

SUCCULENT PLANTS IN CONTEMPORARY FLORAL DESIGN

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ABSTRACT

Succulent plants are cultivated for decorative purposes, for interior decoration, in landscape design projects, potted arrangements (container gardens), and, in recent years, as "cut flowers". Succulents feature robust leaves, bright colors, unique textures, and shapes, offering a distinct appearance compared to other flowers. When placed in a vase or arranged in floral designs, succulents add an air of elegance, often serving as focal point due to the striking look of their rosettes. Their unique aesthetic makes them stand out in any arrangement, bringing a modern and refined touch to floral art. In the present work, we aimed, in addition to documenting the range and potential uses, to identify species of succulents that are suitable for use in floral design and to create floral compositions using succulent plants or in combination with other species.

INTRODUCTION

Flower arrangement in bouquets or other types of arrangements has become a true industry, far surpassing the threshold of a hobby or passion. Every event or celebration is accompanied by floristry materials arranged in various forms; this clearly demonstrates the role of flowers and floral arrangements as exponents of refinement and the level of civilization of any society (Anton, 2003, Toma, 2009).

Succulent plants, commonly referred to as "succulents," cover a wide variety of families. Succulents are considered for ornamental use, especially those belonging to the Crassulaceae and Mesembryanthemaceae (Graham 1987, Cabahug et al. 2018).

Presently, succulents are commercially produced and have increased in popularity among plant collectors, landscapers, and interior designers (Sahai 1997, Altman 2011). Succulents are cultivated for decorative purposes, in landscape design projects, potted arrangements (container gardens), or as cut flowers, either alone or in combination with other plants, due to their exceptional aesthetic appeal (Asakawa et al. 2014, Lee 2017, Harvey 2016, Maggio 2016, Jacki 2019). Moreover, they are easy to use, maintain, and have a long lifespan. They can survive without water for longer periods than most flowers.

Many growers and gardeners prefer succulents as houseplants due to their attractiveness and ease of care, and their cultivation and production have increased as the houseplant industry has expanded in recent years (Baldwin 2007, Joy et al. 2020). Generally, the use of cuttings for propagation is the most frequently used method for succulents, and is easy to perform (Baldwin 2013, Cabahug et al. 2018).

The use of succulents in floral art is a current topic. They represent an ideal and modern solution for creating various floral decorations, having a much longer shelf life than cut flowers (Pryke 2003, Bagnasco & Reidmuller 2019). Due to their neutral appearance, situated between cut flowers and cut foliage, they can be easily associated and incorporated into diverse combinations.

As a result, in this work we proposed, in addition to documenting the assortment and possibilities of use, the identification of some species of succulents that lend themselves to be used in floral design and the creation of floral compositions from succulent plants or mixed with other species.

MATERIAL AND METHODS

The main purpose of this study was to present the possibilities of using some succulent species in contemporary floral design.

The identification of suitable species to be used in floral art as well as the creation of different types of floral decorations were carried out in the didactic field of the discipline of Floriculture within the Faculty of Horticulture of the University of Craiova, located in Southwest of Romania (44°20'N, 23°49'E). For these creations, cut flowers and foliage were used, as well as whole plants or succulent cuttings, sourced from commercial suppliers or provided by the department's collection. The elements considered when combining flowers in bouquets and other types of floral arrangements included:

- the degree of dominance of the flowers/plants;
- vase life duration;
- ease of handling, resistance to shedding;
- plant texture.

Petra (2012) classifies flowers into three major groups based on their character or degree of dominance:

- flowers with a strongly dominant character;
- flowers with a medium dominant character;
- flowers with a weakly dominant character.

Before using succulents in floral arrangements, they require certain conditioning and processing treatments designed to ensure the preservation of their decorative qualities for as long as possible or to facilitate their use in floral designs. The most common treatments include: removing the basal leaves, healing the basal cut, inserting stems into floral picks, and wrapping stems in waxed tape to prevent dehydration.

The biological material used for creating the floral decorations consisted of a variety of succulent plants, most of which were cultivated in protected environments, including: *Aeonium haworthii*, *Crassula orbicularis* var. *rosularis*, *Crassula muscosa*, *Cyanotis somaliensis*, *Dudleya purverulenta*, *Kalanchoe blossfeldiana*, *Sedum morganianum*, *S. spurium*, *S. dasyphyllum*, *S. rupestre*, *Echeveria secunda*, *E. agavoides*, *E. gibbiflora*, *Delosperma lydenbergense* and *Sempervivum ciliosum*. Other ornamental species used included: *Astilbe*, *Cineraria maritima*, *Amaryllis*, *Rosa*, *Phalaenopsis*, *Eucalyptus*, moss, and lichens. The plant material used was of high quality, perfectly healthy, and with maximum turgidity.

RESULTS AND DISCUSSIONS

Identification of Succulent Species Suitable for Use in Floral Design

In recent years, the use of succulents has expanded, making them suitable for a variety of decorations that align with different design styles, such as classic, modern, rustic, and more. One of the primary advantages of succulents is their long-lasting nature when used as cut "flowers," as well as their low maintenance requirements when included in whole-plant floral arrangements.

However, the selection of succulent plants for floral art requires careful consideration. Not all species are suitable due to various factors, such as plant size (too large), leaf drop when touched, or fragile stems. When used as whole plants in container gardens or living plant walls, the selection should be based on their ecological requirements and ornamental qualities (Xarepe et al. 2024).

In this context, the first objective was to identify a range of succulents that can be included in various floral decorations. Their ecological characteristics are summarized in the table 1.

Table 1
Succulent species that can be included in various floral decorations

	Scientific name	Family	Requirement				
			L	T	H	W	S
1.	<i>Aeonium arboreum</i>	Crassulaceae	2	3	3	2	5
2.	<i>Aeonium haworthii</i>	Crassulaceae	2	3	3	2	5
3.	<i>Aeonium tabuliforme</i>	Crassulaceae	3	3	3	3	5
4.	<i>Aloe aristata</i>	Asphodelaceae	2-3	3	3	3	5
5.	<i>Aloe variegata</i>	Asphodelaceae	1	3	3	3	5
6.	<i>Crassula muscosa</i>	Crassulaceae	2	3	3	3	5
7.	<i>Crassula orbicularis</i> var. <i>rosularis</i>	Crassulaceae	2	3	3	3	5
8.	<i>Delosperma lydenbergense</i>	Aizoaceae	1-2	1-2-3	2	3	5
9.	<i>Dudleya purpurelenta</i>	Crassulaceae	2	2	3	3	5
10.	<i>Echeveria agavoides</i>	Crassulaceae	2	3	3	3	5
11.	<i>Echeveria elegans</i>	Crassulaceae	2	3	3	3	5
12.	<i>Echeveria gibbiflora</i>	Crassulaceae	2	3	3	3	5
13.	<i>Echeveria secunda</i>	Crassulaceae	2	3	3	3	5
14.	<i>Echeveria lilicina</i>	Crassulaceae	2	3	3	3	5
15.	<i>Echeveria derenbergii</i>	Crassulaceae	2	3	3	3	5
16.	<i>Haworthia fasciata</i>	Asphodelaceae	2-3	3	3	3	5
17.	<i>Haworthia attenuata</i>	Asphodelaceae	2-3	3	3	3	5
18.	<i>Kalanchoe beharensis</i>	Crassulaceae	2	2	2	2	5
19.	<i>Kalanchoe tomentosa</i>	Crassulaceae	2-3	2	2	2	5
20.	<i>Sedum dasyphyllum</i>	Crassulaceae	2	3	3	3	5
21.	<i>Sedum morganianum</i>	Crassulaceae	2	3	3	3	5
22.	<i>Sedum spectabile</i>	Crassulaceae	2	3	3	3	5
23.	<i>Sedum spurium</i>	Crassulaceae	2-3	3	3	3	5
24.	<i>Sempervivum ciliosum</i>	Crassulaceae	2	3	3	3	5
25.	<i>Sempervivum montanum</i>	Crassulaceae	2	3	3	3	5
The following abbreviations and code numbers were used (recommendation applies to growing plants) : L = light			H = humidity 1. High : 50% or higher 2. Medium: 25% to 49%				

	Scientific name	Family	Requirement				
			L	T	H	W	S
	1. Areas with strong light, at least 4 hours of direct sunlight 2. Areas with strong light; over 200 ft-c 3. Semi-shade areas 75 ft-c to 200 ft-c 4. Areas with shade 25 ft-c to 75 ft-c T = temperature 1. Cold night 50°F, temps 65°F 2. Average 65°F at night, 75°F daytime temperatures 3. Warm 70°F at night, 85°F daytime temp		3. Low: 5% to 24% W = watering 1. Keep the soil mixture moist 2. The surface of the soil mixture must dry before re-watering 3. The soil mixture may become moderately dry before re-watering. S = soil mixture suggested for: 1. Flowering plants; 2. Leaf plants; 3. Bromeliads; 4. Orchids; 5. Succulents, cacti; 6. Ferns; 7. Gesneriaceae				

This selection provides a valuable resource for incorporating succulents into different types of floral and landscape arrangements, ensuring both aesthetic appeal and practical suitability for long-term use.

2. Arrangements and Decorations Created with Succulent Plants

In creating floral decorations with succulent plants, both decorative and fixing materials were used, which are specific to certain types of floral arrangements, playing an integral role in their structure. The decorative materials included ribbons, cords, decorative stones, decorative wire, sisal mesh, small clay pots, and others.

Fixing materials ensured the stable positioning of the plant material, particularly for arrangements created in containers. Some of the most common fixing materials include kenzan, shippo, and wooden levers for oriental floral arrangements, while floral foam, moss balls, wire mesh balls, and gravel are typically used in western-style arrangements.

In floral art, vases are an important component of any arrangement. Together with the plant material, they form a harmonious and cohesive combination. Vases provide the necessary water for the plant material and serve as the main support structure.

The winter arrangement features a lightweight, natural structure, created in a wicker basket. Within it, an *Echeveria agavoides* succulent was planted alongside an Amaryllis bulb, complemented by seasonal accessories such as pinecones, walnuts, and other winter-themed ornaments (figure 1).

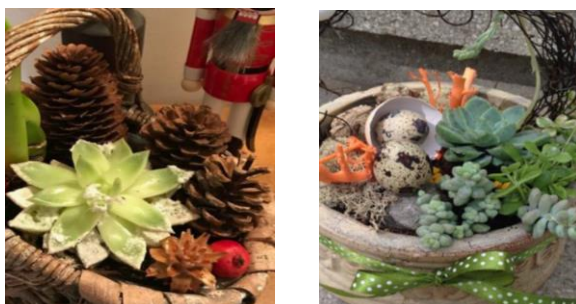


Figure 1. Winter floral arrangement; Easter flower arrangement (original)

For **the Easter arrangement**, stone containers were used in which *Echeveria secunda*, *Sedum dasyphyllum*, *Sedum morganianum* and *Cyanotis*

somaliensis were planted. Accessories like moss, lichens, quail eggs, decorative twigs, decorative stones, and ribbons were added, creating a complete and harmonious design (figure 1).

Miniature container gardens. Succulent plants such as *Echeveria secunda*, *Echeveria agavoides*, *Delosperma lydenbergense*, *Crassula muscosa*, and *Sedum spurium* were used as the main vegetation. These plants were arranged in a ceramic pot and accessorized with decorative stones, creating a visually appealing miniature garden (figure 2).

Floral arrangement in floral foam. For this arrangement, a heart-shaped floral foam was mounted on a wooden base (figure 1). The plant materials used included *Echeveria secunda*, mini roses, *Phalaenopsis* orchids, and *Delosperma* flowers.

The working technique involved cleaning the leaves from the stems with a sharp knife, followed by cutting the stem bases at an angle to increase the water absorption area. The stems were cut to equal lengths and positioned side by side across the entire surface of the floral foam, following the chosen shape. Decorative twigs were used as additional accessories to enhance the arrangement.



Figure 2. Floral arrangements

For weddings, the bridal bouquet is considered the centerpiece of the floral decorations and can take various forms, such as: round, cascading, front-facing, globular, suspended, fan-shaped, or even handbag-shaped. The bouquet must meet specific essential requirements: it should be easy to carry, not exceed 15 cm in height to avoid overshadowing the bride's face, it should not stain the dress, and it must fit perfectly with the bride's silhouette and dress style (romantic, classic, modern).

In addition to the bride's and godmother's bouquets, wedding arrangements also include various other decorative elements: bridal wreath, boutonnieres for the groom, godfather, and guests, wedding candles, bridesmaids' bouquets and decorations for the church, cars, and reception halls

The bridal bouquet was designed to match the classic style of the dress and was crafted using cut succulents, applying the wiring technique to stabilize them. Since succulents have small stems, this method was necessary to create a cohesive and well-structured bouquet (figure 3).

Floral material used: succulents (*Aeonium arboreum*, *Dudleya purverulenta*, *Echeveria gibbiflora*) and other plants combined (*Astilbe* "Avalanche", *Hydrangea*, *Ornithogalum*, leaves of *Cineraria maritima* and *Eucalyptus*).

Steps for creating the bridal bouquet:

- Removing leaves and refreshing the basal cut of the flowers.

- Wiring the floral stems and succulent rosettes to ensure stability.
- Wrapping the stems with waxed tape to keep the flowers hydrated and protected.
- Arranging the flowers into a harmonious bouquet.
- Creating a sleeve made from *Cineraria maritima* leaves to support the flowers.
- Tying the bouquet with decorative ribbon and adding decorative pins for an elegant finish.

The groom's boutonniere was created using the same floral material as the bride's bouquet. The following plants were used: *Echeveria agavoides*, *Astilbe*, and *Cineraria maritima* (figure 3). After wiring the succulents, the stems and clip were covered with waxed tape to prevent dehydration and to hide the base of the stems.



Figure 3. Materials used; preparation of plant material; the bride's bouquet; the groom's bow (original)

Succulent Jewelry (necklace, ring, earrings, bracelet, and hair accessory). For these accessories, mini rosettes and flowers from succulent plants were used, including: *Sempervivum ciliosum*, *Sedum spurium*, *S. rupestre* and *Aeonium arboreum* (figure 4). Steps for making these accessories:

- Choosing a suitable base for each piece of jewelry.
- Trimming and preparing the floral material by removing basal leaves and refreshing the cuts.
- Arranging the plant material on the jewelry base to create the desired design.
- Fixing the plant material using a special adhesive for flowers to ensure durability and stability.



Figure 4. Ring with succulent plants; succulent plant bracelet; succulent plant earrings; hair accessory (original)

CONCLUSIONS

The variety of plant material used in floral art has become increasingly rich and diversified, with growing demand from the market, which is becoming more demanding and sophisticated. In recent years, the range of species used in floral art has expanded with the inclusion of various succulent species.

Succulents stand out due to their interesting appearance (featuring bright colors, unique textures, and shapes), ease of use, and long shelf life. Whether placed in a vase or arranged in floral designs, succulents can offer an innovative touch, often serving as focal points due to the distinctive look of their rosettes.

Succulents are an ideal and modern choice for creating various floral decorations, as they have a much longer lifespan compared to cut flowers. Another significant advantage is the ability to replant them after use. Their rosettes, leaves, or stems can be used as initial material for vegetative propagation.

Thanks to their neutral appearance, straddling the line between cut flowers and cut foliage, succulents can easily be combined and integrated into a wide variety of arrangements.

They can be used in floral compositions in various forms: as whole plants in container gardens, miniature gardens, plant frames, terrariums, or as "cut flowers" in festive floral arrangements, bouquets, wreaths, and even in botanical jewelry such as necklaces, earrings, rings, pendants, and more.

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