Epi-hydrogeochemical Effects of Karst Vegetation in Nongla, Guangxi

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Abstract: Vegetation is one of the important components of karst ecosystem. It is xerophile, petrophile, calciphile and sensitive to environmental change. The goal of this study is to restore karst vegetation better and to accelerate rebuilding karst ecosystem. In the karst dynamic system monitoring site of Guangxi Nongla by collecting and analyzing water samples chemical characters, for example, the chemical characters of rainfall, soil water and epikarst spring. The paper studied the epi-hydrogeochemical effects of karst vegetation in Guangxi Nongla. The conclusions are as follows: Vegetation can acidify rainfall and increase chemical substances (HCO_3^-、K^+、Na^+、Ca^{2+}、Mg^{2+} and dissociative CO_2), especially the increasing of dissociative CO_2 can increase karst dynamics in karst dynamic system; Vegetation can strengthen soil's capability of preserving water, decrease soil water, increase soil's natural water content, influence chemical characters of soil water; Vegetation can increase karst dynamic factors not only by leaching but also through its photosynthesis and transpiration, which influences physicochemical characters of epikarst spring. So karst vegetation has its distinctive ecological functions from non-karst vegetation. It is strongly recommended that restoration and rebuilding of karst vegetation should be undertaken in consideration of improving people's living level, sustainable developing and karst landscape.

Key words: karst vegetation; epi-hydrogeochemical; Nongla, Guangxi

封面图片说明: 红原草地

图片为位于红原县城北面的四川省草原科学研究院红原高寒草地试验区（31°51′~33°19′N, 101°51′~103°23′E), 地形以白河一级阶地与高原面浅丘状山地构成主要地貌景观, 主要植被类型为高寒草甸和以高山绣线菊（Spiraea alpine)为建群种的高寒灌丛草甸。整个红原地区地处“世界屋脊”青藏高原东部边缘, 位于四川省西北部、阿坝藏族羌族自治州中部, 南距成都 450 km, 北距兰州 640 km。境域分属长江、黄河两大水系。高原面由浅丘山地和丘间低地构成其主要地貌类型, 平均海拔在 3 600 m以上, 年平均气温 1.1 ℃, 极端最低气温零下 36.2 ℃, 年降雨量为 791.95 mm。图为夏季的景象。

（张　伟）