

应用木霉芽胞菌肥改良沈农校园名木品质

杨永丰¹ 王东一¹ 张建霞¹ 李佳霖¹ 孔宁¹ 刘志华¹

(1.沈阳农业大学林学院 沈阳 110866)

摘要: 【目的】沈阳是银杏树栽植区的最北端，沈阳农业大学尤以银杏出名，每年的“银杏节”招揽众多游客观光，“沈农银杏”已成为沈阳农业大学一个重要的文化品牌。然而由于施工移栽，病害侵蚀，表现出叶片发黄枯死，树势变弱等问题。木霉芽胞菌肥作为新时代绿色农业的主力军，通过增加土壤中有益微生物数量及活性，改良土壤，促进移栽的银杏根部再生及养分吸收，进而保证银杏树移栽品质改良。【方法】首先对沈农校园内名木的生长状态进行实地调查，记录下树势弱或感染病害的林木。对于移栽树势弱的名木，翻整根围土壤，采用三点灌根法，在根部周围以 120° 夹角取三点进行翻土，根据树体大小适量适配浇灌木霉芽胞菌肥。对于感染病害的名木，收集发病部位分离病原菌，筛选有效的拮抗木霉芽胞生防菌并喷施于受害名木的发病部位。【结果】木霉芽胞菌肥有效的改良了沈农校园内名木由于移栽引起的树势弱的问题，银杏树叶片由黄变绿，松科林木萌发新的针叶且针叶由弯曲下垂变为直挺成簇。分离出沈农校园内的银杏树叶枯病病原菌极细链格孢菌 (*Altemaria tenuissima*)，同时筛选出了 4 株拮抗银杏叶枯病的生防芽胞杆菌 (Bam337, Bsu503, Bsa537, Bso544)，混合芽胞菌剂对银杏树叶片的预防和治病效率分别达到 99.76%和 91.41%，有效的降低了银杏树叶枯病的发病率。【结论】木霉芽胞菌肥兼具微生物菌肥改良土壤及林木品质改良功效的同时，对广谱病害具有良好的防治作用。施用木霉芽胞菌肥对沈农校园内的名木进行病害防治及品质改良，为打造美丽校园画卷添上浓墨的一彩，为校园名木改良模式提供技术支撑。

Application of *Trichoderma Bacillus* fertilizer to improve the quality of famous trees in Shenyang Agricultural University

Yang Yongfeng¹Wang Dongyi¹Zhang Jianxian¹Li Jialin¹Kong Ning¹Liu Zhihua¹

(1. Shenyang Agricultural University Forestry College Shenyang 110866)

Abstract : **【Objective】** Shenyang is the northernmost part of the ginkgo tree planting area. Shenyang Agricultural University is especially famous for ginkgo. The ‘ Ginkgo Festival ’ attracts many tourists every year. ‘ Shennong Ginkgo ’ has become an important cultural brand of Shenyang Agricultural University. However, due to construction transplanting and disease erosion, the leaves are yellowing and withered, and the tree vigor becomes weak. As the main force of green agriculture in the new era, *Trichoderma Bacillus* fertilizer improves the soil by increasing the number and activity of beneficial microorganisms in the soil, promotes the regeneration and nutrient absorption of transplanted Ginkgo biloba roots, and ensures the improvement of Ginkgo biloba transplanting quality. **【Method】** Firstly, the growth status of famous trees in Shennong campus was investigated, and the trees with weak tree vigor or infected diseases were recorded. For the transplanted famous trees with weak tree vigor, the soil around the roots was turned over, and the three-point root irrigation method was adopted. Three points were taken around the roots at an angle of 120° to turn the soil, and the appropriate amount of *Trichoderma Bacillus* fertilizer was adapted according to the size of the tree. For the famous trees infected with diseases, pathogenic bacteria were isolated from the diseased parts, and effective antagonistic *Trichoderma Bacillus* biocontrol bacteria were screened and sprayed on the diseased parts of the injured famous trees. **【Result】** *Trichoderma Bacillus* fertilizer effectively improved the problem of weak tree vigor caused by transplanting of famous trees in Shennong campus. The leaves of ginkgo trees changed from yellow to green, and pine trees germinated new needles and the needles changed from bending and drooping to straight and clustered. *Altemaria tenuissima*, the pathogen of ginkgo leaf blight, was isolated from the campus of Shenyang Agricultural University. At the same time, four biocontrol *Bacillus* strains (Bam337, Bsu503, Bsa537, Bso544) against ginkgo leaf blight were screened out. The prevention and treatment efficiency of mixed spore agents on ginkgo leaves reached 99.76% and 91.41%, respectively, which effectively reduced the incidence of ginkgo leaf blight. **【Conclusion】** *Trichoderma Bacillus* fertilizer not only has the effect of improving soil and forest quality by microbial fertilizer, but also has good control effect on broad-spectrum diseases. The disease prevention and quality improvement of famous trees in Shennong campus were carried out by applying *Trichoderma Bacillus* fertilizer, which added a strong color to the beautiful campus picture and provided technical support for the improvement mode of famous trees in campus.