Title of Article: The study of biogeoavailability of calcium in cement industry environs of eastern of Nigeria,

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Abstract: The samples in the study of Ashaka cement environs were collected both mineralized and unmineralized ground. These were analyzed to determine the amount of the elements absorbed by the plants in the area under study using analytical method (IR, AAS). The observations and prediction of the results show that secondary carbonate minerals, especially those of the common base metals such as magnesium lead zinc may be found in Gombe–Bauchi ore bodies include associate minerals. The associate minerals that may be found are hydrozincite, $\text{Zn}_5(\text{CO}_3)_2(\text{OH})_6$, hydrocerussite, $\text{Pb}_3(\text{CO}_3)_2(\text{OH})_2$ and the very rare mineral plumboacrite, $\text{PbOO(OH)}_6(\text{CO}_3)_2$, Dypingite, $\text{Mg}_5(\text{CO}_3)_4(\text{OH})_2.5\text{H}_2\text{O}$ etc. This is in accordance with the statistical interpretation of the results. The standard deviation were identified as action line $X\pm 3\sqrt{\Pi}$, which equivalent to 59.16 and 49.84 $\mu$g/ml, while 2 standard error as warning lines $X\pm 2\sqrt{3}\sqrt{\Pi}$ resulting in 58.91 $\mu$g/m. The expectation of these minerals in abundance depends on the ratio of $a(\text{Ca}^{2+})/a(\text{Mg}^{2+})$, $a(\text{Ca}^{2+})/a(\text{Zn}^{2+})$ and $a(\text{Ca}^{2+})/a(\text{Pb}^{2+})$. The technological importance of these associate and very rare minerals are discussed.