

## Bradford法测定土壤球囊霉素相关蛋白的影响因子

吕华军, 刘德辉, 董元华, 李建刚

南京农业大学资源与环境科学学院

## Determination of Factors Affecting Glomalin-Related Soil Protein With Bradford Method

Lü Hua-Jun, LIU De-Hui, DONG Yuan-Hua, LI Jian-Gang

College of Resource and Environment, Nanjing Agricultural University

摘要

参考文献

相关文章

Download: [PDF \(735KB\)](#) [HTML 1KB](#) Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

**摘要** 土壤球囊霉素相关蛋白(glomalin-related soil protein, GRSP)是评价土壤健康的重要指标。研究了土样粒径、贮存条件和高温提取后离心延误时间3个影响因子对采用Bradford法测定GRSP含量的作用效果。结果表明, 土样粒径对易提取GRSP (EEG)的提取测定影响显著, 过0.074 mm孔径筛土样中提取出的EEG含量高于过0.149、0.25、1 mm孔径筛的土样; 总GRSP (TG)含量的测定结果对土样粒径的变化没有明显的响应, 测定TG含量可采用过1 mm孔径筛的土样。贮存条件影响EEG和TG含量的测定, 有机质含量低的土样室温保存18个月条件下测得的EEG含量略低于-20℃保存条件下; 有机质含量高的土样室温保存条件下测得的EEG含量高于-20℃保存条件下; 室温保存条件下3个有机质含量水平的土样TG含量均高于-20℃保存条件下。不用样品保存方式间3个有机质含量水平的土样EEG或TG含量差异均显著。为减小有机质降解等的影响, 宜低温保存土样。提取后延误离心将导致EEG含量测定值降低, 因此延误时间以控制在1h之内为宜; 离心延误2h内不同延误时间之间测得的TG含量无显著差异。

**关键词:** Bradford法 土壤球囊霉素相关蛋白 土壤粒径 贮存条件 离心延误

**Abstract:** Glomalin-related soil protein (GRSP) is an important indicator in assessing soil health. On the basis of the researches done by predecessors, further investigations were conducted of effects of soil particle size, soil sample storage conditions and delay of centrifugation of the extract after high-temperature extraction on quantification of GRSP with the Bradford method. Results show that soil particle size significantly affected extraction and determination of easily extracted GRSP (EEG). The content of EEG extracted from samples that passed a 0.074 mm sieve was significantly higher than that from samples that passed 0.149, 0.25, and 1 mm sieves, separately. However, the content of total GRSP (TG) did not vary with soil particle size, which indicates that for determination of TG, it is advisable to use soil samples that pass 1 mm sieves. Storage conditions also affected determination of EEG and TG. The content of EEG determined of the soil samples of low organic matter content at -20℃ for 18 months was obviously more than that stored at room temperature for the same length of time, while the content of EEG determined of soil samples of high organic matter content stored at room temperature showed a reverse trend. And TG determined of soils of three organic matter content levels stored at room temperature was obviously higher than that stored at -20℃. So to minimize the effect of organic matter degradation, soil samples should be stored at low temperature. Delay of centrifugation of extracts may lead to decrease in the value of EEG determination. It is advisable to have the extract centrifuged within 1h. However, there is no significant difference between delays of centrifugation within 2 h for TG determination.

**Keywords:** Bradford method glomalin-related soil protein (GRSP) soil particle size storage condition delay of centrifugation

Received 2011-07-04;

Fund:

国家公益性行业(农业)科研专项(200903011); 国家农业科技成果转化资金项目(2009GB24910540)

Corresponding Authors: 董元华 中国科学院南京土壤研究所 Email: yhdong@issas.ac.cn

About author: 吕华军(1986-), 女, 山东济宁人, 硕士生, 主要从事土壤生态学研究。E-mail: lhj312028@yahoo.com.cn

引用本文:

吕华军, 刘德辉, 董元华, 李建刚. Bradford法测定土壤球囊霉素相关蛋白的影响因子[J] 生态与农村环境学报, 2011, V27(5): 93-97

Lü Hua-Jun, LIU De-Hui, DONG Yuan-Hua, LI Jian-Gang. Determination of Factors Affecting Glomalin-Related Soil Protein With Bradford Method[J] Journal of Ecology and Rural Environment, 2011, V27(5): 93-97

## Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

## 作者相关文章

- ▶ 吕华军
- ▶ 刘德辉
- ▶ 董元华
- ▶ 李建刚

