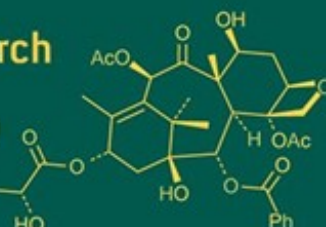
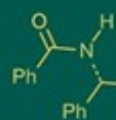
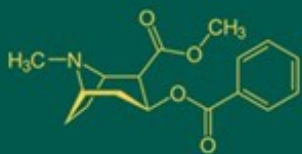


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Growth and quality of different genotypes of yellow annual chrysanthemum

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ABSTRACT

The experiment entitled "Performance of Yellow *Chrysanthemum* Genotypes for Growth, Quality and Yield" was carried out during 2025–2026 at the experimental field of the Department of Floriculture and Landscaping, College of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.). Nine yellow annual chrysanthemum genotypes, namely ACY-1, ACY-2, ACY-3, ACY-4, ACY-5, ACY-6, ACY-7, ACY-8 and ACY-9 were evaluated in a Randomized Block Design (Panse and Sukhatme 1967) and replicated thrice. Different growth, yield and post-harvest quality characteristics were recorded and the data was analysed using analysis of variance (ANOVA) to assess the significance of variation among the genotypes. Among the nine genotypes evaluated, result revealed that the genotype ACY-7 showed an overall superior performance for most of the important growth and yield characteristics. It recorded the maximum plant height of 105.10 cm, along with the highest stem diameter 19.57 mm and plant spread at 50 per cent flowering (82.80 cm). The maximum number of primary branches were recorded in genotype ACY-1 (16.90) although it remained statistically at par with ACY-7 and other better-performing genotypes. genotype ACY-7 also produced the largest flower diameter (7.83 cm), highest flower weight per plant (378.83 g), maximum number of flowers per plant (88.10), flower yield per plot (15.93 kg) and flower yield per hectare (120.01 q ha⁻¹). In terms of post-harvest performance, genotype ACY-7 recorded the longest shelf life of flowers (36.00 hours).

Keywords: *Chrysanthemum coronarium* L., Annual chrysanthemum, Genotypes, Flower yield, Shelf life

Introduction

Flowers are the symbol of beauty, peace, love and friendship. Flowers are the crowning glory of the God's creation and an inseparable part of human life. They have always had a charm unmatched. Hence, floriculture is an art and knowledge of growing to perfection. They are synonymous with prosperity, happiness, intensive enterprise of potential excellence, unique in its character and function. Flower were grown to fulfil aesthetic desire with the passage of time, which used to enliven the surroundings, have become one of the major commodities traded throughout the world.

Chrysanthemum coronarium L., also known as annual chrysanthemum belong to family Asteraceae and is an annual herbaceous plant with an aromatic flavor. It is also known as garland chrysanthemum or edible chrysanthemum (Bala 2025). It originates from the Mediterranean region. It is a robust, hardy plant that produces attractive blooms in a range of yellow and white hues in either single or double forms. The flowers can be used alone or in combination with marigolds and other flowers. It is mostly utilized as a garden plant in beds and borders. Due to its simplicity of production, farmers like annual chrysanthemums. The short life-span of annual chrysanthemum and with good keeping qualities attract growers. (Vyshnavi *et al.*, 2023) [1]. Annual *Chrysanthemum* has finely cut foliage reaching a height up to a meter. It grows very well under mild or slightly cold climates, but will go quickly into premature flowering in warm summer conditions. The plant is fast growing and used as a background to a broad flower border. Apart from this, it is used as potted plant, flowers are used for vases, flower decoration and preparation of bouquets (Beeralingappa *et al.*, 2018) [2].

Evaluating yellow annual chrysanthemum genotypes for growth, quality and yield is vital for identifying superior varieties for specific agro-climatic conditions. It directly supports the commercial floriculture industry by maximising economic returns through higher flower production, extended shelf life, and improved marketability.

Material and methodology

The field experiment entitled "Performance of yellow chrysanthemum genotypes for growth, quality and yield" was carried out in the Instructional Farm of Department of Floriculture and Landscaping, College of Horticulture, Dr. PDKV, Akola during the year 2025-2026. Nine yellow annual chrysanthemum genotypes,

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namely ACY-1, ACY-2, ACY-3, ACY-4, ACY-5, ACY-6, ACY-7, ACY-8 and ACY-9 were evaluated in a Randomized Block Design (RBD) and replicated thrice in the plot of size 3 x 4.5 m² with spacing of 50 x 45 cm. The soil of the experimental field was medium black cotton soil, well-drained and moderately fertile in nature.

Plant height was measured in five randomly selected and tagged plants by measuring from the base of the plant to the growing tip and the average value was worked out and expressed in centimeter, with the use of Vernier callipers, stem diameter was measured in millimetres. The plant spread of the tagged five plants were recorded in the directions of East-West and North-South at right angles to each other. The diameter of flower was recorded with the help of Vernier callipers by measuring at full bloom stage at the point of maximum breadth of five randomly selected flowers in each treatment and average diameter is calculated and expressed in centimetres and the shelf life was recorded by counting the number of hours until the flowers kept for study lose their visual marketable value.

Result and discussion

Growth parameters

Parameters like plant height, stem diameter, number of branches and plant spread differed significantly with different genotypes of annual chrysanthemum. The highest plant height, stem diameter and plant spread was found with genotype ACY-7 i.e. 105.10 cm, 19.57 mm and 82.80 cm, respectively and found at par with genotype ACY-1. The mean number of branches per plant was found highest for genotype ACY-1 (16.90) and was found at par with genotype ACY-7 for number of branches per plant i.e. (16.67).

The higher plant height and stem diameter might be due to its genetic potential for vigorous vegetative growth, active cell division and elongation and efficient photosynthate accumulation. The mean number of branches found highest in genotype ACY-1 might be attributed to their greater genetic potential for branching, vigorous vegetative growth and better development of axillary buds. Gaikwad *et al.* (2020) [3] and Shwetha *et al.* (2022) [4] also reported similar findings.

Table 1. Plant height, Stem diameter, Number of branches and Plant spread influenced by different genotypes of yellow annual chrysanthemum

Treatment	Plant height (cm)	Stem diameter (mm)	Primary Branches	Plant spread (cm)
ACY-1	100.37	18.77	16.90	79.37
ACY-2	97.40	18.03	16.63	78.40
ACY-3	96.97	18.40	16.60	77.97
ACY-4	92.90	16.47	15.13	73.90
ACY-5	89.97	17.63	15.03	70.97
ACY-6	89.00	15.90	14.10	67.00
ACY-7	105.10	19.57	16.67	82.80
ACY-8	85.50	15.73	14.25	63.50
ACY-9	84.27	16.37	14.38	62.27
<i>F</i> test	Sig	Sig	Sig	Sig
SE (m) ±	2.74	0.97	0.67	2.95
CD at 5%	8.21	2.91	2.00	8.86

Yield parameters

Parameters like Weight of flowers per plant, Number of flowers per plant and yield of flower per hectare were differed significantly with different genotypes of annual chrysanthemum. However the highest weight of flowers per plant, number of flowers per plant and yield of flower per hectare was found with genotype ACY-7 i.e. 378.83 g, 88.10 and 120.01 q/ha and these values were found at par with genotype ACY-1.

The higher flower yield of genotype ACY-7 may be due to the combined effect of better growth and yield contributing characters, particularly greater plant spread, more primary branches and higher number of flowers per plant. Better vegetative growth may have provided a larger photosynthetic surface and higher assimilate production, which ultimately contributed to greater flower yield. Gaikwad *et al.* (2020) [3] and Shwetha *et al.* (2022) [4] also reported similar findings.

Table 2. Weight of flowers per plant (gm), Number of flowers per plant and Flower yield per ha (q/ha) influenced by different genotypes of yellow annual chrysanthemum

Treatment	Weight of flowers per plant (g)	Number of flowers per plant	Flower yield per ha (q/ha)
ACY-1	358.30	83.37	106.73
ACY-2	345.72	80.40	105.57
ACY-3	343.86	79.97	105.01
ACY-4	325.98	75.90	99.67
ACY-5	313.76	72.94	95.82
ACY-6	309.60	72.00	93.41
ACY-7	378.83	88.10	120.01
ACY-8	294.55	68.50	89.92
ACY-9	289.25	67.27	86.24
<i>F</i> test	Sig	Sig	Sig
SE (m) ±	13.14	2.84	4.47
CD at 5%	39.38	8.5	13.41

Conclusion

Among the nine genotypes tested, ACY-7 emerged as the most promising genotype, showing superior performance for plant height, stem diameter, plant spread, flower weight per plant, number of flowers per plant, flower yield per hectare

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