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前植物生产层

青藏高原高寒灌丛草甸生态系统碳平衡研究

李东, 曹广民, 黄耀, 靳代樱, 明珠

摘要:

利用静态密闭箱—气相色谱法观测的高寒金露梅*Dasiphora fruticosa*灌丛、丛间草甸土壤微生物呼吸CO<sub>2</sub>通量结果, 结合研究区群落生物量及样方调查, 对高寒灌丛草甸生态系统的碳平衡状况作了初步估测。结果表明: 植物生长季高寒灌丛草甸生态系统初级生产力年净固定碳量461.83 g/(m<sup>2</sup>·a), 土壤通过微生物呼吸年碳净排放量376.78 g/(m<sup>2</sup>·a)。碳素输入大于输出, 系统存在较强的CO<sub>2</sub>吸收潜力, 是大气CO<sub>2</sub>的汇, 其年净交换吸收碳量85.05 g/(m<sup>2</sup>·a)。

关键词: 碳平衡; 高寒灌丛草甸生态系统; 青藏高原

Carbon budget of alpine shrub meadow ecosystem in Qinghai Tibetan plateau

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Abstract:

The soil heterotrophic carbon dioxide flux from alpine *Dasiphora fruticosa* shrub and meadow dispersed among the shrubs were measured using static chamber Gas Chromatography method, and the community biomass and sample plot were also surveyed. The carbon budget of alpine shrub meadow ecosystem was estimated primarily. The results suggested that during the growing seasons, the observed amount of annual carbon fixation via primary production for alpine shrub meadow ecosystem was about 461.83 g/(m<sup>2</sup>·a). The carbon dioxide outputs via soil heterotrophic respiration was about 376.78 g/(m<sup>2</sup>·a). So carbon budget was input more than output, the alpine shrub meadow ecosystem has stronger potential to absorb carbon dioxide, it was a sink of atmospheric CO<sub>2</sub>, and the plant community had a net carbon gain of 85.05 g/(m<sup>2</sup>·a) in a year.

Keywords: carbon budget alpine shrub meadow ecosystem Qinghai Tibetan plateau

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