

## Research Article

# Effect of Multi Colours in Tinting Techniques in Cut Flowers (Rose and Carnation)

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## Abstract

Cut flower industry plays a major in the growth of GDP. The profitability of a commodity can be increased by converting the raw material into a value added product which will influence the floral export market to a considerable extent. An experiment was conducted to standardize the multicolour tinting technologies in white coloured cut flowers. In this study, the food dyes viz., Apple Green, Lemon Yellow, Blue, Pink and Orange Red were used in two different cut flowers with combination of colours. Tinting was done by stem absorption method (Sambandhamurthy and Appavu, 1980). Tinted flowers at the concentration rate of 5% express brightly coloured inflorescence with rapid uptake of colours in a short period of two hours duration in cut Rose and one hour in cut Carnation. By using the tinted flowers, flower arrangements can be made much more attractive and novel.

The tinting helps to add colour or combination of two colours in cut flowers. This will enhance the aesthetic value and novelty of the cut flower arrangement. Tinting with multicolour helps us to achieve two colours at a time in a single flower.

**Keywords:** Tinting, Multicolour, Anthocyanin, Carnation, Rose and Food colouring dye

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## Introduction

The success of floral industry lies upon by strengthening the fresh flower market through value addition (Mekala *et al.*, 2012 [1]). In Flower trade, value addition and post-harvest techniques of cut flowers are gaining importance now-a-days. Rose and Carnation are the two important cut flowers ruling the export flower trade. Rose is called as the Queen of Flowers. Meaning of the white rose is purity and innocence. White carnations suggest pure love and goodluck, light red symbolizes admiration, while dark red represents deep love and affection. Similarly each colour has its own meaning to convey and represent. Flower colours of red, pink, blue and purple come mainly from the pigments called anthocyanins, which are in the class of chemicals called flavanoids. These flavanoids are responsible for the colours which are appeared in the flowers during the growth period. In order to obtain colour at post-harvest stage tinting is an excellent method where we can alter the colours according to our wish and desire. Tinting is an important value addition technique in flower crops where colour pigments are absent or in light colour flowers. Tinting can be done with natural flowers by adding artificial colours or food colouring agents. It enhances the aesthetic beauty of fresh flowers. The Coloured inflorescences of the cut flowers with edible dyes enhance the appearance and appeal the arrangement to be more attractive. It can also provide a great variety of colours for aesthetic beautification. For decorative purpose where a particular colour or flowers of two colour is expected, then we can think of tinting for white coloured flowers. Whereas, certified synthetic food colouring agents or dyes are less expensive and less hazardous. The food colouring dyes can be used for tinting the flowers (Mekala *et al.*, 2012) [1]; Anjali *et al.*, 2014[2]; Bharati *et al.*, (2016) [3]). Tinting techniques has already been experimented in tuberose (Sangama, 2002) [4]; Candytuft (Patil and Dhakuk, 2005) [5]; Lady's Lace (Patil and Dhakuk, 2008) [6] Sambandhamurthy and Appavu, 1980) [7]; Kumar *et al.*, 2004) [8]; and Yamini, 2016)) [9]).

Tinting was done in white flowered cultivars of gladiolus (Sravan Kumar *et al.*, 2014) [10]). This technique has served as an efficient tool for white coloured flower cultivars in Carnation and Rose to attain multi coloured inflorescence. In Tuberose and Gladiolus 5% concentration of food dye with two hours of immersion showed a best colour shades (Sravan Kumar *et al.*, 2014) [10]).

## Materials and Methods

The present study on "Effect of multicolour tinting techniques in Cut Flowers viz., Cut Rose and Cut Carnation)" was carried out at Karunya University during the year 2017. Cut Rose and Carnation are the important cut flowers widely

used in bouquet, stage decoration and also in many other flower arrangements. White coloured varieties of Rose and Carnation are used in this study. This study was conducted by using food dye solutions *viz.*, Apple Green, Lemon Yellow, Blue, Pink and Orange Red each at 5% concentrations. This experiment was conducted in completely randomized design with 10 treatments and three replications of each treatment. The white coloured cut flowers of rose and carnation were selected and the ends were cutted and divided along the lengthwise for upto few centimeters. Then the cutted ends has to be immersed in the two different beakers containing two different colour solutions as in Fig.1.



**Figure 1** shows the cut end has been splitted and immersed in two different colour solutions.

Tinting of flowers can be adopted by two methods *viz.*, by stem absorption method followed in (carnation, tuberose, gerbera) and by dipping of flower heads in flowers like daisies. Mostly the stem absorption method is followed. The effect of colour retention which will be good in flowers tinted through stem absorption method. Application of the dyes through the stem absorption method will be optimum method for colouring of tuberose flowers (Sambandhamurthy and Appavu, 1980) [7]). In this study, stem absorption method was employed for tinting. Fresh flowers of Cut Rose and Cut Carnation were tinted by keeping the basal ends dipped in the dye solution. The time of immersion of cut spikes was observed by the improved colour intensity in the florets. After this, flowers were taken out from the dye solution and the parameters *viz.*, colour uptake, intensity, water uptake and vase life were recorded. Colour intensity was recorded by RHS colour chart (Sravan Kumar *et al.*, 2014) [10]). The data on all qualitative and quantitative parameters were subjected to statistical analysis as per the procedure outlined by Panse and Sukhatme (1985) [11]). The results have been presented and discussed at a probability level of 0.05 or 5 percent.

**Table 1** Effect of different tinting treatments on colour intensity and colour uptake in Cut Rose at 5% concentration

Treatments	Colour intensity (RHS colour chart)	Colour uptake (Hours)
Orange + Pink	N25A +61D	2.30
Orange + Blue	28A+110B	2.15
Orange + Yellow	30B+3A	2.00
Orange + Green	N30B+125C	3.00
Pink + Blue	67C+113C	2.20
Pink + Yellow	68A+2C	2.10
Pink + Green	73B+140C	3.00
Blue + Green	107B+140A	2.50
Blue + Yellow	N109C+1A	2.45
Yellow + Green	2A+134A	2.40
	SE(D)	0.2577
	CD (5%)	0.5376
	CV (%)	13.09

## Results and Discussion

In the present study, the food dyes *viz.*, Apple Green, Lemon Yellow, Blue, Pink and Orange Red in Cut Carnation recorded the fastest uptake requiring 1 hour for orange coloured combination, 1.3 hours for yellow combination, 1.4 hours for blue combinations, 1.5 for green coloured and 2 hours for pink coloured combinations (**Table 2**). Colour intensity was recorded using RHS colour chart by assigning different codes for flower colour as reported by (Yamini, 2016) [9] and Sravan Kumar *et al.*, 2014 [10] Table 1)). Colour intensity was found to be best by using food dyes at

higher concentration (5%) in Carnation (Fig.2) when compared with rose (Fig.3). This is in agreement with the result of Yamini (2016) [9] (Safeena *et al.*, (2016) [12] and) in tuberose. The combination of Orange + Pink takes lesser duration of 1hr to acquire the colour than others.

The result revealed that the Orange + Yellow combination shows in Fig.2 best result by reduced time taken for colour absorption (Table 1)).

The result revealed that the Orange + Pink combination shows best result by reduced time taken for colour absorption (Table 2)). The result of this experiment showed that the tinted flowers will be very attractive and of good appeal which holds excellence in the flower arrangements in Fig.3. Higher time of immersion and maximum concentration allowed more dye to be trans located up to the central bud of the inflorescence as reported by (Patil Sudha and Dhaduk, 2007) [13]).



**Figure 2** shows the colour combination of Orange + yellow in the cut carnation



**Figure 3** shows the colour combination of Green + Yellow in cut rose

**Table 2** Effect of different tinting treatments on colour intensity and colour uptake in Cut Carnation at 5% conc.

Treatments	Colour intensity (RHS colour chart)	Colour uptake (Hours)
Orange + Pink	N25A +61D	1.00
Orange + Blue	28A+110B	1.05
Orange + Yellow	30B+3A	1.10
Orange + Green	N30B+125C	1.30
Pink + Blue	67C+113C	1.50
Pink + Yellow	68A+2C	2.00
Pink + Green	73B+140C	2.15
Blue + Green	107B+140A	1.40
Blue + Yellow	N109C+1A	1.30
Yellow + Green	2A+134A	1.35
	SE(D)	0.1567
	CD (5%)	0.3269
	CV (%)	13.41

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