培养瓶内黄杨苗位置的机器视觉识别方法

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摘 要： 根据培养瓶内黄杨组培苗的形态特点，提出从苗瓶底部识别瓶中单株苗位置的方法。200棵苗的实测数据表明，97%的苗株在根块上的生长位置距根块中心在1.5 mm之内，该方案是可行的。建立了苗瓶图像采集系统，开发了从瓶底图像中提取根块图像，进行各根块区域标记，进而计算各根块中心的图像处理算法。对60瓶共240棵苗进行了图像识别，并测取根块中心位置计算值与实际苗株中心间的距离，试验结果表明：根块个数的识别成功率为92.05%，计算出的根块中心与实际苗株中心间的平均距离为0.85 mm，满足了移苗作业的精度要求。 A new method to identify the position of Japan Euonymus plantlets in bottle from the bottle bottom was proposed according to the appearance of plantlets in bottle. The experimental data of 200 plantlets showed that the method is feasible, for the distance between stalk and root is 1.5 mm in 97% plantlets. A set of image acquisition system for bottle bottom has been established, and the algorithm to extract the root image from the bottle bottom image, tag the area and calculate the center of each root was developed. Detecting experiments were carried out by identifying images of 240 plantlets and measuring the distances between calculated root centers and actual stalk centers. The results indicated that the detecting accuracy of root amount is 92.05% and the average distances between calculated root centers and actual stalk centers are 0.85 mm. It can meet the requirement of transplanting process.

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