

## **THE AMINOSTRATIGRAPHIC POTENTIAL OF RHIZOCRETIONS ASSOCIATED WITH LATE QUATERNARY AEOLIANITE, SOUTHERN JAMAICA**

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### **ABSTRACT**

Aeolian rhizcretions may be much more useful in palaeo-environmental reconstruction than previously thought. Experiments show that amino acid leucine is contained in rhizcretionary micrite in quantities which may be easily measured by the flame ionization gas chromatograph. Bacteria found in the rhizosphere are believed to be the principal source of fossilized leucine. Although this bacterial origin hypothesis is closely tied to the poorly understood mechanism of rhizcretion formation, it is supported by petrographic and other studies of rhizcretions. The results justify further research into the use of amino acid diagenesis in rhizcretions to test a model of event aminostratigraphy in aeolianites.

The episodicity and dating of aeolian activity is one of the most fundamental problems of low latitude Quaternary geology, and this model presents a useful perspective on the problem: fossil rhizospheres associated with erosional bounding surfaces are indicative of stable periods occurring between periods of active aeolian sedimentation. Assuming that each rhizomorph horizon represents a zone analogous to a modern rhizosphere, then a period of stability may be inferred when this level is closely associated with an erosional bounding surface or unconformity. The aminostratigraphy of a measured aeolianite section can therefore establish the relative number and timing of intervening stable periods. D/L ratios from rhizcretions would also be invaluable in establishing the temporal relationships between non-contiguous aeolian deposits.