



TERRARIUM: A TINY ECOSYSTEM

Goneddula Shaik Abdul Wazeed¹ and D. Mahesh Reddy^{2*}

¹PG scholar, Department of floriculture and Landscaping, IARI-IIHR, Bengaluru.

²Ph.D. Scholar, Department of Floriculture and Landscaping, College of Horticulture, Dr.Y.S.R. Horticultural University, Anantharajupeta, Annamayya district, Andhra Pradesh.

*e-mail: maheshduggireddy1@gmail.com

INTRODUCTION

Terrariums are an excellent simple technique for maintaining the natural beauty of nature in our homes. We might enjoy the complexity and delicateness of nature on a smaller scale by creating a tiny ecosystem inside a container. Terrariums allow us to explore and learn about different ecosystems since they can be created to simulate a variety of natural habitats, from rainforests to deserts. Furthermore, as a result of weather or space restrictions, the use of terrariums is an excellent method for displaying plants and other natural components that might not be feasible in other areas of our homes. Terrariums are beautiful because they may encapsulate nature's essence in a small, aesthetically pleasing package.

Both adults and children can enjoy this unique landscape that is created by the vivid colors of the plants and the diverse textures of the substrate and stones. Furthermore, terrariums are a terrific option for people who want to add a natural touch to their house without having to worry about complicated or expensive care because they are reasonably straightforward to maintain. While certain people use terrariums for freshening their work spaces or offices, others use them to liven up rooms in their homes, such as the living room, kitchen, or bedroom. Because they

require less maintenance and minimal watering and attention, terrariums are also a great option for people who lack the time or expertise to take care of larger plants. Additionally, you could reduce your carbon footprint and support environmental conservation by using local and native plants in your terrariums. By selecting resilient plants, terrariums can also prove to be a long-term investment for the house or workplace. In brief, the attraction of tiny ecosystems is their ability to capture the beauty and complexity of the natural environment within a small, beautifully designed space.

HISTORY OF TERRARIUM

In 1842, the botanist Nathaniel Bagshaw Ward created the first terrarium. Passionate in studying the behavior of insects, Ward unintentionally left one of his jars unattended. This jar contained the first known terrarium, a plant that grew inside the terrarium from a fern spore that sawp into it. The English followed the style quickly during the Victorian era. The name "Wardian case" was used in place of the terrarium. To convey native British plants to Sydney, Australia, Ward recruited carpenters to make his Wardian boxes. The plants were healthy and thrived after months of travel. Similarly, Ward obtained plants in perfect condition from Australia that had been shipped to London using the same technique. His experiment

showed that plants may survive in an enclosed environment without airflow. For many years, Kew Gardens utilized Wardian boxes to transport plants around the British Empire. During the European colonization of Africa, they were also used to transport African products, such as coffee and spices, back to Europe.

TYPES OF TERRARIA

Open Terrarium

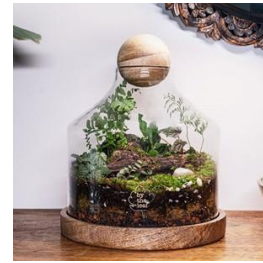
The terrarium, which is open, is the first and most common type. Due to their incredible advantages, open terrariums are the preferred choice for plant lovers worldwide. First, open terrariums have a truly pleasing appearance. Second, they require very little maintenance, much like ordinary house plants. You can grow practically any sort of plant in this terrarium because it is open.



Tropical Closed Terrariums

The type that comes next is the closed terrarium, which is the one that popularized the term. Anyone who takes a quick look at these terrariums finds it difficult to turn away. They are that attractive. These terrariums are closed off, so only humid tropical plants may be grown inside, although growing them is very challenging. Due to their ability to create an independent environment, these terrariums do not require any maintenance. Popular plants growing in closed terrariums include

Iresine Herbstii, Peperomia Obtusefolia, and Bridal Veil's Plant.



Hanging Terrariums

The hanging terrarium is just an open terrarium with a hanging option. This can be made even more exquisite by growing ivy plants inside it. Terrariums are created purely for aesthetic reasons.



Tray Terrariums

Since the world is full of creative people, it did not take us long to create simple and new variations of the plant once the terrarium was revealed. Tray terrariums are a good illustration of this. As its name implies, this single plant has all the fascinating features of a terrarium, but it is packaged in a tray as opposed to a bowl. However, one thing is certain they all look amazing.



Bioactive Terrariums

Growing a closed bioactive terrarium is probably the most challenging activity one can

do in a terrarium. They are not able to fertilize the soil when discussing an eco-systemic terrarium that is self-sufficient. The bioactive terrariums enter the picture at this point. They even go one step further and cultivate microfauna, such as fungi, inside the terrarium in addition to plants. The advantage of this method is that it breaks down the plant so that the soil can be fertilized. Since the plant has both a self-fertilization system and a water cycle of its own, it can survive for many years without assistance from the outside world.



CRITERIA FOR MAKING TERRARIA

Common Types of Terrarium Containers

Mason jars, Wardian cases, Demijohns, Geometric terrariums, Big vases, Fish tanks.

Selecting a Container

Terrariums are available in a wide variety of innovative designs and sizes. The majority of terrariums are constructed from large, transparent glass jars. A 2-liter plastic bottle, however, can also be utilized by splitting it in half and covering the bottom half with the top half. It is important to keep in mind that arranging the plants will be simpler when the hole in the container is larger.

Growing Media for Terrariums

Growing media consist of mixtures of components that provide water, air, nutrients and support to plants.

Materials for growing media preparation

Activated charcoal

This is your terrarium's foundation layer, and it helps in drainage and upkeep as well as absorbing smells, chemicals, and toxins from the soil, water, and air that may eventually stack inside and harm your plants.

Gravel

Gravel can be used in place of activated charcoal, but the terrarium needs to be maintained slightly more closely to prevent rotting and odors. Part of the pleasure in making terrariums is that you may use gravel as an extra decorative layer. Seek for smooth moon pebbles, small river rocks, colored aquarium gravel, or pea gravel.

Soil

Cacti and ferns require different kinds of soil to be suitable for plant use.

Moss

Textural elements for the terrarium include colored mosses. They can be applied as a gorgeous cosmetic layer, as a means of separating the soil from the gravel, or as a top dressing for plants that require more moisture, such as ferns. Mosses, such as succulents and cacti, should be avoided near dry plants.

Instruments

While kits with usual tools are available for terrarium construction, you may also make use of stuff you already have in your house. Tweezers work well for managing prickly cacti, chopsticks are excellent for adding and removing ingredients through narrow wine bottle necks, and long-handled teaspoons work well for handling materials, as they resemble little shovels or trowels.

Ornamental components

These are the things that give life to your terrarium. Look for small sculptures that convey your individuality or make you smile,

such as seashells, gnarled driftwood, and zombies or fairy garden decorations.

Selection of Plants for Terrarium

Closed terrariums simulate small-scale tropical environments with high warmth and humidity but little light. Therefore, tropical plants that are compact and simple to maintain yet flourish in wet habitats with indirect sunlight are ideal for this type of environment. An open terrarium is essentially a beautiful or uniquely designed plant pot with no humidity. The ideal choices in this case were desert plants, which flourish well under dry conditions and require little maintenance, as watering them may be challenging due to the shape of the vessel. Plants for open terrariums should have low growth and low maintenance, similar to those for closed terrariums. Consequently, the ideal plants for growing in an open terrarium are succulents and cacti. Foliage plants and plants that grow slowly work best.

Plants suitable for Terrarium

Fittonia (nerve plant), *Asparagus fern-Asparagus setaceus*, Moss, Peperomia species, Polka dot plant *Pilea*, Creeping fig (*Ficus pumila*), Arrowhead vine (*Syngonium*), Spike moss (*Selaginella*), Earth star plant (*Cryptanthus bivittatus*), Jewel orchid (*Ludisia discolor*), Air plants (*Tillandsia*), Echeveria, Cacti, Jade Plant (*Crassula ovata*), Button fern (*Pollaea rotundifolia*), Haworthias, Mexican snowball (*Echeveria elegans*), Ox tongue (*Gasteria batesiana*), and *Crassula 'Buddha's Temple'*.

Planting

Start with an open-top, medium-sized, transparent glass jar. Use whatever container that attracts you—a vase, a fish bowl, an empty spaghetti jar, or a special terrarium bowl. To gather excess water from the drainage, a layer

of small rocks, approximately 1/2 inches thick, was placed in the bottom of the vessel. Cactus and succulent plants were spread in layer-specific potting soil. It should be approximately 2 1/2 inches deep, deep enough for the plants to root. The largest plant from each pot was removed, and any extra dirt was removed from the roots. Create a hole in the ground large enough for the roots with the end of a spoon, then nestle the plant within, pressing the earth firmly to keep it in place. The aim was for approximately one plant per inch of container diameter. The remaining succulents were planted and arranged in order of largest to smallest. Starting at the back of the container and moving forward is the most convenient method for this purpose. After the plants are set, they are surrounded with a layer of white sand that is approximately 1/4 inch thick. Add some landscaping to finish. To finish the design, add a few more pebbles here and there.

ARRANGEMENT OF PLANTS IN TERRAIUM

The only limitation of terrarium designs is the designer's creativity. They can be created with a specific theme in mind, such as a tropical rainforest, fairy garden, water garden, or outdoor garden. The themes can be created by orienting materials or plants, and the shape of the container and related decorative accessories can be chosen to match the theme of the terrarium.

Elements of Terrarium Garden: Balance, Focal point, Rhythm, Proportion of scale.

Care of Terrarium:

Maintaining the ideal growing environment for plants inside a terrarium is part of its maintenance. You can keep your terrarium appealing and healthy with little

maintenance by keeping an eye on these factors:

Terrarium Light Requirements:

Open terrariums should ideally be placed in indirect sunlight, and closed terrariums should be placed in bright, filtered light. Keep closed terrariums out of direct sunlight, as this can cause overheating.

Watering Requirements:

Water the terrariums carefully because they are closed systems that reuse moisture. For misting, use a spray bottle or a little watering can with a narrow nozzle. To remove extra moisture from a closed terrarium, the lid should be removed for a short period of time if excessive condensation occurs.

Terrarium Cleaning and Pruning Requirements:

To avoid mold growth and keep the container look neat, the inside was cleaned with a gentle cloth if it became unclean. Additionally, clip plants that grow too large or begin to crowd out other plants for room.

Needs for Ventilation in Closed Terrariums:

Closed terrariums should occasionally have their lids opened to let in fresh air and remove excess moisture. This keeps the environment healthy and helps avoid mold.

Terrarium temperature requirements:

The terrarium was kept in a temperature-controlled space. To ensure that the plant reaches its maximum potential, changes in temperature must be maintained.

CONCLUSION

In summary, building terrariums is a creative and fulfilling hobby that allows the construction of beautiful small landscapes inside glass containers. You may make a flourishing terrarium that brings the beauty of

nature into your house by carefully choosing the correct container, plants, materials, and tools. Terrarium will flourish and give you a fascinating tiny garden to look at and enjoy with proper care and upkeep.