

## A Review On Dry Flower Preservation

Chahat Thakur<sup>1</sup>, Prakash Singh<sup>2</sup>, Dr. Anil Kumar Verma<sup>3</sup>, Mohit Bhardwaj<sup>4</sup>

<sup>1,5</sup>M.Sc Scholar (Food Science and Technology), <sup>2</sup>M.Sc Scholar(Agricultural Economics),

<sup>3</sup>Assistant Professor (College of Horticulture and Forestry Neri, Hamirpur)

Corresponding Author: thakurchahat1997@gmail.com

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### Introduction

Flowers are synonyms of delight and blissfulness due to their power to make people happy and cheerful. Fresh flowers are very attractive, but also expensive and short-lived as well as available only during a particular season. Dried flower products on the other hand are long-lasting and retained their aesthetic value irrespective of the season. Preserving plant materials in a dried form is not a new idea; it has been considered an art for hundreds of years. Drying of flowers is well known even in the past but for the first time the flowers were dried commercially in Germany

The dried ornamental products offer a wide range of qualities like novelty, longevity, aesthetic properties, flexibility, and year-round availability. Dried ornamental plant parts are generally less expensive and are sought for their everlasting and attractive appearance (Smith, 2000). Dried flowers and other plant parts is a rupees hundred crore industry in India and such dry decorative materials are globally accepted as naturals, eco-friendly, long-lasting and inexpensive. The dried plant parts are natural, comparatively inexpensive and have everlasting value with year-round availability. The dry flower industry in India is more than 40 years old mainly due to its high export value. Dry flowers were introduced initially by the British in Calcutta due to its nearness to northeast and eastern regions where exotic and diverse blooms were available in nature.

Indian export of flowers is composed of 71% dry flowers exported mainly to USA, Japan, Australia, Russia, and Europe. India is one of the major exporters of dry flowers to the tune of 5 percent world trade in dry flowers. This Industry shows a growth rate of 15 percent annually. The market for the dry flower has grown exponentially as consumers have become “eco-conscious” and choose dry flowers as the environment friendly and biodegradable alternative to fresh flowers. Different decorative floral craft items like cards, floral segments,

wall hangings, landscapes, calendars, potpourris etc. could be made by using these dried flowers or foliage. The range of dried flowers and other attractive plant parts is quite extensive, namely stems, roots, shoots, buds, flowers, inflorescences, fruits, fruiting shoots, cones, seeds, foliage, bracts, thorns, barks, lichens, fleshy fungi, mosses, selaginellas, etc.

### **Techniques in flower drying**

The quality and appearance of dried flowers and other ornamental plant parts is greatly influenced by the method of drying or the drying technique being followed. Various dehydration techniques have been developed by which flowers, twigs, branches, foliage etc retain their fresh look for several months or years.

### **Natural drying**

This is the easiest and oldest method of drying used for leaves, flowers, pods etc. In this method, the flowers or plant parts are allowed to dry on the plant itself and collected when they are completely dried. Naturally dried plant parts such as beautiful fruiting shoots of *Aegle marmelos*, *Bambusa spp.*, *Cassia fistula*, *Caesapiniasepiaria*, *Pinus roxburghii*, *Sapindus mukrossii* etc. and seeds of *Abrus precatorius/Aesculus indica*, *Sapium sebiferum*, etc. were identified in the outer Himalayan regions.

### **Water drying**

Water drying is another simple and inexpensive method of flower drying or dehydration. In this method, the flowers or foliage are initially placed in a few centimetres of water and then water is allowed to evaporate. The container and flowers should be kept in a dry, warm, and dark location. This method takes 6-7 days for drying depending upon the water content in plant material and water taken in containers.

### **Air drying**

The air drying is a very common method of drying where plant materials are attached to rope/wire and are kept in hanging position either in dark or in the sun for quick drying. Air drying requires a warm clean dark and well-ventilated area with low humidity. Flowers may also be spread over blotting sheets/newspapers and kept in dark or in the sun reported air-drying as the earliest method to dry rose, larkspur, statice and strawflower.

### **Press drying**

In this method, flowers and foliage are placed between the folds of the newspaper sheets or blotting papers giving some space among flowers. These sheets are kept one above the other and corrugated boards of the same size are placed in between the folded sheets so as to allow the water vapour to escape. Though the flowers and foliage become flat after press drying, yet this material can be used for composing floral craft items like greeting cards, floral designs and other art creations which may be framed for wall pin-ups. Lourdasamy *et al.*, (2001) described press drying as the earliest method of preserving flowers and suggested that flowers like candytuft, chrysanthemum, lantana, rose, verbena, euphorbia and leaves like thuja, ferns, silver-oaks, etc are suitable for press drying.

### **Embedded drying**

Embedded drying is one of the methods of flower dehydration useful for delicate flowers with high moisture content that shatters or misshapen when air-dried. This method of drying is usually preferred over air or oven drying as it reduces the the problem of petal shrinkage. In embedded drying, the water content of the flower is completely absorbed by the surrounding desiccant material during desiccation. The desiccants support the flowers/ foliage from all around and thus, maintains original shape, colour, and size of flowers for a long time. The commonly used desiccants are silica gel, borax, corn meal, etc., which remove water from the flowers more rapidly than air-drying besides retaining the flowers in their natural form.

### **Oven drying**

Nowadays, hot air and microwave ovens are also being used for faster drying and to improve the quality of dry flowers. Temperature plays an important role in the drying of flowers and other ornamental plant parts by influencing both qualitative and quantitative parameters. Dried rosebuds in a microwave oven for 3 minutes, 4 minutes, and 5 minutes, and found that microwave drying of rosebuds for 4 minutes exhibited good colour and good shape retention.

### **Glycerine drying**

Glycerine drying has been used by several workers especially to preserve foliage. It was comparatively less expensive and has a high-water attracting capacity. Preserving foliage and berries in glycerine and hot water solution brought them into an almost everlasting

category. Found that glycerinizing replaced the water content of leaves giving them a strong and pliable nature. This method is found more suitable for eucalyptus, hydrangea, ivy, and magnolia.

### **Freeze drying**

The most effective method of flower preservation is freeze-drying. Freeze drying relies on the principle of sublimation, whereby ice held under conditions of partial vacuum (less than 4.58 torr) and low temperature (less than 0°C) will evaporate on heating without going through a liquid phase. The flowers dried by freeze-drying and pre-treated with the tartaric acid solution before microwave drying had good colour and appearance.

### **Packaging, handling and storage**

Packaging for delicate dried plant materials should be done properly and manually during transportation and distribution by creating awareness of the product characteristics. It is always advisable to purchase a superior grade or standard cartons or boxes for packaging. Dried plant material should be protected from moisture throughout the marketing channel by placing a small quantity of silica gel at the bottom to absorb moisture. Different containers like glass desiccators, tin boxes, cartons wrapped with plastic sheets or wax paper and herbarium vasculum fitted with cork sheet is used for storage of dried ornamental plant material.

### **Summary**

In conclusion, dried flowers, and plant parts are cheaper, eco-friendly, long lasting, biodegradable, and easily available and, therefore, possess a great potential in the floriculture industry throughout the world especially in the hilly regions of India. A great variation of wild plant material available widely also strengthen the establishment of the dry flower industry. Different techniques have been developed by which dried products retain their fresh look, appearance and quality. Keeping in view the great scope in the dry flower industry, there is an immediate need to strengthen its market, financial assistance through government agencies and training for entrepreneurship development especially for women empowerment in India and through the export of dry flowers to different countries of the world.

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