岩石－土壤－铁芒萁系统中稀土元素的分布、迁移和累积

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摘要：在赣南非稀土矿区和四处不同稀土矿区内取样，用ICP－MS法测定岩石－土壤－铁芒萁系统中15个稀土元素的含量，并对其分布、迁移、累积特征进行了研究。结果表明：稀土元素在岩石、土壤各层含量由高到低的顺序为C（心土层）＞A（表土层）＞B（底土层）＞D（成土母岩）；在铁芒萁植物体内的分布规律是：轻稀土元素含量为叶＞根＞茎＞叶柄；重稀土元素含量为根＞叶＞茎＞叶柄；稀土元素演化、迁移的难易是由稀土元素的重轻所决定的；岩－土－芒萁系统各环节间稀土元素的含量模式基本相似，表征元素在岩石→土壤→植物大系统中存在着向量（非均衡性）关系。

关键词：稀土元素；岩石；土壤；铁芒萁；分布；迁移；累积；向量关系
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Distribution, migration and accumulation of rare earth elements (REE) in the rock-soil-Dicranopteris dichotoma (R-S-D) system

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Abstract: The contents of 15 rare earth elements (REE) in samples taken from the rock-soil-Dicranopteris dichotoma system (R-S-D) in one non-REE mining area and four REE mining areas in southern Jiangxi were determined by the ICD-MS method and their distribution, migration and accumulation were studied. Results show that the sequence of the layers in the system, in the order of decreasing REE contents, is as follows: layer C (subsoil) > layer A (topsoil) > layer B (bottom soil) > layer D (mother rock). The contents of REEs in the different parts of Dicranopteris dichotoma are leaf > root > stem > petiole for light REEs, and root > leaf > stem > petiole for heavy REEs. The REE evolution and migration in the R-S-D system depend on the weights of the REEs. The REE distribution patterns in various links of the R-S-D system are similar to each other, indicating a vectorial (inhomogeneous) relation of elements in the rock-soil-plant system. It can be concluded that there must be a stereo-correlation between the plants with the environment.

Key words: rare earth element; rock; soil; Dicranopteris dichotoma; distribution; migration; accumulation; vectorial relation