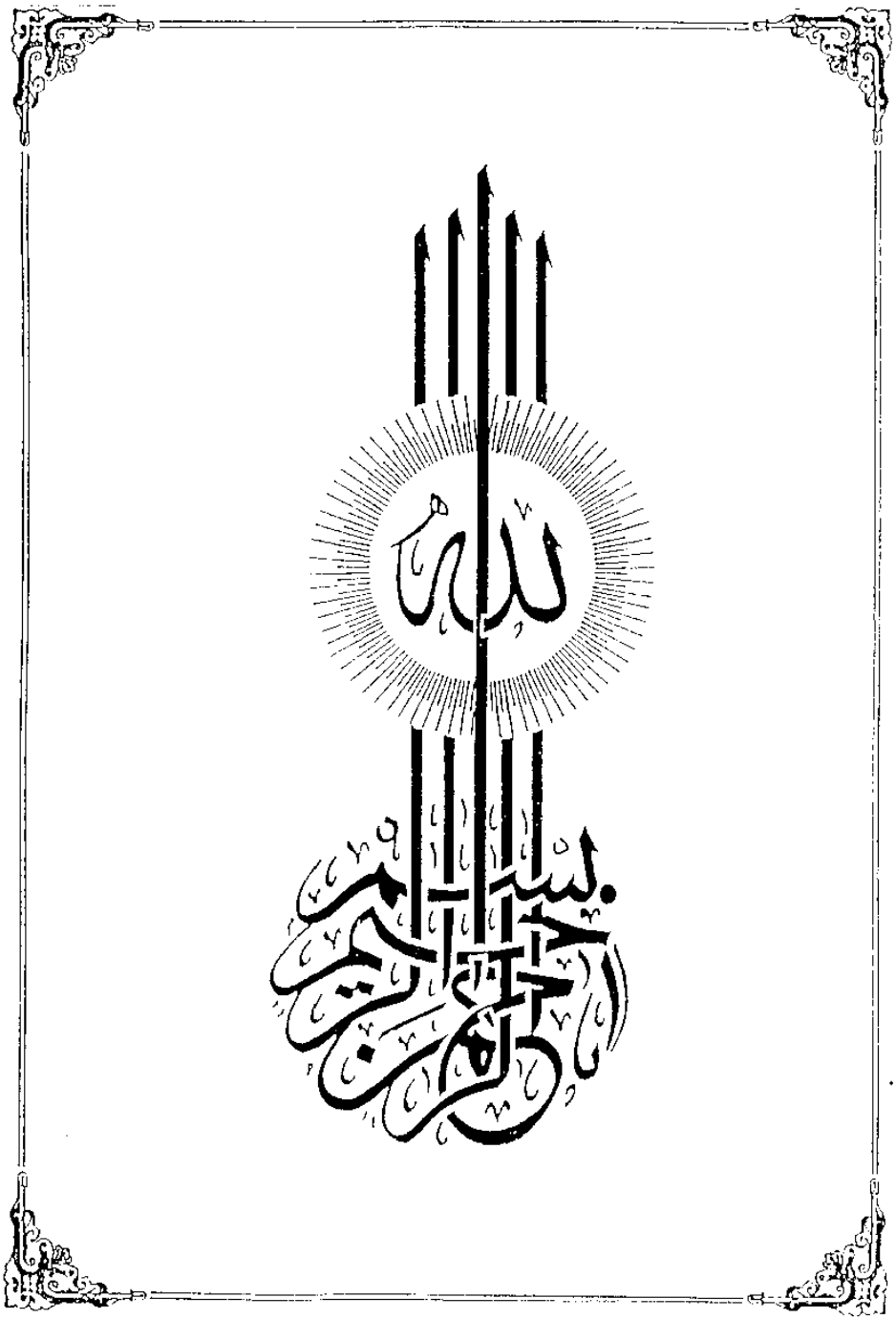

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Abstract

In this work the rare earth elements were quantitatively determined in phosphate ore samples, by three techniques. this techniques are neutron activation analysis, X-ray fluorscence spectrometry and atomic emission spectrographic analysis.

Summary

Summary

The aim of present work is to elaborate and develop a practical non destructive method for the quantitive analysis of rare earth elements in ores.

It is well known that due to the close similarities in properties of these elements they always interfere with each other and require tedious chemical separation and concenteration before their accurate determination.

As an example of Egyptian ores some representative phosphate ore samples from different localitiles in Egypt, namely Wadi El Nile, Red Sea, and Abu Tartour plateau have been chosen for this study. In fact the group of rare earth elements are expected to be found in these ores in varying concentration depending on the physicochemical composition prevailing during deposition of these ores. Accordingly we can deal with varying concentrations of each REE in each of the studied sample localities in a more or less different matrix of the major and minor elements in each ore sample.

During this work the REE are determined by three techniques:

1- Non destructive neutron activation analysis.

2- X-ray fluoresence analysis.

3- Atomic emission spectrographic analysis.