CHAPTER - I

INTRODUCTION

Flower is the best medium to express all the sentiments of your heart, joy happiness, sense of celebration, sorrow or whatever and how uniquely these feelings are aired. The love for flowers is as old as the human civilization. Evidence of man’s love for flowers in India can be found in Rig Veda (3000-2000 B.C.) and the Ramayana (1200-1000 B.C.), depiction of flowers in murals, paintings and coins. Flowers have been traditionally associated with beauty, grace and reverence, but with the change in the people’s lifestyle, their use and demand patterns have changed. There has been a manifold increase in the demand for flowers in the form of bouquets, floral baskets, floral ornaments and flower decorations. A bouquet of flowers makes the recipient smile. Decorating the table, in a simple way or for formal ceremonies, does radiate a sense of joy all around.

With the urban Indians becoming more westernized, floriculture has became an exceedingly lucrative now-a-days. Sending bouquets for birthdays, weddings, anniversaries and other occasions, sending flowers as seasonal or festive gifts is becoming a common practice. Today, flowers are preferred over sweets and chocolates as presents and the awareness of exotic flowers has percolated to middle class as well.

Floriculture is increasingly regarded as a viable diversification from the traditional field crops. This is due to increased per unit returns. The income received from a hectare of flower crop is much more than the income from either a cereal or pulse crops. The area under flower crops in India has 3,09,000 ha with the production of 16.5 lakh metric tons of loose flowers and near to 593.41 lakh number of cut flower stems (Anon., 2016).

The demand for traditional flowers like, jasmine, marigold, rose spider lily, crossandra, tuberose, chrysanthemum etc. are well established in India whereas, modern flowers like rose, carnations, gerbera, gladiolus, orchid, anthurium etc., the demand is increasing both in domestic as well as global market.

In India major cut flower producing states are west Bengal (44.3%), Karnataka (12.2%), Maharashtra (11.9%), Gujarat (10.6%), U.P. (7.2%), Uttarakhand (4.3%), Jharkhand (3.6%), Haryana (1.9%) and H.P. (1.2%).
Gerbera can be grown under a wide range of climatic conditions. It is mostly grown in temperate regions and is also cultivated in regions having Mediterranean or sub-tropical climate. The major producing states in India are Karnataka, Maharashtra, Tamilnadu, West Bengal, Himachal Pradesh, Jammu & Kashmir and Gujarat. In Gujarat, it is mostly grown in Central and South Gujarat regions, particularly Ahamedabad, Baroda, Surat, Tapi, Navasari and Valsad districts. There is tremendous scope for the cultivation of gerbera.

A total of 16.41 lakh hectares area of Gujarat is under the cultivation of horticultural crops with production of 1,86,000 MT loose flowers (Anon., 2016). The area under green house cultivation is 35 hectares (Sharma and Sarolia, 2009). Some farmers have shifted from their traditional cultivation of rose, lily, tuberose, marigold in open field to naturally ventilated medium cost green house and fully automatic computerized high tech polyhouse for export of flowers to European and Asian countries.

Gerbera is belongs to *compositae* family ranks fifth in the world trade among top ten flowers suitable for both export and domestic purposes. Gerbera have originated from Asia, South Africa and Tasmania. It is commonly known as Transvaal Daisy, Barberton Daisy and African Daisy.

Gerbera is a beautiful flower, remarkable for the extra ordinary geometrical regularity of its form. The large daisy like bloom certainly does give the best impression. The attractiveness of the flowers of this perennial plant lies in their graceful appearance and daisy colorings. It displays exquisite and delicate suited in different flower arrangement for shading through every variation of yellow, terracotta pink, scarlet, orange, salmon cream, amber and white (Pizzetti and Cocker, 1975). Gerbera flower is excellent for flower beds and borders in gardens, pot culture, for indoor decoration, rock garden and very well suited in different flower arrangement.

Gerbera plants are stem less and tender perennial herbs, leaves are radical, petioled, lanceolate and deeply lobed. Flower head is solitary; many flowered, with conspicuous ray florets in one or two rows. Based on flower head types or forms they are grouped in to single, double and semi double cultivars. The flower stalks are long, thin hollow and leafless, this characteristic made gerbera very popular and great demand in market for preparation of bouquets.
One should consider for which buyer’s position one intends to produce and then to plan the planting accordingly. For distribution, evaluation of each variety with regards to lasting quality, colours and resistance to biotic and abiotic stress are the prime importance. Regarding with the objective, the breeding of ornamental plants started centuries ago but, reliable data are only from the last 50-100 years. Within last 80 years, progress in producing new types and forms has accelerated largely due to the need for higher yields quality and disease resistance. The quest for developing new varieties in flower crop is never ending. On the other hand, lack of export suitable varieties is one of the most constrain encountered in the modern cut flower production. Indian breeding programme is yet to develop a variety for export purpose except few varieties in rose at IARI, New Delhi and IIHR, Bangalore and some private companies like spic & span of Bangalore, KF Bio tech at Pune etc. As a result, there is always a craze for developing or introducing the new varieties by replacing older varieties with newer ones. Thus, the proper identification of the variety can not do all time.

It is difficult to estimate the importance of plant pigment in plant biology. Carotenoids necessary for their function in photosynthesis. Other plant pigments such as flavonoids play a crucial role in the interaction between plants and animals as visual signals for pollination and seed scattering. Studies related to plant pigmentation are one of the oldest areas of work in plant science. The biochemical structure of plant pigments has been revealed, as have the biosynthetic pathways for the major pigments that provide a useful variety of colors to blossoms and other plant organ.

The main pigment groups are located at various sites in plant organs. Flavonoids appear in almost all tissues; carotinoids, for example, are present in leaves, root, seeds, fruit and flower. Some pigments such as anthocyanins or chlorophylls have a species cellular or sub-cellular location. Anthocynins are usually found in epidermal cells of flower petals, whereas carotenoids is in plastids in sub epidermal photosynthesis cells of leaves like anthocyanins, betalains are water – soluble and appear in vacuoles (Devies, 2004).

Now a days, gerbera are gaining popular because of its graceful appearance, hardiness, ability to stand the vigor of transportation admirably and its long lasting flower in markets and also having very good export potential. Gerbera also occupying a tremendous place under protected cultivation.
Very little work has been done on cut flower production of gerbera in Gujarat. Lack of gerbera cultivation in Saurashtra region may be due to non availability of suitable cultivars, lack of technical know-how on cultivation under protected cultivation and marketing of cut flowers. But presently, large numbers of tissue cultured hybrid varieties are available for commercial production and many new are being added every year. Looking for the demand for high quality cut flowers, there is a great potential for the expansion of area under this crop. However, protected cultivation of gerbera is a new concept. Production of high quality & more yield of gerbera mainly depend on the selection of proper varieties. As these varieties are recently introduced and their performance is not studied systematically under protected conditions. Keeping in view that new exotic and hybrid cultivars require more care and management for high production of superior quality of flowers Poly/greenhouse is a framed structure covered with transparent high density polyethylene film (HDPE), large enough to grow crop under partial or fully controlled environmental conditions to obtain optimum growth and production. The main advantages of the polyhouse cultivation are that crop can be cultivated successfully throughout year, getting high productivity of excellent quality, crop against extreme climatic conditions and incidence of pest and disease, thus the genetic potentiality of the crop can be exploited to the maximum extent.

The performance of gerbera varieties in our region had not been yet evaluated. To find out the high productive variety with good vase life is necessary to guide the gerbera growers. Due to scanty information available on gerbera and keeping in view the above facts the present investigation entitled “Varietal assessment and variability study of gerbera (Gerbera jamesonii Bolus) in controlled condition under” undertaken with following objectives;

1. To assess the growth, yield and flower quality of gerbera varieties in controlled condition.
2. To study the post harvest life/longevity of different varieties of gerbera.
3. To assess the pigment profiling in gerbera.