

STUDIES REGARDING *JUNIPERUS CHINENSIS* AS BONSAI USED IN TERRARIUMS

STUDII PRIVIND *JUNIPERUS CHINENSIS* SUB FORMĂ DE BONSAI UTILIZAT ÎN TERARII

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Abstract. *Juniperus chinensis* is a species that can be easily managed as a bonsai. The technique of cultivating plants in the form of bonsai has been known since ancient times, from the Chinese, and the concept of the terrarium is relatively young, being known from the English. The terrarium is an innovative practice of combining the modern with the traditional art of bonsai. This experience involves creating a miniature ecosystem inside a glass container and incorporating bonsai-style directed plants as a central element of the design. By combining these two concepts, unique, miniature landscapes are created, and the style in which the bonsai are managed plays an important role in the appearance and condition of the terrarium.

The current study presents aspects regarding the utilization of the *Juniperus chinensis* species, in the form of bonsai, in terrariums.

Key words: bonsai art, juniperus, terrariums

Rezumat. *Juniperus chinensis* este o specie care poate fi dirijată ușor sub formă de bonsai. Tehnica de cultivare a plantelor sub formă de bonsai se cunoaște din vechime, de la chinezi, iar conceptul de terariu este relativ tânăr, fiind cunoscut de la englezi. Terariul este o practică inovatoare de a combina modernul cu arta tradițională a bonsaiului. Această experiență implică crearea unui ecosistem în miniatură, în interiorul unui recipient de sticlă și încorporarea plantelor dirijate sub formă bonsai ca element central al design-ului. Prin combinarea acestor două concepte, se realizează peisaje unice, în miniatură, iar stilul prin care bonsaii sunt conduși, joacă un rol important în aspectul și starea terariului.

Lucrarea de față prezintă aspecte privind valorificarea speciei *Juniperus chinensis*, sub formă de bonsai, în terarii.

Cuvinte cheie: arta bonsai, ienupăr, terarii

INTRODUCTION

Terrarium is a small garden designed for the pleasure of growing plants in a transparent container, being it open or closed. They are gaining popularity as a source of indoor greenery because they can be grown with minimal

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watering, light penetrates inside the pot and in the case of closed terrariums, moisture evaporates but cannot be lost, recirculating and thus creating the same cycle as in nature (Oshima and Kimura, 2012).

Bonsai art is the art of obtaining miniature plants, grown in specific pots. With the help of bonsai, a picture from nature can be brought closer to us (Bender, 2014; Iwai, 2014; Pall, 2014; Chan, 2018; Ouellet, 2019; Haruka, 2020).

The goal of the present study is to research the usage of bonsai in terrariums, bonsai obtained from *Juniperus chinensis* species.

MATERIAL AND METHOD

The study material is represented by the ornamental plant species *Juniperus chinensis*. The plants used were two years old and were obtained and grown under nursery conditions. A round pot was chosen for making bonsai (fig. 1). The choice of such a pot was made in order to minimize the stress of the plant during the transplant process from the previous pot to a smaller one.

Round pots have advantages in the process of transplanting and plant adaptation, as they reduce root stress by minimizing root loss and provide an optimal environment for their development in a smaller container. This approach allows the plant to adapt more easily to new growing conditions and maintain its physiological balance in a smaller container.



Fig. 1 Pot for bonsai
(<https://www.atelierbonsai.ro/bonsai-shop/ghivece-pentru-bonsai/ghiveci-bonsai-20cm/>)

Special attention was paid to the selection of pots for terrariums, taking into account the size of the plants and aiming to achieve a harmonious balance that corresponds to the characteristics of the species used. In the selection process, consideration was given to the size of the pots to provide enough space for both the roots and aerial parts of the bonsai to develop adequately.

Three distinct types of pots were used to conduct the experiment, namely closed pots with a lid, open stemmed pots, and open pots with the base at ground level.

The management of juniper plants in the form of bonsai was done with the help of specific tools and utensils.

To make the terrariums, a bonsai substrate was used, with a porous structure that ensures proper drainage.

RESULTS AND DISCUSSIONS

Juniperus chinensis (fig. 2) is a suitable species to be managed as a bonsai. The two-year-old plants, used in this research, had a well-developed root system (fig. 3), which led to its radical shaping.

The formation of bonsai began with a partial defoliation, removal of unsuitable branches, wiring of the stem and pruning of the branches (fig. 4).

As a result of the unfavorable conditions in the restrictive environment of the closed terrarium pot, in the first weeks after transplanting, the bonsai encountered difficulties in initiating its growth and development process. Adaptation to the new environmental conditions required additional effort, and the plant experienced a period of stagnation or slowed growth during the first months of life in its new location.

In the process of creating the design of this terrarium, the choice was made to integrate various rock pieces into the composition, with the aim of recreating the authenticity and atmosphere specific to natural rocks (fig. 5). These decorative elements gave the terrarium a rustic character, with opulent accents and a special aesthetic. Regarding the use of mosses in decoration, they have the role of keeping the substrate moist for a longer period, thus preventing dehydration.



Fig. 2 *Juniperus chinensis* – initial material (original)



Fig. 3 *Juniperus chinensis* – radicular system (original)



Fig. 4 *Juniperus chinensis* as bonsai (original)



Fig. 5 Closed terrarium, with *Juniperus chinensis* as bonsai (original)

For the open legless terrarium, the bonsai shaping process began with the careful removal of the substrate bowl accompanied by the meticulous shaping of the root system (fig. 6).

To achieve the specific style chosen, the bonsai was designed with two stems (fig. 7), maintaining its natural curves. As the original size and shape of the bonsai would have made it difficult for it to grow and develop in the terrarium environment, pruning was also applied at the level of the tops, in order to encourage the growth of the inner branches and to ensure a balanced and harmonious aesthetic appearance.

Given that the shape of the crown did not correspond to the wishes, forming cuts were made (fig. 8).

After the bonsai was meticulously modeled and adapted to the specific conditions of bonsai art, the result obtained was carefully transplanted into individual containers specially designed for terrariums (fig. 9), with the ultimate goal of conducting an experiment in a suitable and controlled environment.

In the process of conceiving the design of this terrarium, it was opted for the selective integration of various specimens of rocks in the composition, in order to recreate the authenticity and atmosphere characteristic of natural rocks. By carefully choosing it, the aim is to obtain an authentic aesthetic aspect and faithful to the natural representation, while respecting the scientific criteria of composition and visual harmony.



Fig. 6 *Juniperus chinensis* before driven as bonsai (original)



Fig. 7 Two stems bonsai (original)



Fig. 8 Bonsai before placing in terrarium (original)



Fig. 9 Terrarium with juniper (original)

To realise the bonsai utilized in an open stemmed terrarium, the chosen specimen was examined and a predominantly columnar shape, slightly inclined at the back, was observed (fig. 10). This uneven shape contributed to the choice of a more playful style by applying the wiring technique.

The process was initiated by removing the lower branches and reducing the density of the foliage, as was done in other similar works. The adopted style was achieved by applying a wiring technique that was carried out along the entire stem, from the base to the tip, in order to create the characteristic curves of the stem according to the straight informal style.

The branches kept at the base of the plant were twisted using the same wiring technique specific to bonsai trees. As in the case of previous bonsai, forest mosses were used as an additional layer on the surface of the substrate (fig. 11).

After undergoing a period of adaptation, the bonsai was transplanted into the specific container, an open stemmed terrarium. The initial stages involved the application of a layer of drain, followed by the careful placement of the plant material in the specific substrate made up of high quality peat moss.

After the transplant process was completed, the bonsai was subjected to regular watering, thus ensuring the necessary water for its optimal development. At approximately 3-week intervals, granular fertilizers were applied to provide the essential nutrients required for plant growth and health.

The substrate was covered with forest moss (fig. 12), not only to provide a sense of stability and balance, but also to recreate a natural element specific to the bonsai ecosystem. This adds an authentic touch and helps maintain adequate moisture in the substrate. Regarding the decorative elements, to give the terrarium an elegant design, white granite fragments were used, which bring a pleasant aesthetic appearance (fig. 13).



Fig. 10 *Juniperus chinensis* at the beginning of driving as a bonsai (original)



Fig. 11 Bonsai with substrate covered with moss (original)



Fig. 12 Planting of bonsai in terrarium (original)



Fig. 13 Terrarium into an open stemmed pot (original)

CONCLUSIONS

In conclusion, the integration of *Juniperus chinensis* specimens as bonsai into terrariums has enabled the creation of captivating miniature landscapes that encapsulate the essence and beauty of nature. Through careful selection, cultivation and the use of specialized tools, it has been possible to approach different styles of bonsai such as formal straight, informal straight, with single or multiple trunks, and to introduce and cultivate them inside terrariums either open or closed.

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