PRESERVING FLOWERS AND DECORATIVE FOLIAGES WITH GLYCERIN AND DYE

Preserve—1. *To maintain unchanged.* 2. *To prevent organic bodies (plants) from decaying or spoiling.* 3. *To treat fruit or other plant parts so as to prevent decay.*

The desire to have the flowers of summer in the house during the winter leads many consumers to purchase preserved plant materials. Florists, interior decorators, furniture stores and mail order catalogs display and offer for-sale arrangements of preserved plant materials. Craft stores have entire departments devoted to dried flowers and glycerin-preserved decorative foliages.

Floral materials can be preserved in a variety of ways. The age-old way to preserve flowers is to dry them by hanging them upside down in a warm, dark place. Technology has increased the drying options by including the use of silica gels and freeze drying. Dried flowers are wonderful to use in floral decorations, but have the characteristic of being brittle.

Using a solution of glycerin and water to systemically preserve decorative foliages yields a final product that is soft and pliable and remains so for several years. The process replaces some of the water in fresh plant tissue with glycerin. When the glycerin-preserved foliage is then air dried, and the balance of water in the plant tissues is evaporated, the glycerin remains behind and acts as a lubricant in keeping the plant soft and pliable.

When a branch (stem) of a plant is cut, it begins to die. The natural color (chlorophyl and other colored pigments) will degrade and the tissues of the plant will slowly begin to turn to their substrate color (usually a light shade of dead brown). A dye most often is added to the glycerin preserving solution to permanently color the decorative plant materials. A host of designer colors comprise the palette when dying preserved foliages.

Instructions for Preserving Decorative Foliages With Glycerin and Dye

Use only high-quality plant materials. Preserving with glycerin will not improve the quality of the plant stem. The dye will not cover or hide blemishes in the foliage. The process will only preserve the plant material in its present condition. If the edges of the leaves, the leaf margins, are damaged or dried out before beginning treatment, they will remain so after treatment. The main portion of the leaf blade will absorb the glycerin and remain soft and pliable while any dry edges will remain dry, become brittle and easily break off, destroying the appearance of the product. Leaf spots or the physical evidence of insect or disease damage will not absorb the glycerin solution and often become more apparent after the preservation process. Do not waste time and materials attempting to preserve poor-quality plant materials.

Choice of Container

The container should be made of plastic or glass and not metal. It should be tall and narrow to allow for a greater depth of solution without requiring a large quantity of the preservative. Clean and rinse the container before each use.

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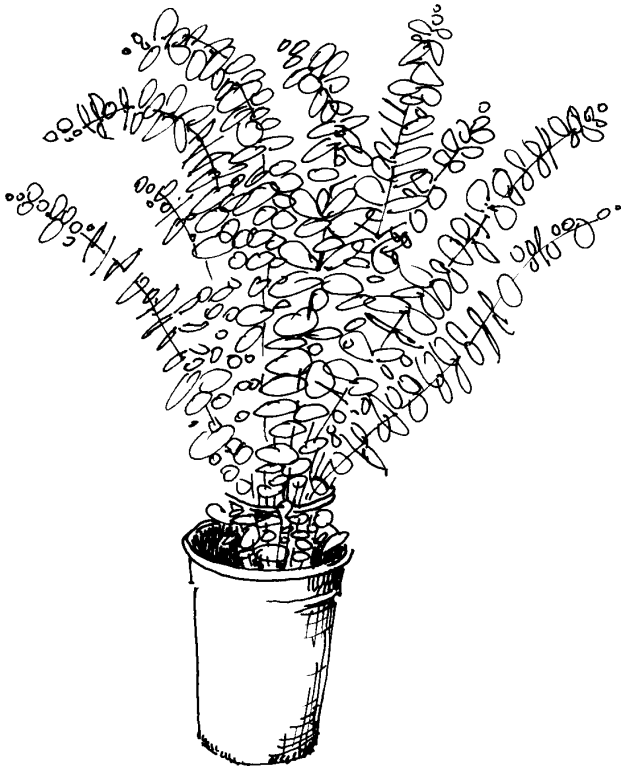
Bacteria and debris left in the container may plug the conductive tissues of the stem, preventing or reducing the uptake of the preserving solution.

Figure 1. A Container for Preserving With Glycerin



The Glycerin Solution (recipe for 1 quart)

- Begin by slowly adding, and continuously stirring, 1 level teaspoon of concentrated dye to 1/2 cup (4 liquid ounces) of hot water. When dye is thoroughly dissolved, set dye solution aside.
- Place 2 1/2 cups (20 liquid ounces) warm or slightly hot water into a half-gallon or larger container for mixing.
- Slowly stir in 1 cup of glycerin (8 liquid ounces of 90% or more pure glycerin). Mix throughly but not so vigorously as to create air bubbles in the solution.
- Add 1/2 teaspoon of citric acid (powdered form) to the solution. Stir until dissolved.
- Stir in the previously prepared dye solution.
- Additional dye may be added, up to a total of 3 level teaspoons, to increase the depth of shade. Begin with the 1 teaspoon concentration and increase slowly based on small trials with each dye concentration.
- **Note: use only dyes specified for systemic preservation of floral products.** Consumer fabric dyes generally do not work.

Bunch Size

Bunch size must be small enough to allow air to circulate uniformly around each and every leaf in the bunch. Stems must be placed loosely in the container or the leaves on the inside of a tight bunch will not transpire (loose water) at the same rate as leaves on the outside and, therefore, will not receive the same amount of glycerin. Too narrow of a container will have the same effect by holding the stems too tightly together to allow for uniform transpiration at each leaf.

Amount of Solution to Use

Place 1 liquid ounce of preserving solution into the container for every ounce (weight) of plant material to be preserved. If insufficient preserving solution is used, not enough glycerin will be placed into the plants tissue, and the finished product may be brittle. If too much preserving solution is used, the finished product may "bleed" when exposed to high humidity. Bleeding is the process whereby the glycerin and dye, within the preserved stem, becomes rehydrated and runs (bleeds) out the cut end of the stem, or may form as droplets of glycerin and dye on the leaf surface. The result may stain furniture or walls. Too much or too little is not a good thing. If you weigh your plant materials and measure your preserving solution, bleeding is not normally a problem.

Time in Solution

Leave the stems in the preserving solution until the solution has been absorbed. For grasses, the process may take about 3 to 5 days, for woody stems it may take 5 to 7 days.

Preserving Environment

Transpiration, the evaporation of water from the leaves, is the force that drives the systemic preservation process. Water, in the form of water vapor, must move out of the plant in order to make

room for the glycerin and dye solution to move in. The preserving environment should be one which encourages transpiration at a controlled rate. If the transpirational rate is too slow, the plant tissue may die and shut down the system before enough glycerin and dye have been absorbed. If the transpirational rate is too high, water will be lost faster than the preserving solution is absorbed and portions of the leaves will dry out and not be able to absorb the glycerin. The preserving environment must be uniform around each and every leaf or each leaf will transpire at a different rate and create a non-uniform product

The ideal preserving environment will have an air temperature of 60°F to 75°F, have neither excessively low nor high relative humidity, be in good light, but out of direct sunlight and have excellent air circulation.

Harvest and Preparation of Plant Materials for Preserving

Stems to be preserved should be cut in the morning or early evening when temperatures are a little cooler. Cut only blemish-free stems (branches). Stems should be harvested mid- to late season when new growth has slowed. The ends of rapidly growing branches have much soft tissue, which may lack structural integrity when preserved. Preserved branches with droopy ends are not very attractive—they appear to be wilting. Prepare and measure the solution in the container before going out to harvest branches. Place harvested branches into the preserving solution as soon as possible after cutting. Recut each stem end, removing approximately 1 inch, as you place them (loosely) into the preserving solution. Keep the branches clean throughout the harvest process so you don't contaminate the solution.

Post Preservation Handling

Remove stems from preserving container when all solution has been absorbed. Rinse excess solution off stem ends being careful not to get remainder of stems wet. Loosely place preserved branches in a warm, dry, sunny location with good air circulation for 3 to 5 days to begin the process of removing the balance of water from the stem, and to sun-bleach the chlorophyl out of the leaves and reveal their final color. Then hang the stems upside down in a warm, dry and **dark** place for 2 to 3 weeks to complete the drying process. Store the preserved stems in a dry and dark area until use. Avoid storage environments with high relative humidity and protect from moths and grain beetles.

Cleaning

If your preserved decorative plant materials become dusty, **do not wash them.** Use a portable hair dryer, set on low temperature and fan speed, to gently blow the dust off the surface of the leaves.

Sources of Materials

Glycerin is available in gallons from veterinary supply stores, drug stores, and through mail order.

Systemic dyes can be purchased at many large craft stores.

Pre-mixed preserving solutions can be purchased at many craft stores or by mail order from: Frontier Flowers, Rte. 1, Box 28B, Lakin, Kansas 67860; (316) 355-6177.

Large, commercial quantities of glycerin and systemic dyes are available from: Robert Koch Industries, 4770 Harback Road, Bennett, Colorado, 80101.

Plants Systemically Preserved With Glycerin and Dye

Annual Statice	German Statice	Pepper Grass (Lepidium)
Broom Bloom	Grasses	Poplar / Cottonwood
Juniper & Cedar	Salal	Candytuft
Leaves of woody plants	Sweet Annie	Caspia
Yarrow	Myrtle	Eucalyptus
Oak	Aspen	Birch
Baby's Breath	Corn Plants	

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