

Preserving flowers with silica gel



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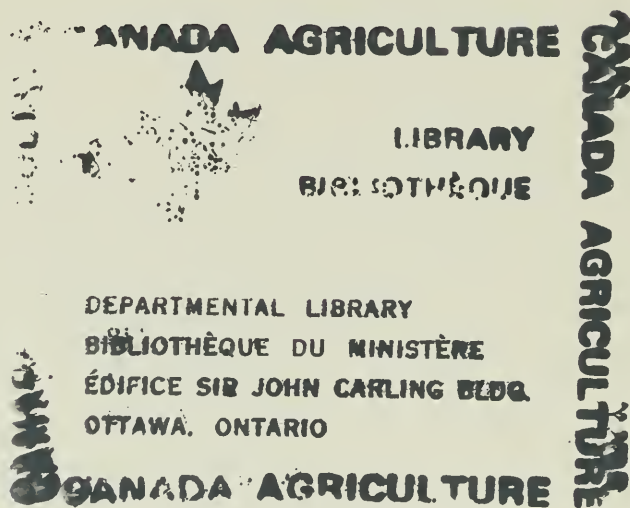
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PRESERVING FLOWERS WITH SILICA GEL

Your home can be decorated with roses all winter, and daffodils can brighten your coffee table in January. Real roses and real daffodils!

Many flower lovers are familiar with the more common methods of preserving decorative plants. Air-drying, glycerine and water, pressing and waxing all work well with seedpods, leaves, grasses and everlastings. But these time-tested methods fail to preserve the most beautiful part of many plants — the blossoms.

This publication describes one of the easiest methods to capture and keep the fleeting beauty of many flowers. It gives only the basic steps. With imagination and continuing interest you will be able to make increasingly attractive floral arrangements. Preserved flowers will last all winter when the air in your house is dry. In early summer, they should be put into storage as the humidity increases, and fresh flowers reappear.

THE DESICCANT

To preserve a flower, it must be dried. There are a number of ways to dry or remove the moisture from a flower without distorting its natural shape. Freeze-drying and immersion in liquid desiccants (such as certain alcohols) are two such ways, but are impractical at home. However, you can immerse flowers in solid desiccants such as silica gel without serious problems.

A desiccant is a substance capable of taking in a large amount of water. When a dry desiccant is placed around and among the petals, calyx and stem of a flower it draws the moisture from the flower to itself. At the same time, the desiccant supports the shape and contour of the blossom, provided care has been taken to slowly and gently cover the flower so that it maintains its natural appearance.

Drying agents available to preserve flowers include sand, borax, cornmeal, powdered pumice, fuller's earth, salt, silica gel and even kitty litter. Of these, sand has the longest history as a flower preservative; we know it was used in 1700 B.C.

Silica Gel

Silica gel, a chemical used extensively as a drying agent in industry, is a precipitate of silicic acid (SiO_2). In spite of its name, silica gel is not a gel when used as a desiccant; the water has been expelled and what is left looks and feels like fine white beach sand.

Many people feel silica gel is superior to all other agents and use it in spite of its higher cost. It is not poisonous, does not cake, does not attract insects, acts quickly, is light in weight, is quite easily removed from flowers after drying, and, in most cases, keeps the flowers' color well.

The Indicator

After silica gel has dried a number of flowers, it contains a great deal of moisture, though it still looks and feels dry.

To indicate moisture content, most silica gels contain a chemical that changes color as its moisture content increases. This indicator (crystals of cobaltous chloride) is dark blue when dry. As the crystals pick up moisture (at the same time as the silica gel), they first turn light blue and finally change to pink, reflecting the moisture content of the agent.

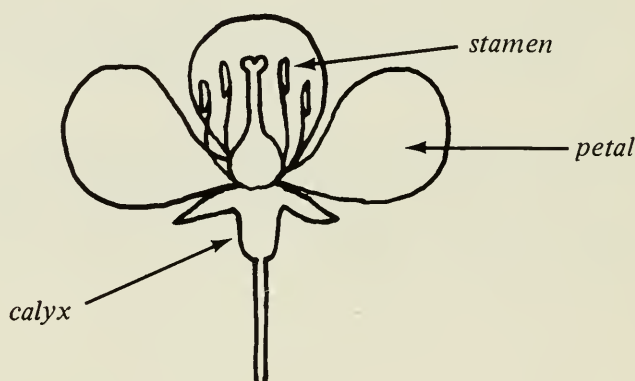
Reactivating and Storing Silica Gel

When the telltale crystals are no longer blue, the moisture must be expelled from the silica gel. Place it in an uncovered shallow pan and bake in the oven at 120° C (250° F) for at least 2 hours, or until the crystals turn dark blue again. The reactivated silica gel is ready for use when cool. Always store silica gel in an air-tight container so it can't pick up moisture from the air.

CHOOSING FLOWERS

You need not have a large garden to enjoy the fascinating art of preserving flowers. If you live in an apartment you can find material in your friends' gardens. Grocery stores often sell inexpensive bunches of fresh flowers. Vacant city lots and country fields yield buttercups, black-eyed Susans, daisies, clover, Queen Anne's lace and, of course, dandelions.

When picking flowers, always carry a container of water. Choose the best specimens you can find, preferably on a dry sunny day, before or after the mid-day heat. Pick them with the longest stems possible and immediately stand them in water for at least 2 hours to harden. Try to avoid picking immediately after rain. And remember, blemishes will still show, sometimes more prominently, after preservation. Although flowers usually dry best if picked just before they reach full bloom, do not overlook buds and unopened blossoms as they add interest to arrangements. Remember, too, to pick some foliage.



Although not everyone agrees on which flowers are easiest to preserve, the following list is a rough guide:

Easier Flowers

Canterbury Bell	Pansy
Cornflower (bachelor's button)	Peony
Daffodil	Queen Anne's lace
Dahlia	Rose
Daisy	Snapdragon
Dandelion	Spirea
Delphinium	Sunflower
Lily-of-the-valley	Sweet pea
Marigold	Tiger lily
Mock orange	Zinnia

More Difficult Flowers

Gladiola
Hyacinth
Petunia
Poppy
Portulaca
Trumpet-shaped lily

Surprisingly peonies and roses are among the easiest flowers to preserve. Simpler daisylike forms must be treated with care if they are not to have a flat, pressed look. Different varieties of the same species sometimes react differently and even two flowers from the same plant do not always behave in the same way. Experiment and practice with various kinds of flowers; keep notes and build up a personal list of favorites.

When choosing flowers, remember that colors often change during drying. As a rule, whites change to a delicate parchment. True blues, true pinks and warm tones from yellow to orange usually keep their original colors extremely well. Some very deep oranges change to a subtle shade of tan and deep reds and purples generally become deeper still. Leaves seldom change.

PRESERVING FLOWERS

You will need the following items; you may find substitutes for those marked with an asterisk that will work as well, or better, for you.

Two to 7 kg (4 to 15 lb) of silica gel, mesh 28-200

Green florists' wires in gauges 18, 20, 22, 24 and 26 (household wire will do)

Wire cutters*

Rigid plastic foam* from packaging, or broken sheets from a builders' supply house

One good soft camel's hair artists' brush, about size 6

Three or four cheap watercolor brushes

Water-soluble glue which dries transparent (white glue), diluted with an equal quantity of water; or colorless nail polish diluted with an equal quantity of nail polish remover

Containers of all shapes and sizes with tight-fitting lids (plastic ice cream cartons, cookie cans, roasting pans, etc.)

Toothpicks, tissues and small pieces of light cardboard

A small jug* such as a flexible plastic measuring cup

A notebook and a pencil

Silica gel is sold under various names such as Dri-cure, Flora-cure, Flower-Dri and Silica Dust. Prices vary enormously, so shop around; some types cost three times as much as others. Try larger florists, garden and horticultural societies, specialty druggists and, especially, hobby supply shops. Four pounds will cover two roses with 10 cm (4 in.) stems, or about seven 5 cm (2 in.) daisies on 5 cm (2 in.) stems. Buy a larger quantity if you can afford it, as you can use it time and time again (see reactivating instructions).

Green florists' wires are sold in 45 cm (18 in.) lengths and are easier to handle than rolls of household wire. Compare prices at florists and hobby supply houses, and remember, the larger the gauge number the smaller the wire.

Figure 1 Items needed for preserving flowers.



Preparing Flowers

Different flowers require different handling. Roses look better if preserved with the first group of leaves still in place, and their woody stems are very strong. Flowers that grow in clusters, like sweet peas, lilies-of-the-valley and delphiniums should also be left on their own stems.

Some flowers are best left on longer stems and others on short; the flower itself dictates the best length, as you will find as you gain experience.

Some stems, when dried, cannot support the weight of the blossoms, especially large single blossoms such as giant marigolds, zinnias and shasta daisies. It is a good idea to cut these stems 5 cm (2 in.) below the calyx and wire them. This also saves space when covering and storing. Remove the leaves, stick a wire into the stems you've cut off and save them, placing them upright in a container to air-dry.

Next, wipe any moisture from the stems or petals, using a tissue or a small paintbrush.

If the petals are very tiny and pointed where they join the calyx, as in cornflowers and some daisies, reinforce them. Apply diluted glue or diluted nail polish with a small paintbrush or toothpick.

Now insert the coarsest possible florists' wire as far up the stem as it will easily go. Be careful not to pierce the side of the stem or to come through the center of the flower. Cut the wire, leaving about 2 cm ($\frac{3}{4}$ in.) showing (Figure 2). As the

Figure 2 Insert the wire as far up the stem as it will easily go. As the stem dries it will shrink and cling to the wire.



stem dries it will shrink and cling to the wire. If the stem is hollow, as with giant marigolds and daffodils, you need not use a wire, just insert a toothpick to keep the hole open. This makes it easier to add a longer stem when you make the arrangement.

As soon as the glue is dry and the wire or toothpick is in place, the flower is ready to be covered with silica gel.

Covering Flowers

Flowers may be covered in face-up, upside-down or horizontal positions. Although most are buried face up on a short stem and wire, the occasional flower is more easily handled in one of the other positions. For example, delphiniums and snapdragons seem to handle best horizontally. Lilies-of-the-valley, Queen Anne's lace and sweet peas are dried more easily upside down. After a little experience and a few mistakes, you will develop your own preferences.

Whatever the position, follow these steps:

- 1 Select a container large enough to hold the flowers without crowding; they should not touch each other or the sides of the container. Work with one kind of flower, or even one flower, to a container.
- 2 Cover the bottom of the container with silica gel to a depth of 1.25 cm ($\frac{1}{2}$ in.).
- 3 Place the flower in position face up (Figure 3), horizontally, (Figure 4), or upside down (Figure 5).

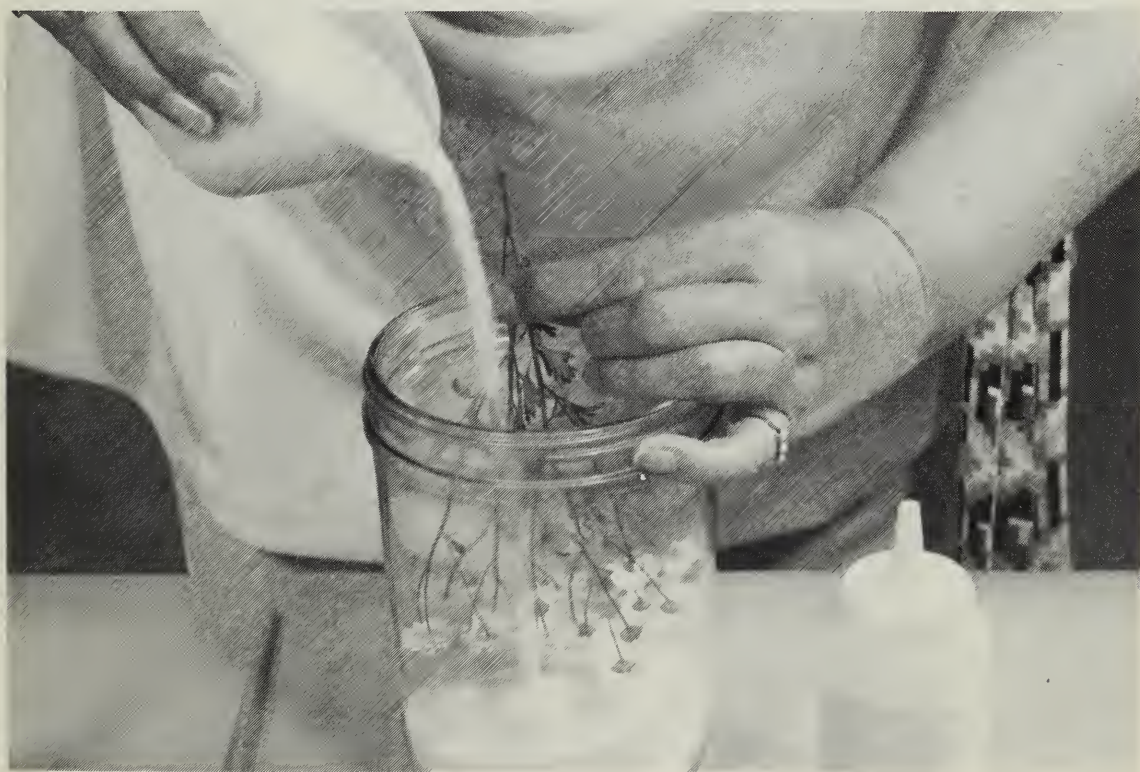
Figure 3 Do not overcrowd the blossoms. Here they are face up, on short wire stems.





Figure 4 Support horizontal flowers with notched cardboard to prevent crushing the underside florets.

Figure 5 Steady your hand on the side of the container when covering upside-down flowers.



- 4 Gently dribble the silica gel around, under and among the petals. Pour it from a jug, a spoon or your hand, held close to the flower. Use whichever method gives the greatest control. A paintbrush helps separate, lift or position the petals (Figure 6).
Important: Learn to place the desiccant around the flower so the weight builds up equally on both sides of the petals. Otherwise, the silica gel distorts the contour and the flower dries out of shape.
- 5 When the flower is partly covered, gently tap the sides of the container and tip it slightly at various angles to settle the silica gel and fill any air pockets.
- 6 Repeat steps 4 and 5 until the flowers or leaves are completely covered. Stems protruding from the top of the container (from flowers in the upside-down position), will dry without being covered with silica gel.
- 7 Cover the container. A plastic bag secured with an elastic band will cover the exposed stems of upside-down flowers.
- 8 Label the container showing the contents and the date.
- 9 Place the container in a dry place where it will not be disturbed.
- 10 Note name, date and position of the flowers and anything else of interest.

Figure 6 You can use a flexible jug for good control of the silica gel and a paintbrush to help separate, lift and position the petals.



Uncovering Flowers

The time required to dry a flower depends on the dryness of the silica gel, the moisture in the flower, the size of the flower and the humidity of the air. It may take from 3 days for a tiny flower to 10 or more days for a huge flower. You will soon be able to judge for yourself.

After about 5 days, gently pour off some of the silica gel, to expose the petals slightly. Feel them with the tips of your fingers to see if they are crisp (Figure 7). If they are not, cover them again, and wait a day or two longer. If the petals are dry, continue to pour off the silica gel slowly and gently, by tipping the container with one hand and holding the other ready to catch the blossom (Figure 8). Do not alter the direction of the flow of the silica gel; the petals may bend with the flow, but will return to their proper position.

When the flower is completely uncovered, rotate, shake and tap it *very* gently to dislodge as much of the silica gel as possible. Use the camel's hair brush to clean it thoroughly, supporting the petals on one side while brushing the other (Figure 9). You can usually remove any stubborn grains of the drying agent with a coarse wire or toothpick.

Figure 7 Feel the slightly exposed petals with the tips of your fingers to see if they are dry.

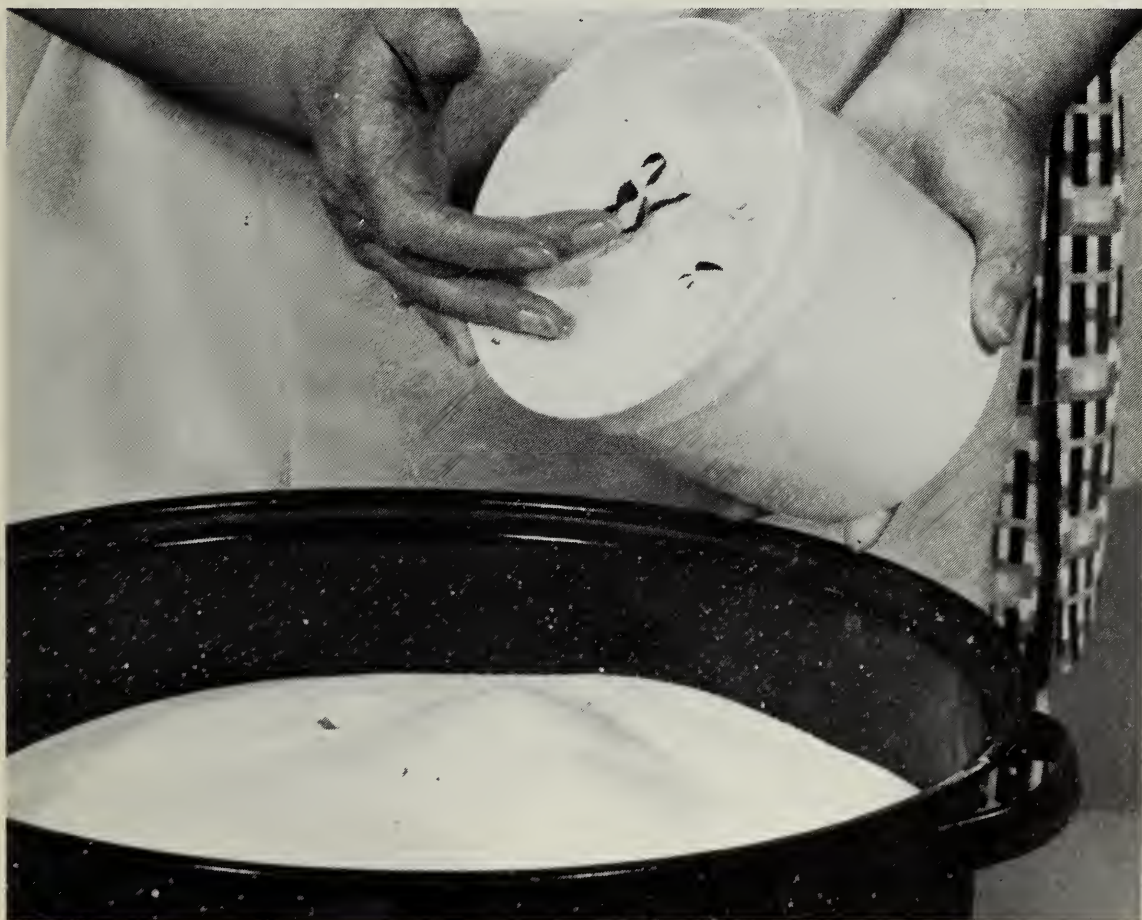




Figure 8 Be ready to catch the blossom and guide it out.

Figure 9 Support the petal on one side when brushing the silica gel off the other.



STORING FLOWERS

You make dried flower arrangements in the autumn after the furnace goes on and the house is dry again. Until then, store the flowers to keep them dry. How you store them depends on the space available and how dry it is.

In an area where the relative humidity is always below 60%, you can store the flowers uncovered, their wires stuck into sheets of rigid plastic foam (Figure 10).

Figure 10 If possible, store the flowers uncovered, their wires stuck into sheets of rigid plastic foam.



A dehumidifier will keep the humidity of an average room about right. Many houses are too humid in summer and you must store the flowers in containers with airtight lids to protect them from dampness. It is a good idea to place some silica gel, in open bowls, around the containers to attract any excess humidity. Be sure to dry out this silica gel regularly. Always try to store the flowers upright, by sticking the stems into rigid plastic foam placed in the containers. If you haven't enough space, lay the flowers loosely in a container and cushion them on small pieces of crushed waxed paper. Label the containers.

MAKING AN ARRANGEMENT

Preserved flowers are arranged in a similar manner to fresh ones, with line, color, texture, form, balance and center of interest still being very important. The differences are in the techniques used and in the choice of location for the display. Remember that preserved flowers are fragile and should only be touched when necessary and never be placed for long periods in direct sunlight.

Once you have chosen the container, style, color, and location of the arrangement, the real fun begins.

You will need the following materials:

Transparent water-soluble glue or colorless nail polish (NOT DILUTED)

Florists' tape in assorted colors

Dry sand

Assorted stems and wires

Modeling clay (the nonhardening type used by children)

Ferning pins

Tweezers or needle-nosed pliers to help remove wires and place flowers in the arrangement

Containers

Fill container with dry sand for weight and stability and top it with appropriately colored modeling clay. Mold the clay above the lip of the container so you can insert the flowers at any angle (see pot in Figure 11). Disguise the clay if you wish by covering it with dry moss, colored stones, glycerined leaves or air-dried shrubs like hydrangea. Secure leaves and shrubs with ferning pins.

You may add length to the stems of flowers by adding a real or a wire stem, as outlined below.

Make holes in the modeling clay with a coarse wire and insert the stems of the flowers. Firm the clay around the bases of heavy stems.

Adding a Wire Stem

A wire stem is flexible enough to let you place the flower exactly where you want it, yet stiff enough to prevent the flower from moving or drooping — a big advantage over fresh flowers!

Select a wire that gives the flower the length you want in the arrangement. Wrap 2–3 cm (1 in.) at one end (see wrapping instructions below) and break the tape. Place this wrapped end against the wire protruding from the flower and wrap them together, continuing the wrapping down the length of the wire. (Two unwrapped wires placed together will slip and be difficult to handle.) Leave 2–3 cm (1 in.) unwrapped at the bottom so the wire can be pushed more easily into the modeling clay.

Figure 11 Materials needed for making an arrangement.



Wrapping a wire Florists' tape must be stretched as it comes off the roll before it will cling to the wire. Stretch the first 3–5 cm (1–5 in.) and, holding it at an angle to the wire (Figure 12), double the corner of the tape around the end of the wire. Hold the taped end in one hand between the thumb and first finger and the stretched tape in the other. Roll the wire between the thumb and first finger and the tape will wrap around it.

Adding a Real Stem

Choose a dried stem of suitable length which is similar to the flower's stem. Remove any wire from this substitute stem, and fit the wire in the flower's stem into the empty hole. Use a dab of undiluted glue or undiluted nail polish, and, if necessary, reshape the cut ends to make a good join. If skillfully done, the join will be unnoticeable in the arrangement.

TIPS

Collect stems whenever you can. Daisy stems dry particularly well.

When wrapping a very fine wire for thin stems like those on pansies, cut the tape lengthwise to make it narrower.

Brush baby powder on the backs of sticky flowers like hollyhocks and snapdragons before covering. It aids cleaning and will not pollute the drying agent if used sparingly.

When covering flowers with silica gel, fill large spaces in the container with chunks of rigid plastic foam so you won't need as much silica gel.

Cover spring blossoms, such as mock orange and crabapple, as quickly as possible because they wilt rapidly.

Use a squeeze bottle, the flexible type with a pointed tip such as used for mustard, ketchup or hair dye, to direct the silica gel into hard-to-get-at places.

Some flowers, for example, tulips and day lilies, have a tendency to droop after preservation. Spray these with a matte acrylic spray, or a hair spray (Figure 13).

You can paint stems and leaves with acrylic paint. Blend colors subtly.

Don't use sprayed or dyed flowers; they do not dry well.

You may prefer to use floral foam or rigid plastic foam, cut to fit the neck of the container, in place of modeling clay.

Use a dab of undiluted glue or nail polish to glue fallen petals onto the calyx.

Keep notes of every detail — the preservation process, the results and how the flowers wintered. This will improve your techniques and reduce your mistakes.

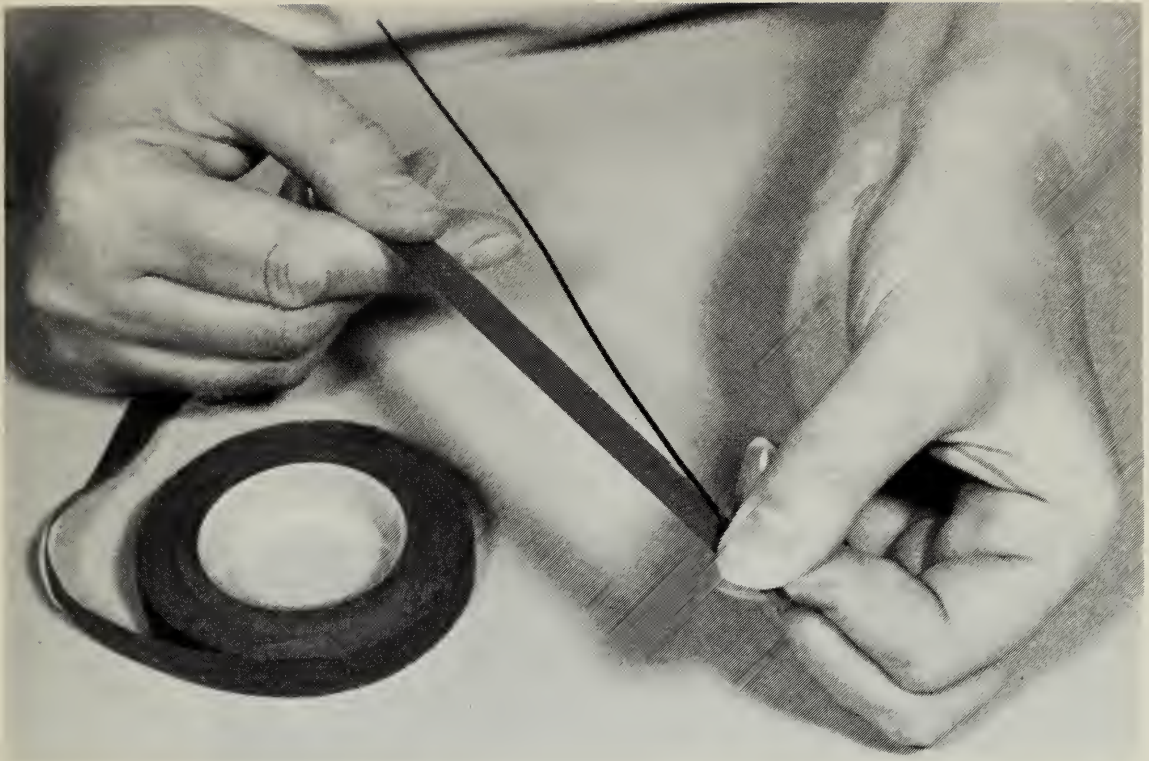


Figure 12 Stretch florists' tape before wrapping the wire.

Figure 13 Protect your hand with a plastic bag when spraying preserved flowers.



REFINING AND EXPANDING TECHNIQUES

When you have mastered the basics, experiment with further refinements, such as:

Applying heat to hasten the drying time

Using other desiccants

Coloring the flowers

Painting the foliage

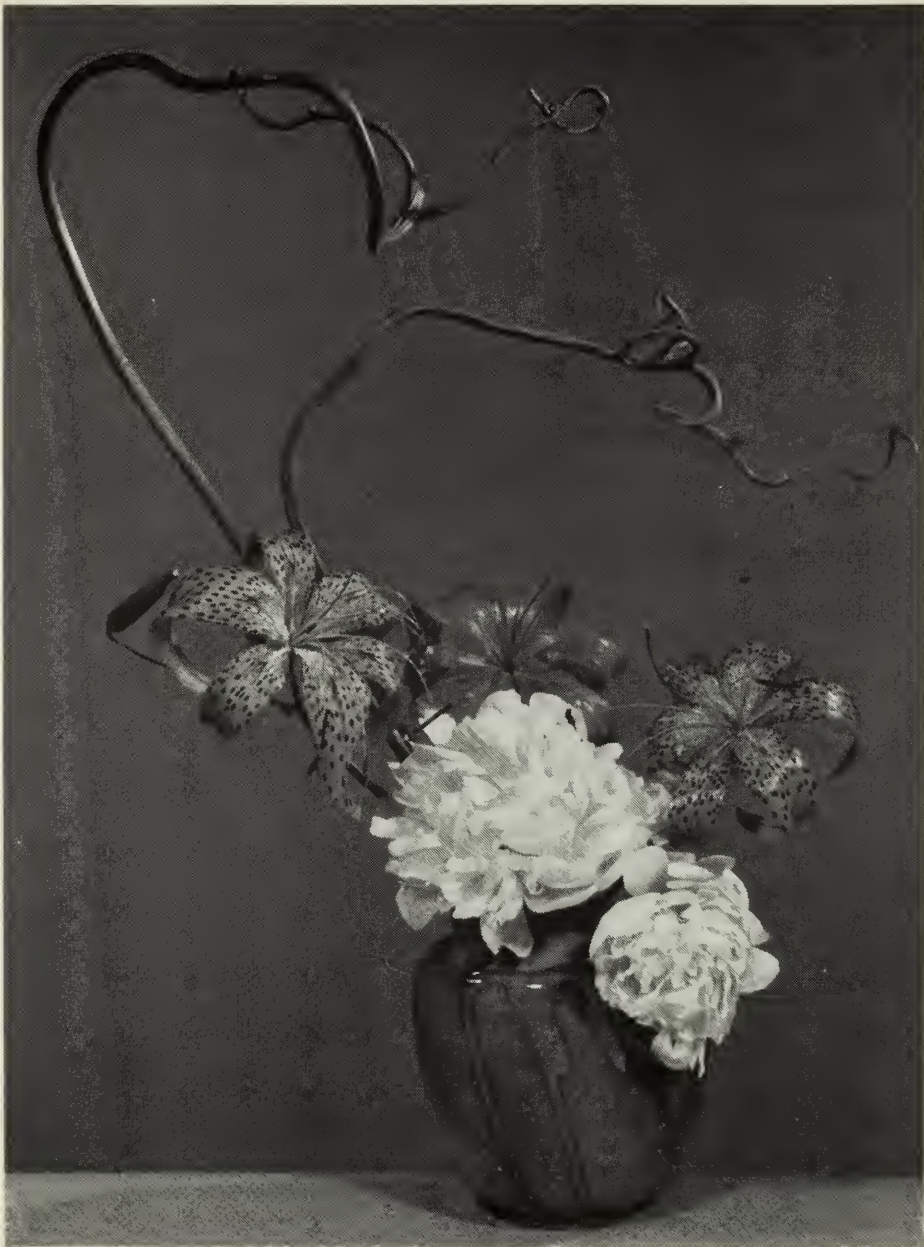
Keeping the natural color better

Preventing fading in sunlight

Preserving varieties with which you previously had difficulty

Keeping whites white

Studying flower arranging



REFERENCES

Public libraries have many excellent books on flower drying but few on preserving with desiccants. Those mentioned below do have some worthwhile information on this method.

Brown, Emily. Bouquets that last — how to make designs with fresh and dried flowers, minerals, shells and rocks. Hearthside Press Inc. New York, 1970

Carico, Nita Cox, and Jane Calvert Guynn. The dried flower book. Doubleday and Co. Garden City, N.Y., 1962.

Condon, Geneal. The complete book of flower preservation. Prentice-Hall Inc. Englewood Cliffs, N.J., 1970.

Karel, Leonard. Dried flowers from antiquity to the present. The Scarecrow Press Inc. Metuchen, N.J., 1973.

MacDermot, Elizabeth. The art of preserving flowers. James Lewis and Samuel. Toronto, 1973.

Squires, Mabel. The art of drying plants and flowers. M. Barrow and Co. Inc. New York, 1958.

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