

Study on Seedling Propagation Techniques and Laws of Different Provenances of Rhododendron

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Abstract: The adaptability and growth characteristics of different red carp provenances in different regions were selected to select suitable good provenances. In this paper, the leaf traits, ground diameter and plant height growth of different provenances of red peony were observed. Test and related analysis. It indicates that there are extremely significant differences between different provenances, regardless of ground diameter, plant height, or length and width of compound leaves, length and width of leaflets, and number of leaflets. This paper also discusses the breeding and breeding techniques of red carp, as well as the growth pattern.

1. Introduction

Toona ciliata, a genus of genus genus, is a large deciduous tree, a strong positive tree species that grows rapidly and has a straight trunk. It enjoys the reputation of “Chinese Mabogany” on the international market. It is a high-grade furniture and decorative timber species for the national secondary protection endangered species, with high economic value and development prospects[1-4]. With the development of the furniture industry, the supply of red oak wood is in short supply, highlighting the technical support of the construction of the Hung Hom base[5-8]. In order to meet the needs of production of red peony seed and base construction technology, it is necessary to study the water physiological characteristics, photosynthetic physiological characteristics and comprehensive breeding of red carp family [9-13]. Whether it is ground diameter, plant height, or leaf length and width, leaflet length and leaflet number, there are extremely significant differences among different provenances, which provides a direction for the selection of good provenances in various regions [14-16]. The growth characteristics of red peony seedlings in different periods have important guiding significance for seedling growth of red peony seedlings [16-17]. The fast-growing period is a critical period for tree growth. It should promote the rapid growth of seedlings through fertilization and other management measures. At the later stage of growth, attention should be paid to increasing the degree of lignification of seedlings to improve their ability to withstand winter cold damage [18-20].

2. Analysis of growth rules of seedlings of different provenances

2.1 Seedling height and ground diameter growth

The variance analysis of the seedling height and ground diameter of the 1-year-old seedlings of different provenances showed that the differences in seedling height and ground diameter between the provenances and the inter-groups reached extremely significant levels ($P < 0.01$).

2.2 Geographical variation and climate impact

The partial correlation analysis of seedling height, ground diameter, geographical factors and ecological factors of different provenances of red carp were carried out. The results showed that the seedling height of seedlings was significantly negatively correlated with the longitude of seed collection; the ground diameter was significantly negatively correlated with the latitude of seed collection, and it was significantly negatively correlated with longitude. The correlation between altitude and the two growth traits was not significant. It can be seen that the geographical variation

of growth traits of different provenances of red peony seedlings is controlled by latitude and longitude, but dominated by longitude. The variation trend is that the seeding point grows from east to west and height increases. The growth traits of provenance seedlings were negatively correlated with annual precipitation at the seed collection point, and the correlation reached a significant level; it was positively correlated with the annual average temperature, but the correlation did not reach a significant level.

2.3 The impact of different management measures on the promotion of seedling and the number of cuttings

The results of analysis of the effects of different cutoff heights on the number of red buds sprouted showed that the number of germinations was about 10.5 and 10.9 when the cutoff height was 0.3m and 0.7m. When the cutoff height is 0.5m, the number of red buds is the highest, reaching 15.9. It is indicated that the cutting height is 0.5m when the red hoe is harvested. According to the analysis of variance, the difference in the number of buds between different cut heights is extremely significant. The results of the analysis of the effect of different number of cuts on the number of red stalks showed that the number of cuts was 1 and the time was 3, the average number of spikes collected was 25.3; the number of cuts was 2, the time was In March and July, the average number of spikes collected was 56. According to the analysis of variance, the effect of different number of cuts on the number of spikes was significant.

2.4 Relationship between seedling height and time in different sowing dates of different provenances

The peak growth period of seedlings of 1 year old red carp seedlings in different seeding seasons occurred in July-September, and the seedling height of spring seedlings was higher than that of winter seedlings. There were significant differences in the growth of seedlings of different provenances. Yu Longnan provenance; using the logistic curve equation to simulate the high growth process of red oak seedlings, the model parameter R^2 is 0.950~0.969, which indicates that the model fitting is close to the actual observation value. The high growth of seedlings at different growth stages. The growth of seedling stage is shown in Figure 1.

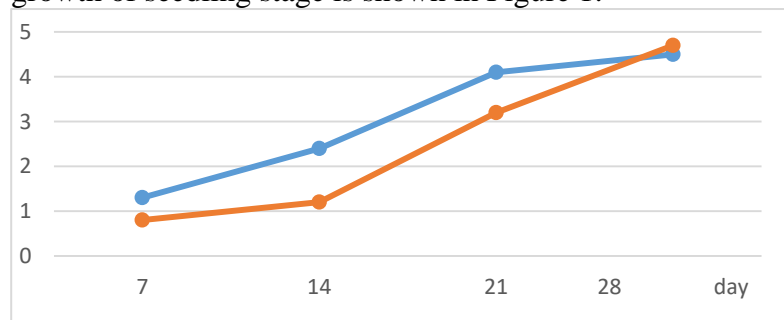


Figure 1 Seedling growth time

3. Red carp seedlings

The red eucalyptus is a semi-evergreen tree with straight trunks, gray bark, scaly longitudinal splits, leaves with pinnately compound leaves, hi-light, growth temperature of 16.8-23 °C, suiTable for brick red soil and yellow soil, growth In tropical and subtropical regions of China. Uses: Because red peony wood is reddish-brown, strong in gloss, unique in flavor, easy to process, easy to take, suiTable for making furniture, musical instruments, building materials, etc., with high economic value, red carp and fir, horsetail Mixed forestation such as pine can avoid the problem of soil fertility caused by single tree planting, enhance soil fertility, change the ecological environment, balance the ecological circle, have ecological value, and have high medicinal value. It is necessary to vigorously develop the breeding technology of red dragonfly.

3.1 Seed collection and storage

Due to the low genetic diversity of red carp, the probability of variation is small. When collecting seeds, choose the red eucalyptus tree that is full of straight, straight, free from pests and diseases, and is 10 to 15 years old. As a mother tree, in general, collect tree species. Ping, from September to October, when the capsule turns from green to brown or brownish red, after collecting the capsule, it is exposed to sunlight until it cracks. The newly harvested seeds can be sown immediately or sealed for low temperature storage. Moreover, the red dragonfly is generally planted for more than 10 years before it is flowering and fruiting, and the breeding mother tree should choose a healthy and vigorous red dragonfly of 20-30 years old. The mature period of each place is inconsistent, and the fruit of Fujian Nanping red sorghum matures in the middle and late December. When the ripening of the capsule is changed from green to brownish red but not cracked, it is picked up in time. After harvesting, it is dried for several days. After the cracking of the capsule, the seed is shaken and dried. The red peony seed is thin, with 260,000 seeds/kg of winged seeds, and the germination rate is generally 80%. Normal storage is prone to loss of vitality, so seeds should be placed in a cold storage for refrigeration.

3.2 artificial container seedlings

To speed up the germination, the seeds are soaked in warm water at 40 degrees Celsius for 24 hours, or the sand layer is layered to accelerate germination. The selected seeds were soaked in warm water at 50 ° C for 12 h, and then removed and mixed with methyl thiophanate for disinfection. Stacked on a sun-filled concrete floor to warm naturally, cover the sunshade net, avoid direct sunlight to dry the seeds: or put the seeds into a permeable bag or woven bag, and often flip to avoid the seeds heat and mildew. After 2d, the seeds split open and white. After 7 days, more than half of the seeds are white, so it should be planted at the right time to avoid the seeds being wasted due to too long radicle.

4. Seedling breeding technology

4.1 Nursery selection and treatment.

The nursery land should be selected in the north facing south. The terrain is flat, open, well ventilated, and the light is sufficient. The soil is close to the water source. The soil is fertile sandy loam, and it is not suitable for water or clay. Because red eucalyptus trees are deep and soft and fertile soil, they should be carefully made into beds before planting in early spring, weeding over weeds, removing pests and diseases, and improving soil water, fertilizer, gas and heat conditions. Apply enough base fertilizer (composite fertilizer 300kg/hm²). When making the bed, the bed surface should be leveled. After the bed is made, cover the bed with a layer of yellow heart soil with a thickness of about 0.5cm. The bed is made of 10~15cm high and 1m wide. The trail is 20cm wide, and the clods should be thinner to facilitate the germination of the seeds, which has a good effect on reducing grass waste and reducing pests and diseases. According to the pH of the soil, fertilization (carbon ammonium and phosphorus) is applied to the seedbed base and surrounding areas of each acre, and the pesticides are sprayed. Then, the fertilizers and pesticides are turned into the soil in time, then leveled, and watered after the seeding is completed.

4.2 Afforestation technology.

According to the principle of adapting to local conditions, the land will be prepared in autumn and winter, and the forest will be planted from March to May in the next year. The suitable afforestation plots will be selected, and the weeds on the afforestation land will be arranged, and then the holes will be 50×50×50cm, 2×2m. Land preparation, however, red worm pests (red cockroaches, red cockroaches at the top) are more suitable. As a timber species, they should be mixed with other tree species. The size of the hole should be 50×50×35cm and the planting density is 3×. 4m or 3×3m.

4.3 sowing and sowing.

Generally in the middle and late March, the latest for the rain, evenly sow the seeds, covering 1 ~ 1.5cm of fine soil, usually 3 times the diameter of the seed, 5 kg of seeds can produce 12,000 seedlings, when the seedlings grow out When 4 to 6 leaves are used, seedlings or seedlings should be given to the seedlings, and the seedlings are too dense to be ventilated. Before sowing to seedlings, the seedlings should be strengthened to cover the seedlings with straw or straw 2cm and watering, fertilizing, weeding (weeds and seedlings competing for water, being parasites of pests and diseases), pest control, frost protection Keep the humidity of the seedlings, cover the shade, protect the sputum (watering when the drought is dry, cover the shade; drain the water when it is rainy, avoid the seedbed being soaked), and avoid direct burning of the seedlings caused by strong light. It is worth mentioning that fertilization should be divided into several stages: adding enough base fertilizer when preparing the soil; in the rapid growth of seedlings in June, the seedlings of various specifications are topdressed with 5 kg of urea per 666.7 m; in mid-July (except the greenhouse) , various specifications of seedlings per 666.7m topdressing urea 5 kg, phosphate fertilizer 8 kg, potassium fertilizer 6.5 kg; after the first ten months of August to stop topdressing and watering, seedlings wooden structure is sTable, and the quality of growth is improved.

4.4 Seedlings are removed from the seedbed.

(starting seedlings) from large to small batches, in the sunny evening or rainy days to start seedlings, choose to grow 2 to 3 needles, height more than 1m, good top edge, dry seedlings, roots developed, leaves green Strong seedlings, eliminate seedlings with no obvious top-end advantage, thin trunk, underdeveloped roots and shallow leaf color; the composition of nutrient soil is mainly 30% fire-burning soil, 60% yellow core soil, 10% river sand, plus 2% to 3% Phosphate fertilizer.

4.5 Planting and cultivation.

Generally speaking, planting and cultivating on the same day of seedlings, try to avoid the decrease of the yield of the seedlings caused by the loss of sunshine, and plant them in spring and autumn. However, in spring, the seedlings should be fixed and the roots should be fixed. Stretch, planted perpendicular to the surface, step on the ground, keep water and protect. After planting, we will carry out weeding, expanding acupuncture and loosening soil from May to August every year, regularly manage seedlings, regularly eliminate pests, prevent human and animal damage, and improve the rate of achievement. In mixed forests, weeds should be sown every 3 years or so. 1 or 2 times, regular fertilization, the tree species for excessive shading and red mites should be trimmed in time, and the lateral buds of the red mites are cut off to ensure the growth of the top buds.

4.6 Sowing.

It can be sown from March to early April. The seeding rate is generally 15kg/hm². It can be used for both seeding and spreading. However, it is better to use it to facilitate the soil thickness. Cover with a layer of yellow soil after seeding (not to see seeds), then cover the shade net and keep the bed moist. After about 20 days, the seeds were unearthed. It takes about a week for the seedlings to be unearthed to the true leaves.

5. Analysis of the law of red carp in different provenances

5.1 Effects of different sowing dates on the high growth of red peony seedlings

Seedling growth is not only related to climatic conditions and management levels, but also to the genetic characteristics of tree species. Mastering the high growth law of red peony seedlings can provide scientific basis for management of seedlings and seedlings. Tao Dan et al. studied the growth rhythm of seedlings of the northwestern, central Yunnan and southern Fujian red alfalfa seedlings, and the fastest growth of red alfalfa seedlings from late August to early September. In this study, the first-year seedlings of red carp in different sowing dates, the peak growth period of seedling height appeared in July-September, and the high net growth of seedling seedlings showed

that spring seedlings were better than winter seedlings. In the late October of the observation period, the average values of seedling height were: 60.39cm for Yifengchun seedlings and 52.03cm for Yifeng winter seedlings. Longnan spring sowing is 62.95cm, Longnan winter sowing seedling is 47.06cm. The overall performance of the 1-year-old sowing seedlings was higher than that of the winter sowing seedlings. July-September is the fastest period for seedling growth and a key period for the high growth of seedlings. Therefore, it is necessary to strengthen the management of soil and fertilizer in the depression to prevent drought.

5.2 Effects of Different Provenances on the Growth of Alfalfa Seedlings

According to the average value of seedling height and ground diameter, the excellent provenance plays a good role in seedling selection and seedling raising. Liu Jun et al.'s research on the seedlings of different provenances of red carp, one year old, showed that the preliminary selection of different provenances of red carp by using the two indicators of seedling height and ground diameter can achieve better results. In production practice, seedling height is generally used as an indicator to evaluate the pros and cons of seedlings. The variance analysis of growth sources of different provenances in this experiment showed that the growth of different provenances of red seedlings was significantly different. The multiple comparison of LSD indicated that Yifeng provenance was superior to Longnan provenance. The specific performance of Miaogao is Yifeng provenance (58.1552*) > Longnan provenance (52.5501*), and the ground diameter is: Yifeng provenance (0.9141*) > Longnan provenance (0.7863*). The difference in growth shape of seedlings of different provenances indicates that Yifeng has good adaptability and growth performance, and can be used as an excellent provenance as a preliminary basis for seed allocation.

5.3 Logistic regression equation to fit the growth of red carp

Regression analysis used Logistic equation, power function equation, S-shaped equation and exponential equation to fit the mathematical model of seedling height and time of 1 year old seedlings of red carp. The correlation of Logistic equation fitting results was extremely significant, consistent with Zhang Jizhen's conclusion. . The mathematical model of the fitting can be used to estimate the growth of red carp seedling height in different periods, and the regression value predicts that the actual value has higher accuracy.

6. Conclusion

Red dragonfly is a precious fast-growing timber species. It is warm and humid. It is suitable for growing in the southern part with large precipitation. The growing soil must be fertile, and the growing area is well drained. The survival rate is planted in Yilin open space, burned remains, and returning farmland to forestland. High, not suitable for growing in the jungle, after seed collection, storage, container seedling, seedling selection, land preparation, sowing, seedling, afforestation, etc. With the rapid development of the economy and the increase of population, humans will extend their hands to the earth. Outside the outer space, without fear of nature, arbitrarily destroying the environment, not following the law of harmonious development of human and nature, deforestation, deforestation and land reclamation, the space suitable for the growth of red carp is gradually reduced, and the population of red carp is gradually reduced. Leading to soil erosion and ecological deterioration, we must increase publicity, restore the destroyed ecological environment, strengthen the protection of native habitats or ex situ conservation, and protect the forest environment. Only by creating a suitable environment for the growth of red carp, it is possible to gradually solve the dilemma of the red dragonfly.

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