

## Flowering Behavior of Some Commercial Heliconia Genotypes under Costal Humid Tropics of Odisha

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**ABSTRACT:** An experiment was conducted at BTCC Center, Department of Floriculture and Landscaping, OUAT, Bhubaneswar during 2021-22 to evaluate the performance of flowering behavior of 12 *Heliconia* genotypes under humid tropic climate of Bhubaneswar. Suckers of 12 different genotypes of *Heliconia* were planted at 1 × 1m spacing so as to accommodate 48 plants in one plot. The experiment was laid out in RBD with four replications. Among the genotypes genotype *H. pissatacorom* cv. Golden Torch and, *H. stricta* cv. Jamaica Dwarf were significantly advanced the days for first flower appearance by taking 128.5 and 127.25 days. Maximum spike length was recorded (114.00 cm) was recorded in *H. rostata* cv. Parrot Beak and (109.00 cm) and followed by *H. chartacea* cv. Sexy Pink (109.00 cm) and same genotypes also recorded maximum number of bracts (14.50 ) and (12.75) per spike was noticed during observation. The bloom life was significantly longer (15.00 days) in *H. wagnerianais* cv. Peachy Pink and the data stood at par where it is (14.50 day) in *H. bihai* cv. Island Yellow. The economic characters of total flower spike yield per clump was significantly maximum (51.36) in *H. psitacorum* cv. Golden Torch followed by other genotypes *H. pssitacorum* cv. Lady Di (41.75) and *H. psittacorum* cv. Vincent Red (31.25) was observed during study.

**Keywords:** Heiconia, suckers, spike length, bloom life.

### INTRODUCTION

Beauty of *Heliconias* had made them, a best ornamental flowering shrub for landscape and as a potential cut flower (Janakiram and Pavan Kumar 2011). *Heliconias* are available in a variety of sizes and forms and display a broad range of cors, with the primary colors being red, pink, orange, yellow and green (Goel, 2004). It has recently been determined that *Heliconias* are an emergent exotic cut flower that is growing popular in all of India's major cities. This tropical plant is a member of the Heliconiaceae family, which only has 250–300 species in the lone genus. These all features made it an outstanding flower for the florist (Lalrinawmi and Talukdar 2004). It likes warm and humid conditions and can grow well even under partial shade. *Heliconia* assures handsome income to the farmer with minimum investment and care. The leaves and spikes of *Heliconia* are utilized for different things at different times. The strategic choice of optimal genotypes to facilitate the production of high-quality cut flowers is essential for the growth of the floral business. Hence, there is vast scope for expansion of the crop on a commercial scale to meet the local as well as outside demand.

Odisha has long coastline with hot and humid climate and *Heliconias* are having great scope to cultivate under partial natural condition of fruit and plantation crop orchards due its hardy nature with less care.

With this backdrop, the present investigation was conducted to evaluate the performance for high flower production in *Heliconia* genotypes.

### MATERIAL AND METHODS

The experiment was carried out from 2022 to 2024 under natural condition, Department of Floriculture and Landscaping, OUAT, Bhubaneswar. *Heliconia* genotypes were collected from Central Island Agriculture research Institute, Port Blair, Andaman Islands and reputed nurseries of Kerala. Treatments consisted of twelve genotypes viz *H. psitacorum* cv. Golden Torch, *H. psitacorum* cv Vincent red, *H. psittacorum* cv. Lady Di, *H. psittacorum* × *H. marginata* cv. Tropics, *H. stricta* cv. Iris Red, *H. Bihai* cv. Island Yellow, *H. chartacea* cv. Sexy Pink, *H. rostata* cv. Parrot Beak, *H. stricta* cv. Jamaica Dwarf, *H. latspatha* cv. Distan, *H. wagnerianais* cv. Peachy Pink, *H. latspatha* cv. Expanded Claw. The experiment was laid out in Randomized Block Design (RBD) with

twelve varieties as treatment and four replications. Plots of size 4 × 12 m were taken in the natural shade area under timber trees and suckers are planted at 1m × 1meter spacing. Heliconia suckers were planted during the first week of March, 2021 in beds at 1 × 1 meter spacing with a plant density of 48 plants/plot per replication. Initially good quantity of farm yard manure mixed in soil, and then these genotypes were planted in one meter wide bed at a distance of one meter and fifty centimeter path was maintained between two beds. Uniform cultural operations were carried out throughout the experiment. Biometric observations were recorded considering the requirement of cut flower industry at monthly intervals, during the study period, from the selected plants leaving the border effect and the mean values were recorded the growth parameters viz., plant height, plant spreading; total number of leaves per clump, leaf length and suckering habit were recorded during study period. The plant spread was recorded by measuring the distance of rhizomes in North-South and East-West directions. Growth and yield parameters of heliconia varieties were analyzed in Randomized Block Design. (RBD) Differences in parameters were compared using replicated measures analysis of variance (ANOVA).

## RESULT AND DISCUSSION

Significant differences were observed among different *Heliconia* genotypes for the flowering traits (Table 1). The genotype, *H. stricta* cv. Jamaica Dwarf and *H. psittacorum* cv. Golden Torch have shown their first visible flower after on 127.25 and 128.49 days after

planting whereas, the genotypes *H. chartacea* Cv. Sexy Pink was too late to initiate the flower (446.50 days) followed by *H. wagemensis* cv. Peachy Pink (382.25 day) and *H. stricta* cv. Iris Red (355 days). In addition to determining the quality of Heliconia cut flowers, flower spike length also extends the flowers' post-harvest life, making it a crucial quality characteristic. Significantly maximum length of flower rachis (70.50 cm) was found in *H. wagnerianensis* Cv. Peachy Pink followed by *H. chartacea* Cv. Sexy Pink (57.50 cm) and *H. rostrata* cv. Parrot Beak (36.75cm), the smaller rachis length found in (10.50 cm) in *H. psittacorum* Cv. Vincent Red and *H. psittacorum* Cv. Lady Di (11.50 cm) and *H. stricta* cv. Jamaica Dwarf. Maximum bracts/spike (14.0 cm) was recorded in *H. rostrata* Cv. Parrot Beak (12.75 cm) followed by *H. wagnerianensis* cv. Peachy Pink (14.25) *H. chartacea* Cv. Sexypink (12.75) was recorded in per spike whereas, minimum in the genotype *H. psittacorum* × *H. marginata* Cv. Tropics (3.25) and *H. psittacorum* cv. Vincent Red (3.25) and *H. stricta* Cv. Jamaica Dwarf (3.50) recorded minimum numbers of bracts per spike. The similar findings with different *Heliconia* genotypes were reported by Ramachandrudu and Thangam (2012) in the *Heliconia* genotype *Choconiana* for days to emergence of spike (120.00 days), stalk length (94.18 cm), spike length (21.50 cm), bracts per spike (6.97). Thangam *et al.* (2014) reported the earlier days to flowering in *Choconiana* (124 days) and late flower initiation (445 days) was noticed in the genotype Sexy Pink while, spike and stalk lengths were recorded more in Sexy Pink (108.15 and 153.18 respectively).

**Table 1: Flowering behaviors of *Heliconia* Genotypes.**

Genotypes Nos.	Name of Genotypes	Days to First flowering	Rachis length	Numbers of bracts per spike	Days of blooming life (days)	Total number of flower spike /clump
G1	<i>H. psittacorum</i> cv. Golden Torch	132.75	17.50	3.75	9.50	49.50
G2	<i>H. psittacorum</i> cv. Vincent Red	242.25	10.50	3.25	7.50	62.25
G3	<i>H. psittacorum</i> cv. Lady Di	152.25	11.50	3.75	6.50	46.74
G4	<i>H. psittacorum</i> × <i>H. marginata</i> cv. Tropics	143.99	16.50	3.25	8.50	90.24
G5	<i>H. stricta</i> cv. Iris Red	353.75	15.24	10.00	13.00	37.75
G6	<i>H. Bihai</i> cv. Island Yellow	316.00	15.99	3.50	11.00	24.74
G7	<i>H. chartacea</i> cv. Sexy Pink	443.49	57.50	12.75	11.49	5.74
G8	<i>H. rostrata</i> cv. Parrot Beak	352.00	36.75	14.50	9.49	21.50
G9	<i>H. stricta</i> cv. Jamaica Dwarf	125.00	12.50	3.25	8.75	23.50
G10	<i>H. latspatha</i> cv. Distan	277.74	21.50	6.75	10.50	11.00
G11	<i>H. wagnerianais</i> cv. Peachy Pink	381.5025	70.50	14.25	12.00	14.00
G12	<i>H. latspatha</i> cv. Expanded Claw	202.0000	21.50	6.25	9.00	20.00
SE		10.16	0.92	0.92	0.36	1.27
CD (5%)		29.23	2.65	2.65	1.04	3.66

The bloom life of flowers in different genotypes emphasized the variety used for landscaping purposes. Significant more bloom life was reported in *H. stricta* cv. Iris Red (13 days) followed by *H. wagnerianais* cv. Peachy Pink (14.0 days), *H. chartacea* cv. Sexy Pink (11.49 days) and *H. bihai* cv. Island Yellow (11.0 days) purposes.

The yield of flowers is a crucial factor in determining whether a given genotype is suitable for commercial production, which in turn affects profitability. The genotype *H. psittacorum* × *H. marginata* cv. Tropics (90.20) followed by *H. psittacorum* cv. Lady Di (62.25) and *H. psittacorum* cv. Golden Torch (49.50) produced maximum number of spikes per clump, whereas, minimum or less flower spikes per clump was recorded in *H. chartacea* cv. Sexy Pink (5.74) and *H. latispatha* cv. Red Yellow/Distan (11.05). The results of variations in spike yield are inconformity with the findings of Ramachandrudu and Thangam (2012); Meenakshi *et al.* (2012); Malakar *et al.* (2015); Sankari *et al.* (2016). Therefore, differences in flowering parameters could be caused by the blooming cycle, which is most likely connected to seasonality and the genetic composition of different Heliconia genotypes. The early flower initiation, increased formation of suckers with more clumping area and more chlorophyll, and the creation of more flowers per spike with the best quality are possible reasons for the spike output increase.

## CONCLUSIONS

In the present investigation, the genotypes *H. psittacorum* × *H. marginata* cv. Tropics, *H. psittacorum* cv. Lady Di and *H. psittacorum* cv. Golden

Torch *H. psittacorum* cv. Vincent Red produced maximum number of spikes with excellent visual appearance and other long spike big flower groups of Heliconia produced significantly less numbers of flower spikes but these are groups are important high demand of cut flowers and ornamental plants. These genotypes are suitable for commercial cutflower production under partial shade condition.

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