



A Note on Flower Development in Garland Chrysanthemum (*Chrysanthemum coronarium* L.)

Key words : Chrysanthemum, Flower, Garland.

Seasonal flower crops are very handy to a floriculturist because they produce greater economical yield within a shorter period of time. Annual chrysanthemums, categorized under seasonal flower crops include several species. One such species is *Chrysanthemum coronarium*. It is commonly called as garland chrysanthemum. It is recently catching up in restricted local markets in our country, supplementing the production of florist chrysanthemum. The crop has been naturalized and locally called 'Bijli' in Nagpur (Meshram *et al.*, 2008), 'Baboona' in Haryana (Mishra *et al.*, 2002) 'Guldhak' in Punjab, 'Market' in Delhi and 'Gendi' in Uttar Pradesh area (Arora, 1990).

The present study was conducted to know the stages of flower development in garland chrysanthemum at University of Agricultural Sciences, Dharwad. Seed sowing was done on 5.6.2008 and transplanting was done on 5.7.2008. Flowers started appearing from 29.7.2008 and developing flowers were tagged. The observations described were based on five flowers each from early, mid and late produced flowers. The results obtained are presented in Table 1.

Days to first flower bud initiation and 50% flowering

The number of days to first flower bud initiation and the number of days taken for 50% flowering (19 and 24 days after transplanting) were less in *kharif* as compared to *rabi* (23 and 29 DAT respectively) in garland chrysanthemum. The commencement of flowering in dwarf marigold took 25 days after transplanting (Vijayalakshmi, 1998). In African marigold, 38 days were required after sowing for flower initiation and for 50% flowering it took 58 days (Sunitha, 2006). *Ageratum* took 61 to 65 days for 50% flowering (Balachandra, 2001). In *gaillardia*, flower initiation took 54 to 60 days after sowing in *rabi*, 53 to 58 days after sowing in *kharif*. For 50% flowering, it took 65 to 68 days in

rabi whereas in summer it took only 63 to 67 days (Hugar, 1997).

Flower development

The following stages were observed during the course of flower development in garland chrysanthemum.

Rosette stage: A rosette like plumpy appearance of apical bud was seen at the apex of the branch. It lasted for two days.

Tight bud stage:

Flower bud became clearly visible. The bud remained tight for two days but increased in size.

Loose bud stage: Flower bud appeared to had stuffed and ray florets emerged out. It continued for another two days in bud like appearance with ray florets on the tip. Flower continued to grow in size and reached 50 per cent size of the full grown flower.

Half open flower:

Ray florets completely emerged out. Horizontal growth continued on account of progressive blooming of ray and disc florets. The stage lasted for 1 to 2 days.

Fully open flower:

Flower attained full size. This stage was observed at 6 days (*kharif*) and at 8 days (*rabi*) after the initial symptoms of flower bud appearance. Horizontal growth stopped.

Maturation stage:

After complete opening of the flower, it lasted for three days during which the petals became loose and appeared drooping. Gradually the ray florets fell and after another three days almost all the petals faded and capsules were observed in green colour which later turned brown.

Summarily it took eight days for full opening of flower in *rabi* which is late by 2 days

Table 1. Flower parameters of garland chrysanthemum in *kharif* and *rabi*.

Character	<i>Kharif</i>	<i>Rabi</i>
Days to flower initiation	19	23
Days to 50% flowering	24	29
Flower development (days)	6	8
Flower longevity	3	5
Flower Weight (g)	2.21	2.45
Flower Diameter (cm)	4.81	5.15
Vase life (days)	6	9
Duration of flowering (days)	45	62

as observed in *kharif*. The development of flower was hastened in *kharif*. Hastening was observed in tight bud and half open stages. The reduced period of flower development might be due to relative higher temperatures in *kharif* compared to *rabi*, which might allowed the fulfillment of heat unit requirement faster.

Flower longevity

Longevity of intact flower was observed as the period between the fully opened stage to loosening of outer whorl of ray floret petals. The longevity was only only three days in *kharif* and five days in *rabi*. This might be due to higher temperatures in *kharif* compared to *rabi*. Higher temperatures shortened the life span of flowers in *Corydalis ambigua* (Yasaka *et al.*, 2002).

Flower quality and duration of flowering

Flower weight was ranging from 2.21 g (*kharif*) to 2.45 g (*rabi*). Similarly flower diameter was varying from 4.81 cm (*kharif*) to 5.15 cm (*rabi*). The duration of flowering was only 45 days in *kharif* as against 62 days in *rabi*. This indicated that the assimilation and expansion continued in *rabi* for additional period as compared to *kharif*, probably due to late fulfillment of heat unit requirement for the stage. The crop appeared to have preferred *rabi* since it had better assimilation into the flowers during this season. Flowers harvested during this season on 8th day of flower initiation lasted longer in vase. Vase life in tap water was 9 days in *rabi* as against only 6 days in *kharif*.

Also the flowers harvested after 8th day of flower initiation showed reduced vase life under tap water.

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