**Evaluation and diversity analysis of elite safflower germplasm accessions**

Among the 66 elite accessions characterized, narrow range of variability was recorded for phenological traits whereas wide variability was recorded for quantitative traits.

**Variability for phenological traits in elite accessions**

|  |  |
| --- | --- |
| **Descriptor** | **Range** |
| Days to 50% elongation | 25-34 |
| Days to first primary branch initiation | 27-41 |
| Days to first capitula formation | 58-69 |
| Days to first flowering (Main) | 71-88 |
| Days to 50% flowering | 72-92 |
| Days to physiological maturity | 115-128 |

**Variability for quantitative traits**

|  |  |  |
| --- | --- | --- |
| **Trait** | **Mean** | **Range** |
| Plant height (cm) | 78.24±1.32 | 51.6-101.8 |
| Plant spread (cm) | 28.76±0.97 | 16.37-47.77 |
| Internode length (cm) | 2.70±0.11 | 1-5.5 |
| Length of first primary branch (cm) | 47.47±1.52 | 20-79.2 |
| Angle of insertion of primary branch (°) | 34±0.54 | 16-43 |
| Number of primary branches per plant | 13±0.45 | 6-26 |
| Number of capitula per plant | 25±1.0 | 8-42 |
| Height from ground level to first primary branch (cm) | 16.54±1.77 | 0.4-60.8 |
| Diameter of main capitula at maturity (cm) | 2.15±0.49 | 1.36-4.04 |

Oil content for 66 elite accessions along with other promising accessions was estimated. It ranged from 19.32% (EC 523374-1-1) to 33.55% (EC 542437-1). Assessment of diversity based on 16 quantitative traits in 66 elite accessions clustered them into 9 divergent groups. Two high oil selections from exotic accessions formed Cluster IV while Cluster III grouped 2 accessions with bold capitula. AKS/B-5, a late flowering, low oil genotype possessing unique floral features formed Cluster V. Cluster VI was the largest cluster with 19 accessions, followed by cluster VIII with 13, cluster VII with 11 and Cluster II with 10 accessions. Five accessions with profuse branching and high number of capitula formed cluster IX while cluster I possessed only 3 accessions. These accessions which include many unique morphotypes, add to the existing variability in the safflower germplasm repository.

**Ward's minimum variance dendrogram for elite accessions**

