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# Seed setting studies in genotypes of China aster [*Callistephus chinensis* (L.) Nees]

**RM Mangroliya, Sudha Patil, YG Desai and PM Mangroliya**

**Abstract**
The present experiment was conducted during winter 2021-22 at ASPEE College of Horticulture, Navsari Agricultural University, Gujarat, India to study seed parameters of genotypes of China aster. The experiment was laid out in Randomized Block Design with three replication and twelve genotypes *viz.*, Phule Ganesh White, Phule Ganesh Pink, Phule Ganesh Violet, Arka Aadya, Miraj Local, Arka Poornima, Chinmaya, Arka Shashank, Local Selection, Phule Ganesh Purple, Arka Archana and Arka Kamini. The study revealed that maximum number of seeds/flower head (207.73) and weight of seeds/flower head (0.37 g) were recorded in var. Arka Poornima.

**Keywords:** Arka Poornima, seed parameters and weight of seeds

## Introduction
Floriculture is the sunshine industry in Asian countries including India as it offers excellent self-employment and good remuneration for the small and marginal farmers. China aster is one of the commercially grown crops which is half hardy winter annual flower crops. The flower of China aster is a head of capitulum which comprises of outer ray florets (pistillate) and central disc florets (hermaphrodite). The opening of the ray florets is from periphery towards the center. This pattern of florets opening renders stigma receptivity for a period of several days. China aster was grouped as a self-pollinating crop by North (1979) [6] and Watts (1980) [8], though Fleming (1937) [3] reported natural crossing (approximately 10%). Single and semi double varieties are predominantly cross pollinated while, double flowered varieties are generally self-pollinated (Janakiram, 1997) [4]. In China aster, pollen is discharged first after which the stigma unfolds hence, this is gaitonogamous crop (Sheela, 2008) [7].
Different genotypes of China aster may exhibit variations in their seed setting ability. Some genotypes may have traits that promote higher seed production, such as increased flower fertility, efficient pollen transfer mechanisms, or improved ovule development. Seed setting studies in China aster are essential for improving crop production, enhancing seed quality, supporting the seed industry, conserving genetic diversity, and advancing scientific knowledge in the field of plant reproduction.
Very little work has been done regarding the seed setting in China aster and considering the importance of crops, an experiment was conducted to Seed Setting Studies in Genotypes of China Aster [*Callistephus chinensis* (L.) Nees].

## Material and Methods
The present experiment was carried out at Floriculture Research Farm, ASPEE College of Horticulture, Navsari Agricultural University, Navsari, Gujarat, during season of year 2021-22. The experiment was laid out in randomized block design (RBD) and replicated thrice. Twelve genotypes namely, Phule Ganesh White, Phule Ganesh Pink, Phule Ganesh Violet, Arka Aadya, Miraj Local, Arka Poornima, Chinmaya, Arka Shashank, Local Selection, Phule Ganesh Purple, Arka Archana and Arka Kamini were raised in individual plots to study seeds parameters.

## Results and Discussion

### Number of Seeds/Flower Head

Among genitypes taken under study, significantly maximum number of seeds/flower head (207.73) was recorded in Arka Poornima which was at par with Phule Ganesh Purple (198.27) and Phule Ganesh Violet (187.67) while, the lowest number of seeds/flower head (60.47) was obtained in Arka Shashank. Above findings are in conformity with Khangjarakpam *et al.* (2014) [5], Bhondave *et al.* (2016) [1] and Chakraborty *et al.* (2019) [2] in China aster.

**Table 1:** Mean value of seed parameters for parents

| Parents | Number of seeds/ flower head | Weight of seeds /flower head (g) |
|---|---|---|
| Phule Ganesh White | 174.07 | 0.31 |
| Phule Ganesh Pink | 177.37 | 0.32 |
| Phule Ganesh Violet | 187.67 | 0.33 |
| Arka Aadya | 142.47 | 0.25 |
| Miraj Local | 161.53 | 0.26 |
| Arka Poornima | 207.73 | 0.37 |
| Chinmaya | 166.73 | 0.29 |
| Arka Shashank | 60.47 | 0.06 |
| Local Selection | 168.40 | 0.30 |
| Phule Ganesh Purple | 198.27 | 0.34 |
| Arka Archana | 166.40 | 0.28 |
| Arka Kamini | 164.07 | 0.28 |
| SEm + | 7.99 | 0.02 |
| CD at 5% | 23.58 | 0.05 |
| CV (%) | 8.41 | 10.89 |

### Weight of Seeds/Flower Head

Significant differences were recorded for weight of seeds per flower head. The data explicate that significantly maximum weight of seeds/flower head (0.37 g) was exhibited in Arka Poornima which was at par with Phule Ganesh Purpele (0.34), Phule Ganesh Pink (0.32) and Phule Ganesh Violet (0.33 g). While, minimum weight of seeds/flower head (0.06 g) was recorded in Arka Shashank. The weight of seed is directly correlate with number of seeds produced by genotype so, ultimately this might be due to genetic constitution and prevailing environmental condition. The results are close agreement with the work of Bhondave *et al.* (2016) [1] in China aster.

## Conclusion

Maximum number of seeds/flower head and weight of seeds/flower head (0.37 g) was observed in Arka Poornima. This variety is suitable for for commercial seed production and serve as valuable genetic resources in breeding programs.

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