

Biodiversity Survey on Indigenous Varieties of *Solanum Melongena* L in Darrang District of Assam, India

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ABSTRACT

Solanum melongena L. is a member from the family Solanaceae along with *S. tuberosum* (potato), *S. lycopersicum* (tomato), *Capsicum* sp. (pepper) etc. *Solanum melongena* L. is commonly known as eggplant or brinjal and is a popular vegetable plant with various known nutritional and ethnomedicinal values. Even though *S. melongena* is native to India and China but are know well spread all across the globe. The Indian state of Assam, located in the North-eastern part of India is one of the biodiversity hotspots in the world and is a treasure trove of various plant varieties. The Darrang district of Assam is known for its large scale production of vegetables and hence considering the above facts, a survey was conducted to assess the available biodiversity in terms of varieties of *S. melongena* L. in the region and further the market potential of the same was also surveyed. The study shows the availability of 16 varieties of *S. melongena* L viz., Pusa purple oval, Sagalihingia, Pusa Bhairav, Arka Nidhi or BWR-12, Snowy, Kuchia, Borbengena, White oval, Green oval, Long green, Pusa purple long, Pusakranti, Khorua-3, Arka Neelkanth, Simran and Pusa purple cluster in the region. Out of these, pusa purple long variety is more fruit yielding followed by Arkanidhi, Borbengna and Arkaneelkanth variety. A wide range of differences in terms of the price of Brinjal was observed. The per kg price of White oval and Borbengena variety was found highest due to more preferences by the customers. Whereas, the price of Pusa purple oval and Arka neelkanth varieties was found low. The varieties such as Pusa purple round and Pusa purple were cultivated rarely which needs proper attention for the conservation of such varieties for future.

INTRODUCTION

Solanum melongena L (division Anthophyta, class Dicotyledoneae, order Solanales) is commonly known as eggplant and are agronomically important plant species in the form of popular vegetable almost all across the globe. These are non-tuberous, belongs to solanaceous crop which are primarily grown for its flashy oval fruit. *Solanum melongena* L is a native species of Indian and China and it is assumed that these were possibly

introduced to Europe by Arabic traders and later Europeans introduced these to North America [1]. Even though the fruit of this species is used as popular vegetable but existing ethnomedicinal knowledge shows their potential medicinal use for the treatment of diabetes, arthritis, asthma, bronchitis, in reducing blood and liver cholesterol levels etc [2-5]. The major component of anthocyanin pigment in *Solanum melongena* L is nasunin, which is well known as an antioxidant and also known to inhibit lipid peroxidation [6,7]. Additionally, pheophytin, a colored component found in the fruits of *Solanum melongena* L is reported by researchers for its activity against several chemical mutagens leading to cancer [8,9].

The Northeastern state of Assam is known for its rich biodiversity and is home of various agro-economically important plant varieties. Various types of *Solanum melongena* L are widely cultivated all across the state for their food and market value. However, extensive literature survey shows no documents sufficiently discussing the systematic survey on the availability of various varieties under *Solanum melongena* L. Henceforth the current study aimed to carry out a survey on the available *Solanum melongena* L varieties existed in the Darrang district of Assam considering the fact that it produces a considerable amount (9004 tones) of *Solanum melongena* L fruits during the year 2012-13 [10]. The district covers an area of 18, 50,058 km² with a total population of 9, 08,090 as per the census carried out in the year 2011 indicating a huge number of potential consumers (<http://darrang.gov.in>). The current study carried out to assess the diversity of *Solanum melongena* L found in different areas of Darrang district of Assam and also to classify them based on their morphological characters with productivity and market potential.

MATERIALS AND METHODS

The study area

The present study was carried out in the Darrang district (latitudes: 26 ° 9' N to 26 ° 95' N and longitude: 91 ° 45' E to 92 ° 22' E) of Assam during the Rabi season of the year 2019-20. This district is topographically a plain except the regions connected with Bhutan and Arunachal Pradesh on north with a few upraised sectors (Figure 1) (Table 1).

Table 1: Specimen collection sites

Sl no.	Variety	Local name	Fruit colour	Fruit shape	Sample collection site	Longitude	Latitude
1	Pusa purple oval	Gol Bengena	Purple	Oval	Dalgaon	92 ° 12'2.052"E	26 ° 33'12.402"N
2	Sagalihingia	Sagalihingia	Purple	Long	Dalgaon	92 ° 12'2.052"E	26 ° 33'12.402"N
3	Pusa Bhairav	Powal Bengena	Purple	Oval to round	Burigaon	92 ° 10'40.6344" E	26 ° 32'34.5336"N
4	Arka Nidhi or BWR-12	Arka Nidhi or BWR-12	Purple	Long	Arimari	26 ° 29'59.8488" N	92 ° 11'45.7548"E
5	Snowy	Boga Jhonti Bengena	White	Thin and finger like	Khakjani	26 ° 31'45.0516" N	92 ° 10'43.4928"E
6	Kuchia	Kuchia Bengena	Purple	Long	Fakirpara	26 ° 31'31.5"N	92 ° 06'25.6"E
7	Borbengena	Bor bengena	Blackish purple	Oval	BadliBairaliSapori	26 ° 29'6.612" N	92 ° 12'44.0748"E

8	White oval	Koni Bengena	White	Oval	Kharupetia	26° 31' 30.1237" N	92° 9' 26.0 739"E
9	Green oval	Boga Bengena	Green	Oval	Shyampur	26° 30' 00.0"N	92° 13' 08.0"E
10	Long green	Boga Nol Bengena	Green	Long	Shyampur	26° 30' 0.2628"N	92° 13' 5.2 392"E
11	Pusa purple long	Bhola Bengena	Light purple	Long	Bahabari	26° 33' 16.3"N	92° 09' 37.3"E
12	Pusakranti	Bhola Bengena	Dark purple	Oval	Bahabari	26° 32' 45.3"N	92° 09' 46.8"E
13	Khorua 3	Kola Bengena	Dark purple	Long	Fakirpara	26° 31' 33.2"N	92° 08' 46.4"E
14	ArkaNeelkanti	Nol Bengena	Purple	Long	Fakirpara	26° 31' 36.5"N	92° 08' 28.8"E
15	Simran	Simran	White Light Purple Green Variegated	Oval	Dalgaon	26° 33' 19.6"N	92° 12' 04.9"E
16	Pusa Purple cluster	Jhonti Bengena	Purple	Long	Kharupetia	26° 31' 33.7"N	92° 09' 20.6"E

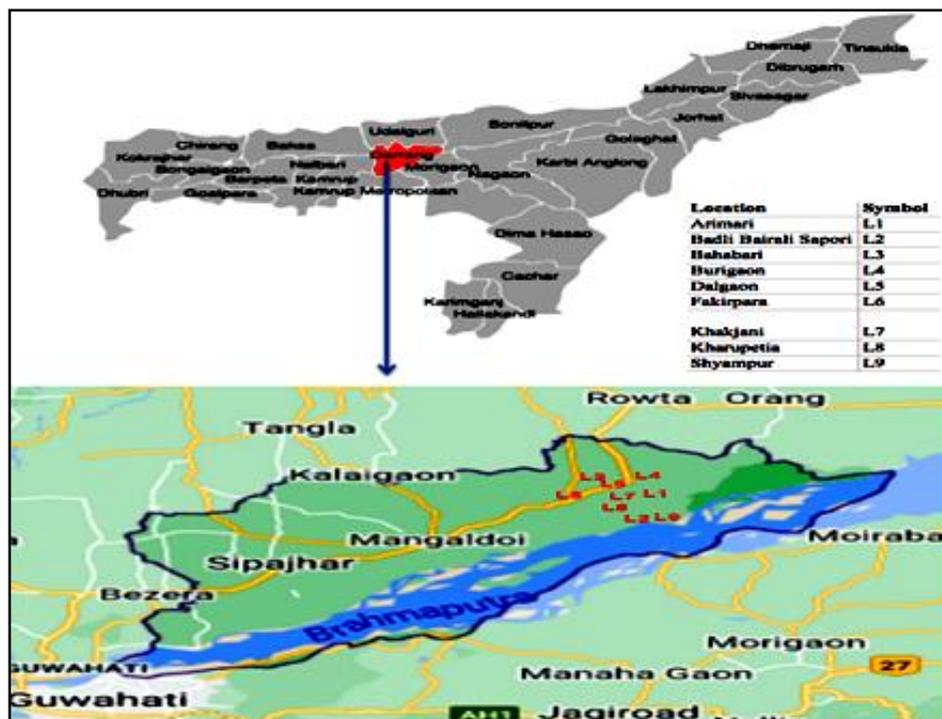


Figure 1: Map showing the location of sample collection sites.

Specimen collection

The plant specimen with stem, flower, leaf and fruit were collected from the pre-designated areas and high resolution pictures were taken for each part of the plant as well as the whole plant. The following tools were used viz., knife, blade, pencil, notebook, polythene bags, tags, newspaper, photographic tool, measuring rope, weight machine, walkingstick, scissor, a pair of forceps, hand or pocket lens etc. for the specimen collection (Figure 2). At least 2-3 specimens were collected for each species to avoid damage during transportation and preservation. The collected specimens were wrapped in newspaper and transported in a polythene bag to prevent wilting. The collected specimens were tagged with a field number. Data related to the dimension of the fruit, weight, colour, place of collection, etc. were tabulated (Table 1).



Figure 2: Materials used for plant collection and preservation

Pressing of the specimen

After collection plant material should be laid carefully between sheets of newspaper and tightly pressed with plant press. Newspaper should be changed on everyday basis for first 2 to 4 days and several times more at longer intervals for proper drying of plants. Then the dried specimens expose to sun or air and stored in newspaper until mounting. Large specimens were pressed in “V” or “N” manner.

Poisoning

Dry specimen should be treated in a saturated solution of mercuric chloride in ethyl alcohol before mounting to prevent fungal infection, insect infestation etc.

Labeling

After fixing specimens on herbarium sheet the following information viz., serial number, botanical name, family, genus, species, local name, date and place of collection was entered at right side of the lower corner of herbarium sheet.

Identification

The plant specimens were identified in consultation with taxonomists of Department of Botany, Assam down town University, Guwahati.

Market potential analysis

The market potential was analyzed by conducting a survey on the per kg rate of the fruits among the local market places (n=50) throughout Darrang district. Moreover, the annual productivity (q/ha) was also surveyed among the local cultivars (n=50) and the results are expressed in mean ± SD.

RESULTS AND DISCUSSION

Brinjal is a popular vegetable in India after potato. Due to different levels of productivity, soil type, availability of adequate facility, fruit infestation, physiographic differences, diverse food habits and techniques of preparation various types of brinjal varieties are found in Assam. Darrang district of Assam has two regulated markets Kharupetia and Besimari which are the most vegetable growing and trading places in the state [11].

The diversity of indigenous varieties of Solanum sp. in Darrang district of Assam was carried out along with its market potential and productivity analysis. The fruits of Solanum sp. are used as vegetable and recommended for liver complaints and enlarged spleen as per ethnomedicinal practices [12]. The leaves of this species are known to have phytochemical properties and are used in the treatment of bronchitis, cholera, dysuria, asthma etc [13]. The leaves and fruits are also known to have the potential for reducing blood cholesterol level. Root of this species is credited in indigenous medicine as anti-asthmatic and general stimulant and dried seeds are used against dyspepsia and constipation [14-16].

The current survey reports the availability of 16 varieties of Solanum sp. L in various regions of Darrang district. The available indigenous varieties are Pusa purple oval, Sagalihingia, Pusa Bhairav, Arka Nidhi or BWR-12, Snowy, Kuchia, Bor bengena, White oval, Green oval, Long green, Pusa purple long, Pusa kranti, Khorua-3, Arka Neelkanth, Simran and Pusa purple cluster. The basic characteristics of the fruit in terms of fruit colour, shape and the collection area are shown in Table 1. The photographs of all the plants with their habitat, leaf, flower and fruit part is shown in Figure 3. Flower and leaf descriptions of all the collected varieties are shown in Table 2 which is considered as one of the major parameters for the identification of plant varieties.

Table 2: Leaf and flower description of all the collected varieties

Sl No	Variety	Floral description	Leaf description
1	Pusa purple oval	Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Average length of the leaf is 17-23 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole.
2	Sagalihingia	Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-23 cm and breadth is 10-15 cm with hairy

		There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole. Petiole is green.
3	PusaBhairav	Petiole is green. Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-23 cm and breadth is 10-14 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour with purple veins and coarsely lobed, radiating from petiole. Petiole is green.
4	ArkaNidhi or BWR-12	Inflorescence is a cluster of 2-3 flowers. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and green purple in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-20 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour with purple leaf base and purple veins, radiating from petiole. Petiole is green.
5	Snowy	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-20 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole. Petiole is green.

6	Kuchia	<p>Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.</p>	<p>Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 17-22 cm and breadth is 10-15 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour with purple veins and coarsely lobed, radiating from petiole. Petiole is green.</p>
7	Borbenge na	<p>Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.</p>	<p>Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-23 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are dark green with purple base and purple veins. Leaves are coarsely lobed, radiating from petiole and petiole is green.</p>
8	White oval	<p>Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.</p>	<p>Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-18 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole. Petiole is green.</p>
9	Green oval	<p>Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corolla which are purple in colour and short and have yellow stamens. There are 5 stamens</p>	<p>Average length of the leaf is 12-15 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating</p>

		which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	from petiole. Petiole is green.
10	Long green	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corolla which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 17-23 cm and breadth is 10-14 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole. Petiole is green.
11	Pusa purple long	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-20 cm and breadth is 10-14 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour and coarsely lobed, radiating from petiole. Petiole is green.
12	Pusakranti	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-20 cm and breadth is 10-14 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour with purple veins and coarsely lobed, radiating from petiole. Petiole is green.
13	Khorua 3	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 15-15 cm and breadth

		Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are dark green in colour with purple base and coarsely lobed, radiating from petiole. Petiole is green.
14	ArkaNeel kanth	Inflorescence is a cluster of 2-3 flowers. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Average length of the leaf is 15-20 cm and breadth is 10-12 cm with hairy margins and covered with stellate hairs. Leaves are green in colour and coarsely lobed, radiating from petiole. Petiole is green.
15	Simran	Inflorescence is solitary with single flower. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and light green in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 14-16 cm and breadth is 9-11 cm with hairy margins and covered with stellate hairs. Leaves are light green in colour and coarsely lobed, radiating from petiole. Petiole is green.
16	Pusa Purple cluster	Inflorescence is a cluster of 4-8 flowers. Flowers are hermaphrodite, actinomorphic and hypogynous and supported by a 1-3 cm long pedicel. Flowers are violet in colour. Calyx is 5 in number and green purple in colour and persistent and form a cup like structure at the base. Flower has 5 lobed corollas which are purple in colour and short and have yellow stamens. There are 5 stamens which are erect, free and inserted at the throat of corolla. Anthers are cone shaped, free and its dehiscence is longitudinal. Stigma is capitate and surrounded by the stamens. Ovary is bilocular with many ovules.	Leaves are arranged alternately along the stem, each with a petiole. Average length of the leaf is 16-20 cm and breadth is 10-12 cm. Leaves are dark green in colour with purple veins, radiating from petiole. Petiole is green.

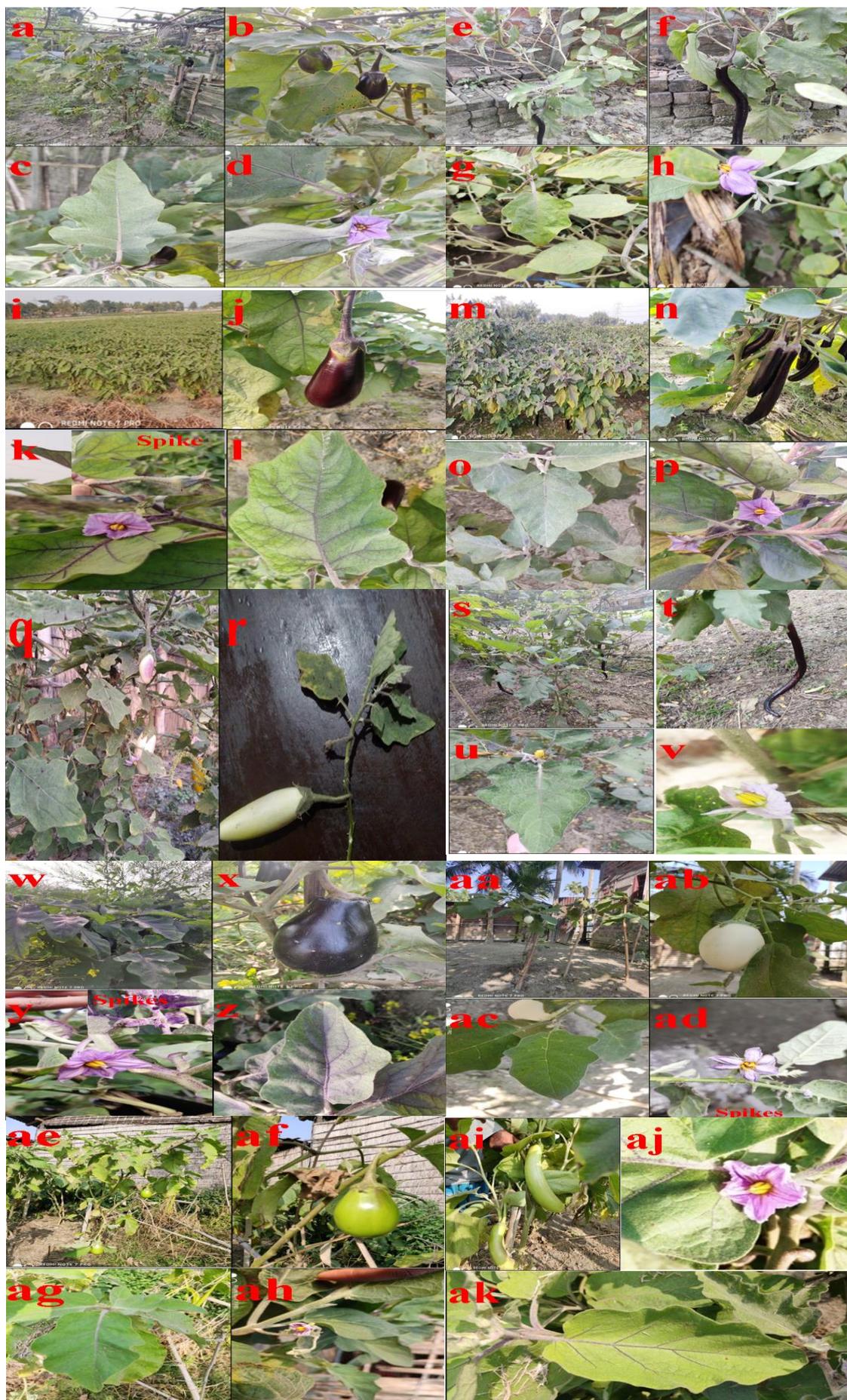




Figure 3: Showing the habitat, fruit, leaf and flower of (a-d) Pusa purple oval variety, (e-h) Sagali hingia variety, (i-l) Pusa Bhairav variety, (m-p) Arka Nidhi variety, (q-r) Snowy variety, (s-v) Kuchia variety, (w-z) Bor bengena variety, (aa-ad) White oval variety, (ae-ah) Green oval variety, (ai-ak) Long green variety, (al-ao) Pusa purple long variety, (ap-as) Pusa Kranti variety, (at-aw) Khorua-3 variety, (ax-az1) Arka Neelkanth variety, (az2) Simran variety, and (az3-az5) Jhonti Bengena.

The result of this investigation revealed a wide range of variation among brinjal varieties in shape and colour and also clear difference in yield, market price attributes (Table 1) (Figure 4). The diversity may be because of various productivity, physiographic differences, diverse food habit, soil type etc. Among all the 16 varieties found in this present investigation most of them are long (n=10) in shape and purple (n=5) in colour (Table 1). Highest yield is found in Pusa purple long (280 q/h) followed by Arka nidhi (270 q/h), Bor bengena (270 q/h) and Arka neelkanth (270 q/h) varieties because of high customer preference, minimum fruit infestation or maybe due to availability of adequate facility for the growth of the plants which have long fruit which are purple to dark purple in colour (Figure 4). From Figure 3 it is seen in that Pusa purple long variety is more fruit yielding followed by Arka nidhi, Bor bengna and Arka neelkanth variety. Maximum diversity was recorder in fruit shape of brinjal in Darrang district of Assam. The greater increase in production of Pusa purple long variety as compared to other variety was resulted into a positive impact on the yield of brinjal variety. But the yield of White oval (80 q/h), Snowy (100 q/h) and Sagalihingia (100 q/h) are low may be because of diverse food habits, less customer preferences. Moreover, the soil character, physiographic differences are also responsible for low productivity.

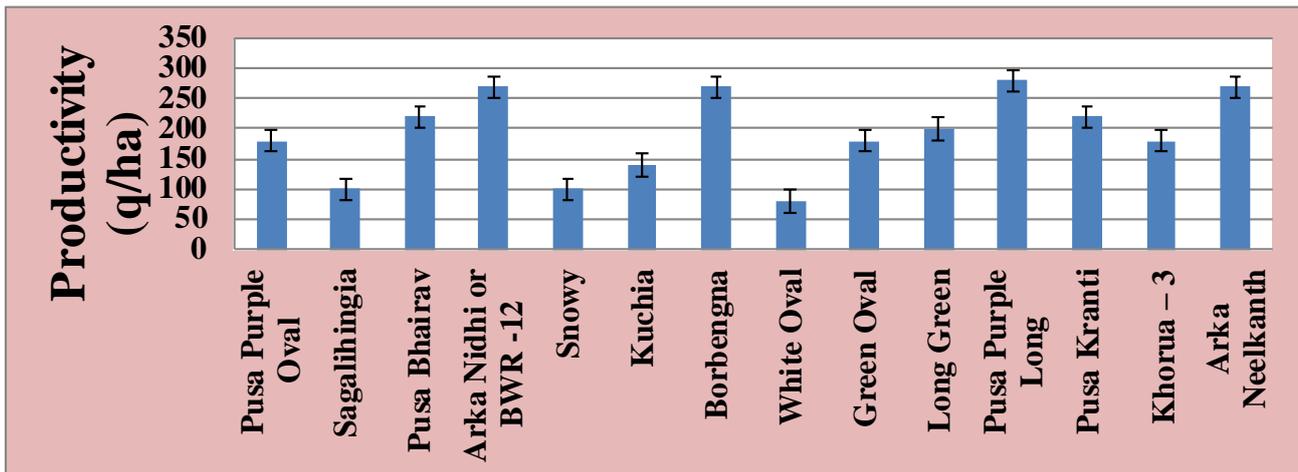


Figure 4: Graph showing productivity (q/ha) of various brinjal varieties in Darrang district as per the survey conducted during the year 2019-20.

A wide range of differences in the price of Brinjal was observed during the local market survey (Figure 5). The per kg price of White oval and Bor bengena variety was found highest which may be due to high customer preferences. But the price of Pusa purple oval and Arka neelkanth varieties was found low which may be due to less customer preferences, high productivity and lesser food habit. Except these varieties, some other varieties of Brinjal viz., Pusa purple round and Pusa purple varieties were cultivated in past but nowadays cultivation of these varieties are rare due to less yield. The Present study highlighted that yielding varieties are mostly long (10) in shape and purple (5) in colour. Present study also revealed that customer preferences and productivity are two main reasons for the yield and Market price of various Brinjal varieties in Darrang district of Assam.

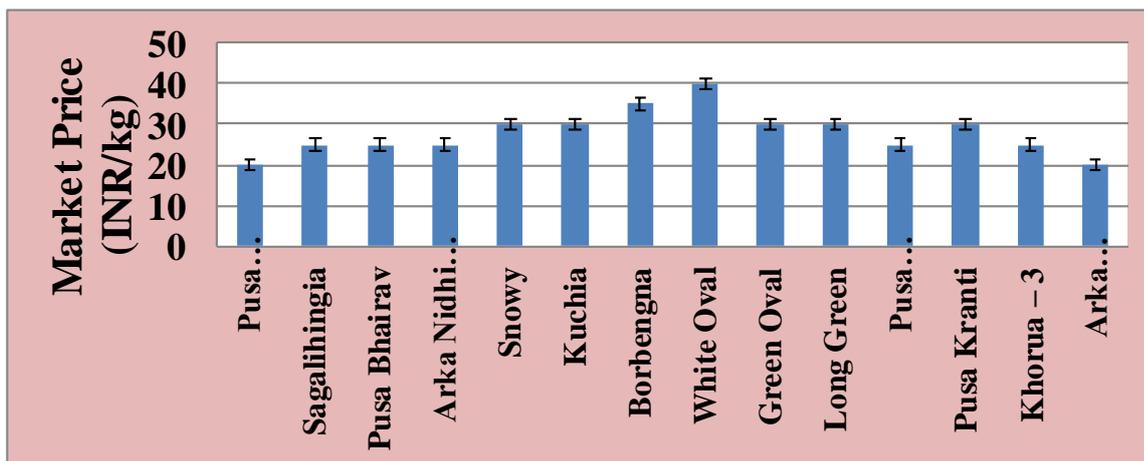


Figure 5: Graph showing local market price (INR/kg) of various brinjal varieties in Darrang district as per the survey conducted during the year 2019-20.

CONCLUSION

Based on the study conducted, it can be concluded that customer preference and productivity are the two main reasons for the yield and market price of brinjal varieties. Indigenous varieties such as Pusa purple long followed by Arka nidhi showed significantly high yield as compared to the rest of the varieties. Survey on local market price shows highest per kg cost for White oval variety followed by Bor bengena as compared to rest of the varieties. The present study also concluded that most of the varieties in Darrang district is purple to dark purple in colour and

long in shape. Other varieties such as Pusa purple round and Pusa purple cluster are rarely cultivated and are very less in this district. Preventive measure must be taken to increase the rate of production of these varieties for the survival. These rare varieties can also be grown in home garden and measures should be taken to conserve such varieties. Periodic monitoring of these varieties can protect them for long term existence.

CONFLICT OF INTEREST

None to declare

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