

研究简报

松针土作基质生产脱毒微型薯试验研究

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摘 要 用松针土作基质进行无土栽培扦插脱毒苗, 结果表明炭化松针土结构疏松, 吸水保湿力强, 透气性好, 富含腐殖质。用它作基质扦插脱毒苗成活率在 27℃ 土 3℃ 的条件下, 达 96.3%, 密度 5cm × 4cm, 平均每株结薯 2.48 粒。

关键词 脱毒薯, 松针土基质, 扦插, 微型薯

1 前 言

利用蛭石和草炭作基质, 无土栽培工厂化生产脱毒微型薯已被国内外马铃薯研究单位广泛利用。但是, 如果大规模生产蛭石需要量大, 脱毒微型薯成本高。尤其是在我国西南山区由于交通不便, 蛭石匮乏而昂贵, 使脱毒微型薯生产成本提高, 严重地影响了脱毒马铃薯的推广。

为此, 我们于 1998 年在贵州省贵阳市利用炭化松针土进行了扦插脱毒苗生产脱毒微型薯的试验, 旨在为西南山区找到一种廉价、高效的基质。

2 材料与方 法

2.1 材料

供试品种: Favorita、中薯 3 号、中薯 2 号。

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基质: 炭化松针土, 来源于高山松林, 它是一种结构疏松, 通气性好, 可固定根系, 吸水保湿的腐殖质。

2.2 试验方法

温室为双层 (一层薄膜, 一层尼龙沙), 保湿防虫温室。地面为混凝土。地点为贵阳市药用植物园。

基质——松针土使用前经过筛, 50℃ 高温处理, 甲醛、高锰酸钾薰蒸和杀虫剂处理。每 m³ 松针土掺入磷酸二铵 1kg。松针土平铺于温棚地面, 厚度 12cm, 浇水后待用。

脱毒瓶苗培养基为简化 MS 培养基, 移栽前置于 15~20℃, 3000lx 强光下炼苗 4~5d。移栽时用 NAA 100ppm + IBA 20ppm 生根剂浸泡 30min。密度 5cm × 4cm。覆盖在温棚内, 气温为 20~25℃, 5d 后成活, 成活率 96.8%, 成活后喷 0.2% 磷酸二氢钾 2 次。

剪枝扦插, 3 月 9 日开始剪苗扦插, 每株母株主茎带 2 个以上节间, 剪下。用 NAA 100ppm + IBA 20ppm 水溶液浸泡 20~30min, 然后定植于用打孔器打 (下转 16 页)。

THE SUITABLE CONCENTRATION AND FUMIGATION PERIOD OF RINDIT USED FOR BREAKING THE DORMANCY OF POTATO MINITUBERS

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ABSTRACT: In order to study the suitable concentration and fumigation period of Rindit used for breaking the dormancy of minitubers, two factors, Rindit concentration and fumigation period, which include four levels respectively, were investigated. The planting materials were Favorita, Kexin 4 and Hui-2. The weight of minituber is 2 ± 0.2 g. The experiment showed that the minituber treated with 0.33 ml/kg/3h had the highest germination percentage. Owing to different response of cultivars, we suggest the range of $0.13 \sim 0.33$ ml/kg/3~9h. In addition, we also study if the minitubers will lost their capacity of germination when the Rindit concentration was over 0.5 ml/kg. We treated the minitubers with 30 ppm GA₃ for 25 min, which were treated previously by over 0.5 ml/kg Rindit and didn't sprout. More than 90% of them were noted to sprout. This experiment showed that the minitubers could be inhibited to sprout but can't lost their capacity of germination if they were fumigated at the concentration of ≤ 0.73 ml/kg for ≤ 12 h.

KEY WORDS: minituber, Rindit, germination

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好洞的基质, 浇水覆膜, 4~5d 生根成活。温棚气温为 $21 \sim 29^{\circ}\text{C}$ 。从 3 月 9 日到 4 月 16 日扦插 5 次, 共定植扦插苗 96 万株。

3 结果与分析

3.1 成苗率

用松针土作基质定植瓶苗和扦插苗, 只要生根剂的处理得当, 其成活率都达到 95% 以上。尽管当时中午 $12 \sim 15$ 时气温达到了 29°C , 仍可扦插, 并保证成活。

3.2 营养液

用松针土作基质, 由于松针土富含有机

质, 完全可以保证扦插正常生长, 一般不需浇营养液, 节省了成本。

3.3 结薯性状

2500m^2 温棚, 按 $5\text{cm} \times 4\text{cm}$ 定植, 成活后 60d 收获, 平均每株结块 2.48 块, 平均块重 $3 \sim 6$ g。

4 讨 论

用炭化松针土作基质, 扦插马铃薯脱毒苗, 成活率、结薯率都达到蛭石基质的水平, 而且无需浇营养液。我国西南山区有大量的松针土, 用它作基质价廉, 保水性强, 透气性均达到较好的结果。