Graphic mehtod for estimating the biological absorbtion coefficient

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Fixed biological absorption coefficient values (Ax) as in relation of microelement contents in plants ashes to its content in the soil (Perelman, 1975) show overall biophilic qualities of chemical elments but not the accumulation dynamics in plants depending on the concentration of it in soil.

Such dynamics is shown on the plot of element concentration in plants (lnCv) against its concentration in the soil (lnCs).

Ax coefficients for selected intervals of Ni concentration in soils are tangents of the angle α between the graph and the x axis (fig. 1).

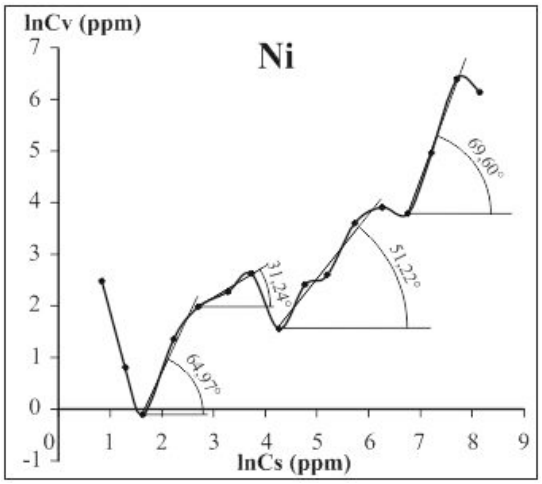

Figure 1: angle α of the plot of Ni concentration in moss against its concentration in the soil.

Cs, ppm	Cv, ppm	angle α	tg α = Ax
< 5.2	12.0-0.9	barrier	
5.2-15.0	0.9-7.2	64.97º	2.14
15.0-41.8	7.2-13.7	31.24º	0.61
41.8-71.3	13.7-4.7	barrier	
71.3-524.3	4.7-49.7	51.22º	1.24
524.3-863.5	49.7-44.2	barrier	
863.5-2229	44.2-598.4	69.60º	2.69
>2229	<598.4	barrier	

Table 1: Selected Ni concentration intervals in soil (Cs) in accordance with Ni concentrations in moss (Cv) and Ax coefficients for these intevals.

Ax coefficient calculated on all the data as ratio of average Cv/Cs is equal to 0.2.

Upper Cretaceous Marine Source Rocks and its Contribution to Hydrocarbon Accumulations in Eastern Niger Basin, Niger

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The Eastern Niger Basin is a typical Mesozoic-Cenozoic intracontinental rift basin of the Central and Western African rift system, including Tenere and Termit depression. Using techniques of kerogen maceral analysis, rock pyrolysis and GC-MS for mudstone cuttings from Yogou and Donga formation of the Upper Cretaceous, this study investigates the origin, abundance, type and thermal maturity of organic matter. Kerogen macerals are dominated by amorphinite displaying no or weak fluorescence, and rock extracts have a regular sterane distribution of C_{29}>C_{27}>C_{28}. These characteristics suggest that the organic matter of the Upper Cretaceous mudstones originated mainly from land-derived plants. Rock-Eval pyrolysis data reveals that the Yogou Formation of the Upper Cretaceous generally have moderate to good hydrocarbon potential with kerogen predominantly Type II_2-III, while the Donga Formation are mainly bad-moderate source rocks with type III kerogen. T_{max} values indicate that the threshold depth for hydrocarbon generation of source rocks is about 2300m. Three-dimensional modeling of hydrocarbon generation suggests that petroleum in marine source rocks began to be generated in the Early Palaeocene. Peak generation took place from the Late Eocene to Early Miocenes, with thermally mature area covering most of the basin. Geochemical results of crude oils show that the majority of oil samples are characterized by Pr/Ph ratios below 1.5, high relative abundance of β-carotane and gammacerane, and dominance of C_{29} steranes over C_{27} steranes. Geochemical correlation analysis of oil and rock samples indicates that most of oils from the Eastern Niger basin were probably derived from the Upper Cretaceous marine source rocks.

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