



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2019; 7(5): 996-998

© 2019 IJCS

Received: 28-07-2019

Accepted: 30-08-2019

Zaikhuanlung Kamei

Msc. (Ag) Horticulture,
Department of Horticulture,
Naini Agriculture Institute,
Sam Higginbottom University of
Agriculture, Technology and
Sciences, Prayagraj,
Uttar Pradesh, India

Devi Singh

Assistant Professor,
Department of Horticulture,
Naini Agriculture Institute,
Sam Higginbottom University of
Agriculture, Technology and
Sciences, Prayagraj, Prayagraj,
Uttar Pradesh, India

Correspondence**Zaikhuanlung Kamei**

Msc. (Ag) Horticulture,
Department of Horticulture,
Naini Agriculture Institute,
Sam Higginbottom University of
Agriculture, Technology and
Sciences, Prayagraj,
Uttar Pradesh, India

International Journal of *Chemical Studies*

Evaluation of different varieties of tuberose (*Polianthes tuberosa.*) under Prayagraj (Allahabad) agro-climate conditions

Zaikhuanlung Kamei and Devi Singh

Abstract

A field experiment was conducted during summer season of 2018 in Departmental Research Field of Department of Horticulture, SHUATS, Prayagraj on Tuberose (*Polianthes tuberosa.*). The experiment was conducted in Randomized Block Design (RBD) with eighteen Varieties replicated thrice. The experiment consisted of varieties such as Prajwal, Kalyan Single, Hyderabad Single, Arka Nirantra, Gkctc 4, Sikkim Selection, Calcutta Double, Sringer, Pearl Double, Phule Rajani, Vaibhav, Mexican Single, Hyderabad Double, Single, Suvasini, STR-505, Double, Swarna Rekha. The bulbs were sown at a spacing of 30cm x 30cm. In this investigation the result revealed that the maximum plant height (69.967cm) was recorded in (V1) Prajwal. The maximum spike length was also recorded in V1 Prajwal (108.027 cm). Number of Florets per spike was recorded to be 50.387 in Prajwal. The maximum floret diameter was recorded in V14 Single (5.257 cm). The maximum floret length was recorded in V17 Double (6.187 cm). The maximum plant spread was recorded in V14 Single (69.733cm). The maximum number of leaves was recorded in V16 STR-505 (52.733). The maximum floret diameter was recorded in V14 Single (5.257 cm). The maximum floret length was recorded in V17 Double (6.187 cm). The most suitable variety was found to be Prajwal under Allahabad Agro Climate condition.

Keywords: Varieties, tuberose, maximum, yield

Introduction

Tuberose (*Polianthes tuberosa* L.) is one of the most important tropical ornamental bulbous flowering plants cultivated for production of long lasting flower spikes. It is popularly known as Rajanigandha or Nishigandha. It belongs to the family Amaryllidaceae and is native of Mexico. Tuberose is an important commercial cut as well as loose flower crop due to pleasant fragrance, longer vase-life of spikes, higher returns and wide adaptability to varied climate and soil. They are valued much by the aesthetic world for their beauty and fragrance. The flowers are attractive and elegant in appearance with sweet fragrance. It has long been cherished for the aromatic oils extracted from its fragrant white flowers. Tuberose blooms throughout the year and its clustered spikes are rich in fragrance; florets are star shaped, waxy and loosely arranged on spike that can reach up to 30 to 45 cm in length. The flower is very popular for its strong fragrance and its essential oil is important component of high- grade perfumes. 'Single' varieties are more fragrant than 'Double' type and contain 0.08 to 0.14 percent concrete which is used in high grade perfumes. There is high demand for tuberose concrete and absolute in international markets which fetch a very good price. Flowers of the Single type (singlerow of perianth) are commonly used for extraction of essential oil, loose flowers, making garland etc., while that of Double varieties (more than two rows of perianth) are used as cut flowers, garden display and interior decoration. Fragrance of flowers is very sweet, floral and honey-like and can help give emotional strength. The flower spike of tuberose remains fresh for long time and finds a distinct place in the flower markets. Due to its immense export potential, cultivation of tuberose is gaining momentum day by day in our country.

Materials and Method

A field experiment was conducted during summer season of 2018 in Departmental Research Field of Department of Horticulture, SHUATS, Prayagraj on Tuberose (*Polianthes tuberosa.*). The experiment was conducted in Randomized Block Design (RBD) with eighteen Varieties replicated thrice.

The experimental plot was selected and kept free from weeds by hand weeding after thorough ploughing 15 days before planting of bulbs. The whole area was then divided into 54 plots each measuring 1.5m x 1.5m. One healthy bulb was planted in one pit and amount of 300 kg of FYM was applied throughout the field.

Results and Discussion

The maximum plant height (69.967cm) V1 Prajwal, plant spread V14 Single (69.733cm), number of leaves V16 STR-505 (52.733), least number of days for bud emergence V6 Sikkim Selection (134.867 days), The least number of days for basal opening V5 GKTC-4 (9.546 days), maximum spike length V1 Prajwal (108.027 cm), maximum number of

floret/spike V1 Prajwal (50.387), maximum floret diameter V14 Single (5.257 cm), maximum floret length V17 Double (6.187 cm), maximum duration of flowering V5 GKTC-4 (277.667 days), maximum vase life V7 Calcutta double (11.3 days), maximum shelf life V1 Prajwal (64.7333 hrs), maximum spike yield per plant V5 GKTC-4 (4.667), maximum spike yield per hectare V5 GKTC-4 (5,18,618), maximum bulbs per clump V8 Sringar (40.333), maximum bulb per plant V17 Double (283.867). The overall variations in the varieties may be due to the environment and varies climatic conditions of that area. Similar results have also been observed by Sateesha *et al.*, (2011)^[11] and Patil *et al.*, (2009)^[7].

Table 1: Vegetative parameters of different varieties of tuberose.

Sl. No.	Varieties	Plant height	Plant spread	No. of leaves
V1	Prajwal	69.967	55.533	47.067
V2	Kalyan single	69.233	56.933	47.667
V3	Hydrebad single	63.333	60.6	37
V4	Arka nirantra	62.467	60.3	37.6
V5	Gktc-4	60.233	67.033	32.7
V6	Sikkim selection	57.733	63.5	41.533
V7	Calcutta double	65.333	58.3	46.467
V8	Sringar	65.7	55.167	45
V9	Pearl double	59.1	61.4	36.767
V10	Phule rajani	53.7	59.2	38.4
V11	Vaibhav	51.167	55.7	29.867
V12	Mexican single	61.967	58.133	46.533
V13	Hydrebad double	66.333	66.3	46.167
V14	Single	67.533	69.733	47.933
V15	Suvasini	58.033	59.1	44.467
V16	Str-505	54.467	66.1	52.733
V17	Double	66.333	69	45.9
V18	Swarna rekha	58.7	69.333	46.4

Table 2: Flowering parameters of different varieties of tuberose.

Sl. No.	Varieties	Days to flower bud emergence (days)	Days to basal floret opening	Spike length (cm)	Number of florets per spike	Floret diameter (cm)	Floret length (cm)	Duration of flowering (days)	Vase life (days)	Shelf life (hours)
V1	Prajwal	140.397	19.097	108.027	50.387	4.95	5.24	163.197	-	64.733
V2	Kalyan single	141.99	14.535	85.08	41.61	4.787	4.363	247.117	-	52.2
V3	Hyderabad single	147.493	17.628	75.69	38.943	4.703	5.23	265.567	-	52.133
V4	Arka nirantra	142.617	17.76	89.137	49.887	4.773	4.91	194.263	-	49.4
V5	Gktc-4	139.653	9.549	75.83	32.607	4.553	5.6	277.667	-	58.5
V6	Sikkim selection	134.867	13.763	101.663	25.663	4.58	5.043	275.333	-	46.767
V7	Calcutta double	139.38	19.34	78.663	39.5	4.24	5.007	164.83	11.3	-
V8	Sringar	147.047	16.614	73.683	41.693	4.43	5.007	166.727	-	47.533
V9	Pearl double	145.953	14.13	90.583	46.917	5.217	5.573	172.043	9.5	-
V10	Phule rajani	138.62	17.987	70.443	29.83	5.043	5.53	244.177	-	50.133
V11	Vaibhav	143.847	37.954	92.887	41.833	4.937	5.357	69.16	11.2	-
V12	Mexican single	143.833	16.957	100.3	29.997	4.797	5.957	241.97	-	59
V13	Hyderabad double	155.167	17.855	78.073	43.917	4.557	5.24	107.713	9.407	-
V14	Single	155.54	15.8	91.217	45.887	5.257	5.663	163.917	-	49.867
V15	Suvasini	143.61	39.3	86.773	47.607	4.923	6.157	96.173	11.267	-
V16	Str-505	153.8	18.247	81.663	33.05	5.25	6.037	187.84	-	57.3
V17	Double	142.417	16.214	78.023	33.11	4.57	6.187	224.183	9.4	-
V18	Swarna rekha	143.433	13.624	45.917	43.917	4.507	5.423	104.113	10.91	-

Table 3: Yield Parameter of different varieties of tuberose.

Sl. No.	Varieties	Spike yield per plant	Spike yield per hectare	Number of bulbs per clump	Bulb yield per plant
V1	Prajwal	3.667	407,407.00	24	180.333
V2	Kalyan single	3.667	407,407.00	16.667	105.5
V3	Hyderabad single	3.333	370,370.00	21	111.507
V4	Arka nirantra	4.333	481,481.00	18	149.667
V5	Gktc-4	4.667	518,518.00	21	147

V6	Sikkim selection	3.333	370,370.00	23.333	102.333
V7	Calcutta double	2	222,222.00	30	116.333
V8	Sringar	2.667	296,296.00	40.333	170.3
V9	Pearl double	2.667	296,296.00	37.667	283.667
V10	Phule rajani	2.667	296,296.00	36.667	177.833
V11	Vaibhav	4	444,444.00	30.333	149
V12	Mexican single	3	333,333.00	33.667	178.867
V13	Hyderabad double	2	222,222.00	22.667	224.767
V14	Single	3	333,333.00	31.333	122.433
V15	Suvasini	3	333,333.00	31	148.333
V16	Str-505	3	333,333.00	28.333	277.7
V17	Double	3	333,333.00	29	283.867
V18	Swarna rekha	1.333	148,148.00	26.667	152.3

Conclusion

Based on the above discussion, it was found that the most suitable variety was Prajwal for loose flower and double for cut flower. Prajwal was recorded to have the maximum plant height, spike length and number of florets per spike. Variety such as GKTC-4 also had best performance in days taken for basal opening, duration of flowering and spike yield, but did average in other parameters. Double was recorded to have the maximum floret length and bulbs per plant.

References

- Ashish Singh, Anil Singh K, Anjana Sisodia, Minakshi Padhi. Performance of Tuberose Varieties for Flowering and Flower Yield Parameters under Indo-gangetic Plains of Eastern Uttar Pradesh, India. *Int. J. Curr. Microbiol. App. Sci.* 2018; 7(08):1129-1133.
- Bindiya Naik C, Kamble BS, Shantappa Tirakannanavar, Savita Parit. Evaluation of Different Genotypes of Tuberose (*Polianthes tuberosa* L.) for Growth, Flowering and Yield Characters. *International Journal of Current Microbiology and Applied Sciences.* 2018; 7(07):4135-4141.
- Biswas B, Naveen Kumar, Bhattacharya SK. All India coordinated Research Project on Floriculture. Technical Bulletin no. 21. ICAR Publications, New Delhi, 2002, 25.
- Madhumathi C, Bhargav V, Srinivasa Reddy D, Sreedhar D, Naga Lakshmi T. Evaluation of tuberose genotypes for vegetative, flowering and yield traits. *International Journal of Chemical Studies.* 2014-2018; 6(6):88-90.
- Krishnamoorthy V. Assessment of tuberose (*Polianthes tuberosa*) varieties for growth and yield characters. *Asian J Hort.* 2014; 9(2):515-517.
- Martolia K, Srivastava R. Evaluation of different tuberose (*Poliantes tuberosa* L.) varieties for flowering attributes, concrete and absolute content. *Indian Journal of Agricultural Sciences.* 2012; 82(2):177-180.
- Patil VS, Munikrishnappa PM, Tirakannanavar S. Performance of growth and yield of different genotypes of tuberose under transitional tract of north Karnataka. *Journal of Ecobiology.* 2009; 24(4):327-333.
- Pal V, Singh KP, Tyagi A, Kumar A, Singh O. Performance of tuberose (*Polianthes tubeosa* L.) cultivars grown for spikes under Western Uttar Pradesh conditions. *HortFlora Res. Spectrum.* 2017; 6(2):119-121.
- Pratap M, Manohar A. Assessment of tuberose varieties for commercial cultivation under Andhra Pradesh conditions. In: National Symposium of recent Advances in Indian floriculture, Kerela, November 12-14, 2003, 86.
- Radhakrishan KN, Srinivas M, Janakiram T. Performance of new promising genotypes of tuberose. In: National Symposium on recent advances in Indian Floriculture, KAU, Kerela, Nov. 2003, 86:12-14.
- Sateesha GR, Kumar A, Biradar MS. Performance of different tuberose (*Polianthes tuberosa*) varieties under field conditions. *Plant Archives.* 2011; 11(1):359-360.
- Singh Krishan P, Singh Mam C. Evaluation of double petalled cultivars of tuberose (*Polianthes tuberosa* Linn.) under Delhi condition. *Asian J. Hort.* 2013; 8(2):512-514.
- Singh KP. Performance of single petalled tuberose cultivars under Delhi condition. In: National symposium on Recent Trends and Future Strategies in Ornamental Horticulture, Dharwad, December. 2004; 18:1-4.
- Singh KP, Saha TN, Holajjer P. Performance of single petalled tuberose (*Polianthes tuberosa* L.) genotypes under Pune condition. *Hort Flora Res. Spectrum.* 2017; 6(1):43-46.