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巨桉人工林叶片养分交互效应

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Nutrient interactions in leaves of the eucalypt (*Eucalyptus.grandis*) plantations

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摘要 在四川巨桉栽培区设立了60个标准地，采用相关分析和矢量诊断法进行分析，以了解巨桉人工林养分的相互作用关系。结果表明，巨桉人工林叶片的养分交互作用较为复杂。N可促进P、K、Ca、Mn等的吸收，但易受到Fe、Zn、高Ca、高Mg的拮抗，而且高N抑制了Mn的吸收；P可促进K、Mg、Mn等的吸收，但易受Zn、Fe、高Mn、高K、高Ca、高Mg的拮抗，而高浓度的P将抑制K、Zn、Fe等的吸收；K对其他养分元素均没有明显的促进作用，但高浓度K限制P的吸收；Ca、Mg之间可相互促进吸收。同时，低浓度的Ca和Mg有利于Fe、Zn的吸收，高浓度的Ca和Mg将对N、P、Fe、Mn、S、B等养分产生拮抗，限制吸收；S可促进Zn的吸收，但易受高Ca、高Mg拮抗；Cu、Zn、Fe、Mn之间主要以拮抗为主。B相互作用较少，对其他养分几乎没有明显的促进作用。

关键词： 巨桉 交互作用 矢量诊断法 巨桉 交互作用 矢量诊断法

Abstract:

Interactions between nutrients in the leaves of eucalypt (*Eucalyptus grandis*) plantations in Sichuan were studied in order to provide scientific basis for nutrient management in the plantation. The vector diagnosis in combination with correlative test was used. N facilitated the uptake of P, K, Ca and Mn, but the interactions in the eucalypt tissue were subjected to antagonism by high concentrations of Fe, Zn, Ca and Mg in the eucalypt leaves. Furthermore, high N concentration in the eucalypt leaves inhibited the uptake of Mn. P accelerated the uptake of K, Mg and Mn, and was subjected to antagonism by high concentrations of Zn, Fe, Mn, K, Ca and Mg in leaves of the eucalypt tree. High P concentrations also limited the uptake of K, Zn and Fe. No significant interactions between the K and the other nutrients were found, but high K concentration in leaves of the eucalypt reduced P uptake. Positive interactions between Ca and Mg were found in leaves of the eucalypt. Low concentrations of Ca and Mg in leaves favored Fe and Zn uptake, while higher concentrations reduced the uptake of N, P, Fe, Mn, S and B. Similarly, S could facilitate the Zn uptake, but was labile to be subjected to antagonism by high concentrations of Ca and Mg in plant tissues. Negative interaction was found between Cu, Zn, Fe and Mn in the eucalypt tissues. No significant interactions between B and other nutrients were found in the eucalypt leaf.

Keywords:

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