

## Lecture 8. Origin, area, production, economic importance and description of varieties and hybrids of Brinjal

- Area and production.
- Economic importance and uses.
- Description of popular varieties and hybrids.
- Long varieties.
- Round varieties.

### BRINJAL

**Botanical name** : *Solanum melongena*  
**Family** : Solanaceae  
**Chromosome No.** :  $2n = 24$   
**Origin** : India  
**Common name** : Eggplant, Aubergine

### Area and production

In India it is well distributed in Orissa, Bihar, Karnataka, West Bengal, Andhra Pradesh, and Maharashtra and UP. Brinjal covers 8.14% of total vegetable area and produces 9 per cent of the total production.

**Table: Area, production and productivity of brinjal in India**

Year	Area (000'ha)	Production (000'MT)	Productivity (MT/ha)
2001-02	502.4	8347.7	16.6
2002-03	507.3	8001.2	15.8
2003-04	516.4	8477.3	16.4
2004-05	526.5	8600.8	16.3
2005-06	553.3	9136.3	16.5
2006-07	568	9453	16.64
2007-08	561	9678	17.25
2008-09	600	10378	17.30
2009-10	612	10563	17.26

**Source: APEDA, Ministry of commerce and Industry**

### **Economic importance and uses**

It is an annual crop cultivated all over India.. The fruits are available practically throughout the year. Brinjal fruits are a good source of calcium, phosphorus, iron and vitamins particularly 'B' group. Analysis of 100 g of edible fruit contains 91.5g of water, 6.4 g of Carbohydrates, 1.3g of Protein, 0.3g of fat and 0.5g of mineral matters. Its green leaves are the main source of vitamin C (38-104.7mg/100g).

Dark purple brinjal has more vitamin C than those with white skin. Bitterness in brinjal is due to presence of glycoalkaloids. Generally, high amount of glycoalkaloids (20mg/100g) produces a bitter taste and off flavour.

Brinjal is reported to stimulate the intrapeptic metabolism of blood cholesterol. Leaf and fruit, fresh or dry produce had marked drop in blood cholesterol level. The de-cholesterolising action is attributed to the presence of poly unsaturated fatty acids (linoleic and linolenic) which are present in flesh and seeds of fruit in higher amount (65.1%). The presence of Mg and K salts also helps in de-cholesterolising action. Dry fruit is reported to contain goitrogenic principles. Aqueous extracts of fruit inhibit choline esterase activity of human plasma.

Brinjal has got much potential as raw material in pickle making and dehydration industries. It is supposed to contain certain medicinal properties and white brinjal is said to be good for diabetic patients. The fruits are employed as a cure for toothache. It is also an excellent remedy for those who suffering from liver complaints. It is very popular in southern Europe, France and Italy and USA.

### **Description of popular varieties and hybrids**

In brinjal a large variation in plant types, fruit colour, shape and size are available. Two main types namely round and long are cultivated throughout India. The following are important cultivars grown in India.

#### **I. Long varieties**

**Pusa Purple Long:**

It is a selection from a local variety 'Batia' grown in Punjab, Delhi and western UP. It is early maturing cultivar becoming ready for picking in 100 to 110 days. Fruits are glossy, light purple in colour, 25-30 cm long, smooth and tender. The average yield varies from 250-275 quintals/ha. It is moderately resistant to shoot borer and little leaf disease.

**Pusa Purple Long****Pusa Purple Cluster****Pusa Kranti****Pusa Purple Cluster:**

It is a very early maturing cultivar becoming ready for picking in 75 days after transplanting. Fruits are small, dark purple in colour and borne in clusters. On an average, each fruit weigh about 21 g with bearing of 50 fruits per plant. This cultivar is resistant to bacterial wilt and little leaf disease.

**Pusa Kranti:**

This cultivar is dwarf and spreading habit. Fruits are oblong with attractive purple colour. This cultivar is good for both spring and autumn planting under north Indian conditions. The average yield varies from 25-30 t/ha.

**Krishnanagar Green long:** It is a very popular variety in south India. Fruits are long, green and fleshy with scanty seeds. The average yield varies from 25-30 t/ha.

**Arka Sheel:** The fruits are medium long, with deep shining purple colour. The duration of this is 150 to 160 days. The yield varies from 35 to 40 t/ha.



**Arka Nidhi**

**Arka Shirish**

**Arka Kusumakar**

**Arka Kusumakar:** The finger shaped fruits are borne in clusters. Plants are dwarf in stature. Fruits are small, light green in colour and yield is 45 t/ha in 110-120 days.



**Arka Neelkanth**



**Arka Keshav**



**Arka Anand**👉



**Arka Navneeth**

**Arka Anand** :It is a high yielding F1 hybrid with resistance to Bacterial wilt. Suitable for Kharif and Rabi. Avg fruit weight is 50-55 gm. Yields 60-65 t/ha in 140-150 days.

**Arka Keshav (BWR-21)** :Derivative of the cross Dingrass Multiple Purple X Arka Sheel through pedigree method.Tall & branched plants bearing long fruits in clusters. Red purple glossy fruit skin with green calyx. Green leaves with purple leaf base and purple veins when young. Light purple green stem. Fruits tender with slow seed maturity with no bitter principles.Resistant to bacterial wilt. Duration 150 days. Yield 45 t/ha.A

**Arka Navneeth**: A F1 hybrid between IIHR 22-1 and Supreme Green angular leaves. Large oval fruits with deep purple shining skin. Calyx green, thick and fleshy. Average fruit weight 450gm.

Free from bitter principles with very good cooking qualities. Duration 150-160 days.

**Arka Neelkanth (BWR-54)** .Derivative of the cross Dingrass Multiple Purple X Arka Sheel through pedigree method. Tall & compact plants Bearing small fruits in clusters. Violet blue glossy fruit skin with green purple calyx. Dark green leaves with purple leaf base and purple veins when young. Purple green stem Fruits tender with slow seed maturity with no bitter principles. Resistant to bacterial wilt. Duration 150 days. Yield 43 t/ha.

**Arka Nidhi(BWR-12)** Derivative of the cross Dingrass Multiple Purple X Arka Sheel through pedigree method. Tall & compact plants Bearing medium long fruits in clusters, Blue

black flossy fruit skin with green purple calyx. Dark green leaves with purple leaf base and purple veins, when young. Deep purple green stem. Fruits tender with slow seed maturity with no bitter principles. Resistant to bacterial wilt. Duration 150 days. Yield 48.5 t/ha.

**Arka Shirish (IIHR 194-1)** Pure line selection from IIHR 194-1, a local collection from Karnataka Tall plants, green leaves with white flowers Fruits green, extra long. solitary bearing habit. Duration 140-150 days. Yield 39 t/ha.

**H -4:** It has been released from HAU, Hissar. The fruits are long, thick with deep shining purple in colour. The average yield is 25 t/ha.

**Punjab Barsati:** It is released from PAU, Ludhiana. Fruits are 18-20 cm long and 4-6 cm in diameter. The average yield 350-400q/ha.

**Pant Smart:** Released from GBPUAT, Pantnagar. Plants are tall and vigorous, medium long fruits borne in clusters. Purple green in colour, resistant to bacterial wilt and tolerant to shoot and fruit borer.

**Azad Kranti:** Erect plant, narrow leaf, long fruits, dark purple in colour and fruit weighs 62g. The average yield is 30t/ha.

## **II. Round varieties**

**Pant Rituraj:** Semi erect plant. Fruits are round, dark purple in colour. Resistant to bacterial wilt and yields 40t/ha.

**Pusa Purple Round:** Fruits are purple in colour and each fruit weighing about 400-500g. It is highly resistant to little leaf virus diseases. Average yield varies from 25 to 30 t/ha.

**Manjri :** It is a selection from a local material recommended by the Department of Agriculture, Maharashtra state. The fruits are medium sized, round with purple colour. Average yield 27.5-30 t/ha.

**Krishnanagar Purple Round:** The fruits are large sized, round and dark purple in colour. Average yield varies from 250-30 t/ha.

**Punjab Bahar:** The fruits are round with deep shining purple colour. The average fruit weighs 200-300g and yield varies from 35-40t /ha.

### **Hybrids:**

**Pusa Anmol:** It is a hybrid cultivar evolved from a cross between Pusa Purple Long and Hyderpur at IARI. It produces early and increased yield of about 80% over Pusa Purple Long.

**Pusa Hybrid-5:** Plants vigorous, fruits long, glossy, attractive, dark purple in colour. Fruit weighs about 100g. Average yield is about 52t/ha.

**Pusa Hybrid-6:** plants semi erect, vigorous, glossy, attractive purple colour.

**Azad hybrid:** It is cross between Azad B1 and Kalyanpur-3. Plants semi erect, branched, early fruiting and round, yields about 45 tonnes/ha. Less prone to shoot and fruit borer infestation.

**Hisar Shyamal (H-8):** Aushey X BR112. Plants erect, early, round fruits, tolerant to bacterial wilt.

**Arka Navneet:** IHR221XSupreme. Fruits round to slightly oval in shape. Big size (400 to 500g). Yields about 65-75t/ha.

**F1 hybrids:** Commercially marketed by IAHS in India are Long 13, Suphal and Round 14. Some of the F1 hybrids released by MAHYCO Seed Company are MHB-1, MHB-9 and MHB-20 (Kalpatharu).

**Vijay hybrid:** It has been released from Vegetable Research Station, Kalyanpur. The fruits are long, thick and deep purple in colour. It takes about 102 days for harvesting the edible matured fruit. The average yield is 400 q/ha.

**Pusa Kranti:** (Pusa Purple Long X Hyderpur) X WG (Wynad Gaint). It is a medium duration variety, fruits are long, dark purple in colour and bears 35t/ha.

**Pusa Bhairav:** PPL X 11a-12-2-1. Fruits are long, purple in colour and bears in clusters. Average yield is 30 tonnes/ha. Resistant to phomopsis blight and fruit rot.

### **Questionnaire**

## I. MULTIPLE CHOICE QUESTIONS

1. Bitter taste in brinjal fruit is due to -----
  - a. Anti Vitamin E factor
  - b. CN glycosides
  - c. Solasodine
  - d. Trypsin inhibitors
2. Brinjal belongs to the species
  - a. Khasianum
  - b. Sisymbriifolium
  - c. Melongena
  - d. None of the above
3. Brinjal is a native of -----
  - a. Africa
  - b. South America
  - c. India
  - d. Korea
4. Brinjal variety MDV 1 was evolved by -----
  - a. X-rays
  - b. Gamma rays
  - c. EMS
  - d. MMS
5. Flower in brinjal may be
  - a. Long styled
  - b. Medium styled
  - c. Pseudo –short-styled
  - d. All of the above
6. Flowers in Brinjal are
  - a. Hermaphrodite
  - b. Staminate
  - c. Pistillate
  - d. Solitary\_\_\_\_\_and hermophrodite
7. ----- is also known as Egg plant
  - a. Tomato
  - b. Brinjal
  - c. Chilli
  - d. Okra
8. Brinjal borne ----- types of flower on the basis of length of style
  - a. 4
  - b. 5
  - c. 3
  - d. 6
9. -----colour Brinjal is good for diabetic plant
  - a. Purple
  - b. Green
  - c. White
  - d. Black
10. Basic chromosome number in Brinjal is -----
  - a. 12
  - b. 8
  - c. 10
  - d. 12



11. ----- is variety of Brinjal resistant to phomopsis blight

- a. Pusa purple long    b. Pusa bhairav    c. Pant Rituraj    d. Pant Samarat

**II. Say true or false.**

1. Three types of flowers have been described in Brinjal

Ans: False

2 Bitterness of brinjal is due the presence of Glucoalkaloides.

Ans: True.

3. Pusa purple long is a selection from local variety Batia. grown in Punjab.

Ans: True

4. Arka Neelkanth is resistant little disease.

Ans: False

5. Pant Samarat is resistant to Bacterial wilt disease and tolerant to shoot and fruit borer pest.

Ans: True