

New cultivars of Chrysanthemum Evolved by CSIR-NBRI: 2000 to 2010

Many new cultivars induced by mutagenesis have been released by National Botanical Research Institute, Lucknow. Following are the new cultivars with brief description, evolved as a bud sports (1), Gamma ray induced mutants(2), hybridization/Seedling selection(10) by Floriculture Division of N.B.R.I., Lucknow during 2000 to 2009.

Bud Sport

Vijay Kiran: 'Vijay Kiran' evolved as a bud sport of *Chrysanthemum* cultivar 'Vijay'. It is a small flowered, double Korean type and dwarf cultivar of chrysanthemum. The



Vijay

cultivar blooms earliest (In mid October) among 225 germplasm collection of floriculture Section of NBRI, Lucknow. The original flower colour of Vijay is Yellow Orange group 20A (Fan-1). The flower colour of 'Vijay Kiran' is bright pure yellow (Yellow Group 9A Fan-1).



Vijay Kiran

Induced Mutant

Lalima Head Shape Mutant: It is a gamma ray induced mutant of *Chrysanthemum* cultivar Lalima. The original colour of Lalima is Red Group 46A, Fan-1 while the colour of Lalima head shape mutant is Yellow-Orange Group 22B, Fan-1. In addition to colour change the mutant has pompon types of flower head. The mutant looks very attractive due to its changed flower colour and shape. It is ideal for bedding and excellent for pot culture.

Lalima Tubular Mutant: It is a gamma ray induced mutant of *Chrysanthemum* cultivar Lalima. The original colour of Lalima is Red Group 46A, Fan-1 while the colour of Lalima Tubular mutant is lighter. All the ray floret of the flower head changed into tubular ray floret which gives new look to the flower head. In addition to colour change the mutant has tubular flower head. The mutant looks very attractive due to its changed tubular flower head shape. It is ideal for bedding and excellent for pot culture.

Hybridization

Sadbhavna: Sadbhavna is a small flowered, red, yellow open disc, double Korean type mini *Chrysanthemum* developed at floriculture section, NBRI, Lucknow through open pollinated seedling selection. It requires neither pinching nor staking. It is a unique genetic strain with dwarf, bushy, compact round shaped, profuse blooming habit in early December. The plant habit and shape is most attractive for mini culture.

Shanti: 'Shanti' is a small flowered, white decorative type *Chrysanthemum* developed at floriculture section, NBRI, Lucknow through open pollinated seedling selection. It is a profuse branching, long erect stem, uniform bloom opening, easy to root cuttings. It is a good cut flower variety and ideal for garland making.



Chrysanthemum cultivars (Clockwise from top left): Sadbhavna, Shanti, Kargil '99, Y2K

Kargil 99: 'Kargil 99' is a small flowered, spoon shaped single whorl ray florets with yellow disc, purplish mauve florets, developed at floriculture section, NBRI, Lucknow through open pollinated seedling selection. The most interesting feature of this cultivar is its variegated foliage, beauty of which can be enjoyed through out the year even when there is no flower in plants. The variety has been named Kargil'99 due to its snow white variegation of leaves. It is a unique genetic strain with dwarf, bushy, compact round shaped, profuse blooming habit in late December. The plant habit and shape is most attractive for mini culture.

Y2K: 'Y2K' is a small flowered, white Anemone type *Chrysanthemum* developed at floriculture section, NBRI, Lucknow through open pollinated seedling selection. It requires neither pinching nor staking. It is a unique genetic strain with dwarf, bushy, compact round shaped, profuse blooming habit in early December. The plant habit and shape is most attractive for 'Mini culture'.

NBRI Indiana: It is a small flowered, yellow (bright yellow 12A, Fan-1.), Pompon type suitable for mini and pot culture. It has profuse branching, long; erect stem. Plant has lush green leaves. Blooms are uniform. It blooms in late November. It is easy to multiply by suckers and cuttings.

NBRI Kusum: It is a small flowered, yellow (bright yellow 09/A, Fan-1.) open disc, single Korean type *Chrysanthemum* cultivar good for pot culture. It is a bushy compact with profuse blooming habit. It blooms in late November. The plant habit and shape is most attractive for exhibition.

NBRI Little Darling: It is small flowered, terracotta (Yellow-Orange 22/B, Fan-1.) Pompon type mini *Chrysanthemum*. It requires neither pinching nor staking. It is a unique genetic strain with dwarf, bushy, compact round shaped, profuse blooming habit in early December. The plant habit and shape is most attractive for mini culture.

NBRI Mini Jessie: It is a small flowered, red (Red-purple 72/C, Fan-2.) Cineraria type mini *Chrysanthemum*. It requires neither pinching nor staking. It is a unique genetic strain with dwarf, bushy, compact round shaped, profuse blooming habit in early December. The plant habit and shape is most attractive for mini culture.



Mini Queen

Mini Queen: This is a seedling selection of from 'NBRI Little Darling'. The original colour of 'Little Darling' is terracotta with distinct Yellow ray florets and terracotta disc florets. The flower colour of 'Mini Queen' is dark terracotta and flower type is pompon. The variety is under mini *Chrysanthemum* group. The plant habit is medium, bushy, compact, round shaped, profuse blooming habit.

Rangoli: This is a seedling selection of from 'NBRI Diana'. The original colour of 'Diana' is red and flower is anemone type. The flower colour of 'Rangoli' is dark red and the flower is double Korean Type. The variety is under small flowered *Chrysanthemum* group. The plant habit is dwarf, bushy, compact, round shaped and it has profuse blooming habit.



Rangoli

Four newly developed cultivars of *Chrysanthemum* were released in December 2008 by CSIR-National Botanical Research Institute, Lucknow.



NBRI Little Pink



NBRI Little Kusum

NBRI Little Pink: This is a seedling selection of mini *Chrysanthemum* cultivar "Little Darling". Plant height is 51cm and its spread is 41.0X50 cm (N-S & E-W). Plant possesses 106 flowers in seven branches. Flower size is 3.7cm. This cut

flower cultivar has purple flowers (Red-Purple Group 64A, Fan-2). Flower is Decorative type.

NBRI Little Kusum: This is a seedling selection of mini *Chrysanthemum* cultivar “Little Darling”. Plant height is 52.25cm and its spread is 48.0X46.5cm (N-S & E-W). Plant possesses 107 flowers in nine branches. Flower size is 3.8cm. This cut flower cultivar has Bronze flowers (Yellow-Orange Group 17B, Fan-1). Flower is Pompon type.

NBRI Little Hemant: This is a seedling selection of mini *Chrysanthemum* cultivar “Little Darling”. Plant height is 63.5cm and its spread is 46.25X44.25 cm (N-S & E-W). Plant possesses 111 flowers in eight branches. Flower size is 4cm. This cut flower cultivar has yellow flowers (Yellow Group 9A, Fan-1). Flower is Pompon type.



NBRI Little Hemant



NBRI Little Orange: This is a seedling selection of mini *Chrysanthemum* cultivar “Little Darling”. Plant height is 46cm and its spread is 55X53 cm (N-S & E-W). Plant possesses 96 flowers in six branches. Flower size is 3.9cm. This cut flower cultivar has Yellow flowers (Yellow-Orange Group 17 A, Fan-1). Flower is Pompon tubular type.

NBRI Little Orange

NBRI – Himanshu: Himanshu the new cultivar of chrysanthemum is evolved by seedling selection from small flowered cultivars and released in the December 2009. Plant attains height of 54 cm. with good spread of 45 cm (N-S) and 46 cm (E-W). Plant has well developed branch system. It blooms in the month of December. Plant has floriferous blooming habit with more than one hundred flowers per plant. Average size of the flower across is 8.5 cm and the central disc is 4 cm. The main attraction of this cultivar lies in white flower head where ray florets and disc floret are arranged in a very systematic pattern. The flower is Anemone type with central star shape disc floret which is arranged in pin cushion fashion. Ray florets are emerging outside and have pure white colour (White Group 155 D, Fan-4). Disc floret colour is creamish white (Yellow Group 5B, Fan-1) which gives additional beauty to the flower. NBRI - Himanshu is ideal for pot culture, bedding and monochromatic landscaping.



NBRI - Himanshu

New Cultivar of Chrysanthemum evolved in 2010

NBRI Kaul: The new cultivar of chrysanthemum is evolved by hybridization and named NBRI Kaul to honour Late Prof.K.N.Kaul. The hybrid has been raised after crossing chrysanthemum cultivar **Lal Pari** (♀) by **Vijay** (♂). The plant has been raised by seed obtained from the parent. Selection was made in the year 2008 and plants were propagated vegetatively by cuttings and suckers in 2009. DUS testing



NBRI Kaul

was conducted in 2009-10. Plant attains height of 56 cm. with good spread of 35 cm (N-S) and 37 cm (E-W). Plant has well developed branch system. It blooms in the last week of November. Plant has floriferous blooming habit with eighty eight flowers per plant. Average size of the flower across is 5.0 cm and the central disc is 1.50 cm. The beauty of this cultivar can be enjoyed at full bloom stage. The main attraction of this cultivar lies in Purple colored flower head where ray florets and disc floret are arranged in a very systematic pattern. The flower is Single Korean type with central disc floret which are arranged in pin cushion fashion. Ray florets are emerging out side and have purple (Red-Purple Group 58A, Fan-2). Disc floret colour is yellow (Yellow Group 13A, Fan-1) which gives additional beauty to the flower.

Uniqueness: 1. Cultivar has rare flower colour combination of ray and disc floret.
2. Early blooming cultivar, flowering starts in middle of October.

Uses: New cultivar is ideal for pot culture and bedding. Loose flowers can be successfully used in making garland and veni's due to its unique colour and flower shape.

NBRI Khoshoo: The new cultivar of chrysanthemum is evolved by hybridization and named NBRI Khoshoo to honour Late Dr.T.N.Khoshoo. The hybrid has been raised after crossing chrysanthemum cultivar **Lal Pari** (♀) by **Vijay** (♂). The new cultivar is a seedling selection. The plant has been raised by seed obtained from the parent. Selection was made in the year 2008 and plants were propagated vegetatively by cuttings and suckers in 2009. DUS testing was conducted in 2009-10. Plant attains height of 56 cm. with good spread of 56 cm (N-S) and 44 cm (E-W). Plant has well developed branch system. It blooms in the last week of November. Plant has floriferous blooming habit with sixty three flowers per plant. Average size of the



NBRI Khoshoo

flower across is 4.6 cm and the central disc is 1.40 cm. The beauty of this cultivar can be enjoyed at full bloom stage. The main attraction of this cultivar lies in Grayed-red colored flower head where ray florets and disc floret are arranged in a very systematic pattern. The flower is Single Korean types with central disc floret are arranged in pin cushion fashion. Four to six tiers of ray florets are emerging outside and have grayed-red (Grayed-Red Group 180A, Fan-4). Disc floret colour is yellow (Yellow Group 9A, Fan-1) which gives additional beauty to the flower.

Uniqueness: Cultivar is early blooming (Last week of October)

Uses: New cultivar is ideal for pot culture and can be used as a cut flower.

New cultivar of Chrysanthemum: 'NBRI – Pushpangadan'

'NBRI-Pushpangadan' is a Yellow flowered with changed head shape mutant of Chrysanthemum cultivar 'A-22' evolved as a bud sport. The cultivar name 'NBRI-Pushpangadan' is selected to honor the former Director of CSIR-NBRI, Padmashri (Dr.) P. Pushpangadan. Plant attains height up to 49 cm and produces more than 210 yellow anemone flower heads. Plant spread is 46.5cm (N-S) and 42cm (E-W). Flower head size (across) is 4.30 cm. Disc floret in the central region is pin cushion type and yellow in colour (Yellow Group 6A Fan-1). Ray florets are tubular and their number in a flower head is 21 and their colour is Yellow (Yellow Group 6D Fan-1).

Parent 'A-22' is a small flower Chrysanthemum cultivar, produces anemone type of flowers in the month of November and December. Plant attains height up to 50 cm with a spread of 47cm (N-S) and 42cm (E-W). Plant produces more than 200 flower heads. Flower head size (across) is 4.32 cm. The ray florets are flat and their number is 27 on a flower head. Colour of ray floret is White (White group 155D, Fan-4) with central creamish disc (Yellow Group 4D, Fan-1). Morphological analysis of vegetative and floral characters of 'A-22' and its bud sports 'NBRI-Pushpangadan' revealed that all the characters of control and bud sports are almost same except the flower head colour and the shape.

This bud sport is released by Dr.C.S.Nautiyal, Director, CSIR-National Botanical Research Institute, Lucknow on 10th December, 2011 at 'Chrysanthemum and Coleus Show 2011' in the name of "NBRI -Pushpangadan".

Uniqueness: NBRI-Pushpangadan has unique flower shape viz. Anemone shape flower head with prominent tubular shape ray florets emerging out from the center.

Use: Cultivar is ideal for pot plant and bedding.

