

前植物生产层

污泥无土草皮基质配方优化研究

朱淑霞, 张俊卫, 尹少华

摘要:

以塑料薄膜为阻隔材料, 以污水处理厂污泥为主要基质, 煤渣、蘑菇渣和沙等为配材, 采用单形格子配方试验设计和灰色关联系数法, 对11种不同配方基质的营养成分、重金属含量、无土草皮坪用性状及综合品质进行了评定, 建立了草皮综合品质与各配方成分间显著相关的回归模型。结果表明, 除叶绿素含量外, 其他7种坪用性状差异显著。通过模拟寻优, 得到基质优化配方方案为: 污泥含量51.41%~51.83%, 煤渣含量18.32%~18.86%, 蘑菇渣含量18.19%~18.81%, 沙含量10.87%~11.72%。草坪草可富集较多的重金属元素, 收获草皮后的基质中重金属含量降低且符合农用基质标准。

关键词: 城市污泥 无土草皮 混合基质 优化

Optimizing mixtures for producing biosolid soilless sod over plastic

ZHU Shu xia, ZHANG Jun wei, YIN Shao hua

Abstract:

The simplex lattice design was used to optimize the mixtures for producing biosolid soilless sod over plastic by using coal cinder, mushroom mulch, and sand. The nutrients, heavy metals content, bermudagrass growth and integrated turf quality of 11 mixtures were analyzed over plastic with method of grey correlation coefficient by establishing the correlative regression model between the turf integrated qualities and mixing ingredients. The results of this study indicated than the chlorophyll content kept stable but above and underground biomass, sod weight, root activity, density, establishment rate, and sod forming rate were significantly different. The optimal mixture was that the content of biosolid, coal cinder, mushroom mulch and sand were 51.41% to 51.83%, 18.32% to 18.86%, 18.19% to 18.81% and 10.87% to 11.72%, respectively. The turfgrass plant enriched heavy metals and the heavy metal content decreased when turf was harvest, and the heavy metal of which conformed to national farmland environmental quality evaluation standards.

Keywords: biosolid soilless sod mixture optimization

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