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# The Elementology of Medicinal Rocks In Nigeria: A Case Study of The Red Rocks Laterite (Atun—Yoruba, Marmara — Hausa).

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**Abstract:**

*The soil is very much enriched in most of the elements which are essential to biological systems. Within the live of Homeopathy there has emerged the collection of verified 'Materia Media'. The red rock laterite, (Atun — Yoruba, Marmara — Hausa) is used for the treatment of skin eruptions. The samples used in this study were collected from Okeigbo in Ondo state of Nigeria. Using spectroscopic techniques, the following elements, Ca Na, K, Mn, Ni, Zn, Pb, P, S, Bi, Co, Ag, Si, Al, and Fe were confirmed present' in the rock.. iron was found to be 36%; Al, 12.8% and Si, 8.23%. Sodium, S, Mg, Ca, Mn, Ni, Zn, Ph, and P were present in parts per million (PPM) and their respective values were 1150, 900, 592, 583, 200, 100, 68, 47, and 1 9. Cadminium, Mo, and Sb were not detected in the, samples studied.*

## Introduction

To cure himself of diseases, man has tried various methods and materials. As a matter of fact, medica knowledge, as it affects the use of plants, animal: and mineral matters in their free or combined state as drugs had progressed in a pattern of a steady acceler ion over many centuries: scientists have helped tremendously in this achievements.

Useful plants have formed the core of the various harmacopoeias of the different parts of the world. The African edition was born in 1985 (OAU. 985) and it some plant substances which have been us d with apparent efficiency.

With every passing year the quest for health and drugs continue to grow. The evolutionary trends in instr mentation and technology has now made it pe for scientists to isolate, characterize, synthesise, quanti , test the potency and test the toxicity of the drugs even at such a low level as less than a microg amme (Orebamyo, 1985).

As for back as 1929, the scientific world had recogn ed that each family of drugs has a host of other d gs which today form as an encyclopedia of its own (Lloyd. 1929) Inorganic elements or their compo ds (minerals) are, for example, known to play tal roles in both plant and animal structu /functional cellular processes (Comar, 1963; Edward et al., 1966, Hakeem, 1987). Today, however there is a growing recognition of the adverse effects of cum ulative exposure to heavy metals in small amoun and to the so called 'essential' elements in large c ncentrations (WHO, 1973 and 1980).

Rapid advances in analytical techniques and sophist cated instrumentation have enabled scientists detect nd quantitatively determine most naturally accruin inorganic elements or their compounds in ore-bo ed/non-orebodi2el rocks; living systems and their ood chain (Hakeem, 1987). These develo ments have added new dimension to our understanding of the role of inorganic elements or their compounds both in health and diseases.

The literature on African medicinal rocks frequently used in African traditional medicine is very scanty and in this paper we are reporting some of the results which were obtained in our laboratory while investigating the efficacies of and the elementology of the red rock laterite (Atun — Yoruba, Marmara — Hausa).

### Materials and Methods

The rock material used in this work was bought off the peg from the local market in Okeigbo, Ondo state, an approximate weight of about, 800g cost N5.0 only. Part of this material was identified by and deposited with the department of Geology, Faculty of science, University of Maiduguri.

To determine the trace elements, pulverized rock sarnple was digested. Flame emission spectrometer (FES) Gallen kamp (FGA 330) was used to determine Na, K and Ca, in the sample. Sulphur and phospporus were determined gravimetrically as detailed in Vogel (1978).

The other elements were determined by atomic absorption spectrophotometry (AAS) with AP9 Unicam. Air/propane and air/acetylent (ethyne) flames were respectively used in the FES and AAS procedures. Standard calibration quantitation method was used in both procedures. In this technique, plots of emission (FES) and absorbance (AAS) readings for prepared known standard concentrations of the test element were drawn. From these, concentrations of the relevant elements in the pulverized rock samples were obtained using their measured emission and absorbance value as the case may be. Determination was done in triplicate and value wer calculated together with their standard deviation values obtained.

*Estimation of trace elements:*
*Sample preparation and analysis:*

Table I: showing the concentration in part per million (PPM) for trace elements analysis of pulverized red rock laterite (Atun – Yoruba) from Okeigbo in Ile-Oluji/local Govt. Area of Ondo state.
Elementa: Compaosition in prt per million (PPM)

| SAMPLE No. | Ca | Cd | Co | Cr | Mg | Mn | K | Mn | Ni | Zn | Pb | P | S | Bi | Cu | Ag | Si* | Al* | Fe* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1 | 583 | ND | 0.25 | ND | 592 | 1150 | 115 | 200 | 100 | 08 | 47 | 19 | 900 | 0.6 | 0.6 | 0.2 | 8.23 | 12.18 | 36.01 |
| ARS2 | 580 | ND | 0.26 | ND | 592 | 1148 | 114 | 203 | 99 | 08 | 47 | 19 | 900 | 0.6 | 0.2 | 0.2 | 8.75 | 12.80 | 36.04 |
| ARS2 | 582 | ND | 0.25 | ND | 592 | 1152 | 115 | 201 | 99 | 08 | 49 | 21 | 905 | 0.6 | 0.6 | 0.2 | 8.50 | 12.90 | 36.50 |

* These elements were analyzed in percentages.

0.5g of pulverized rock sample was digested by heating for 2hours with a mixture of HNO and HClO in a 500cm flask.

This was evaporated to 5cm and together with the residue was taken up in 10cm of 2M, HNO and 30cm distilled water into 100cm volumetric flask. The volume was made up to mark with distilled water. Blank samples and standard solutions for the various elements were similarly prepared. All samples were stored in plastic containers in a refrigerator maintained at 4°C prior to analysis.

## Result and Discussion:

Table I represents the results of the trace element analysis of pulverized red rock laterite (Atun-Yoruba). Cadmium and Cr were not detectable in the sample. There is however a high concentration of Fe. 36.0%; Al,12.8% and Si, 8.499% on average. Sodium, S, Ca and Mg are just moderate 1150.900 583 and 592 parts per million (PPM) respectively on the average. Bismuth, Cu, Co nd Ag are very low average 0.6, 0.6, 0.25 and (0.20 PPM) respectively.

## Conclusion:

The high concentration of Al might cause the rock to bite the skin.

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