

Morphological and Nutritional Properties of Popular Eggplant Cultivars in Bangladesh

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Abstract

The study was conducted to investigate the morphological characteristics, nutritional composition, compare the proximal composition, mineral content and antioxidant bioactive compounds of ten popular eggplant (*Solanum melongena* L.) cultivars (six OP and four hybrids) in Bangladesh during the winter season of 2019-20. Considering the growth habit, plant vigour, earliness, fruit shape, fruit colour, fruit no/plant, fruit yield, pest and diseases infestation BARI Begun-6, BARI Begun- 8, BARI Begun-10, SM275, BARI Hybrid Begun-4 and Hybrid 21x11 were superior in comparison to other cultivars. BARI Begun-6 showed the highest amount of Carbohydrate (6.63) and Ca (48.33), while BARI Begun-8 was highest for crude fiber (2.48), ash (0.62), protein (1.54) and Mn (0.40). BARI Begun-10 obtained the highest content of energy (32.1), anthocyanin (78.51), P (23.45) and Zn (0.57). SM275

showed the highest concentration of ascorbic acid (15.21), Na (8.51) and Mg (24.80). In both studies the four OP cultivars viz., BARI Begun-6, BARI Begun-8, BARI Begun-10, SM275 and one hybrid viz., Hybrid 21x11 performed well with better horticultural characters along with significant amounts of human promoting health components, such as crude fibre and biologically essential minerals like K, Ca, Mg, P, Na and Fe. These cultivars can be cultivated and consumed for better human health.

Keywords: nutritional content, mineral content, antioxidant capacity, ascorbic acid (Vitamin C), proximate composition, eggplant, *Solanum melongena* L.

1. Introduction

Eggplant (*Solanum melongena*) usually known as brinjal in south Asia (especially Pakistan, India, and Bangladesh), aubergine in Europe, melongene in West Indies, Guinea squash in America and patlican in Turkey. It belongs to the family *Solanaceae*, and is an economically important vegetable crop in the tropics and subtropics. Eggplant's fruit is very nutritious and used for medicinal purposes due to its composition, which includes: very low in calories and contain minerals like potassium, calcium, magnesium, sodium, iron and phytochemicals that contain phenolic components (caffeine and chlorogenic acid), flavonoids, mainly nasunin (Mohamed *et al.*, 2003; Raigon *et al.*, 2008) as well as dietary fibre that is helpful for our health (USDA, 2014; Sanchez-Castillo *et al.*, 1999). Nasunin or delphinidin -3 - (coumaroyl- rutinoside) -5-glucoside is a key phytochemical in brinjal that is widely present in the peel of eggplant (Matsuzoe *et al.*, 1999). Fruits and vegetables are the main dietary sources of phenolic compounds for humans, with phenolic acids and flavonoids being the most abundant (Scalbert and Williamson, 2000; Manach *et al.*, 2004). Eggplant is ranked amongst the - top ten vegetables that provide the healthiest food with low calories and also contain high phenolic contents that are helpful in radical absorbing capacity (Cao *et al.*, 1996, Caguiat and Hautea, 2014).

A wide range of secondary metabolites along with primary metabolites are produced by plants that influence human nutrition and health as well (Korkmaz *et al.*, 2018). Primary metabolites are proteins, vitamins, lipids and carbohydrates, etc. which are mainly involved in developmental and physiological developments of plants that are also vital in our diet (Sevindik *et al.*, 2018). Secondary metabolites are those phytochemicals that often play a crucial role against different stresses, but are not important for basic processes of the plant (Sevindik *et al.*, 2017). Moreover, these phytochemicals are a vital basis for various medicines and the pharmaceutical industry. Even recent modern and traditional remedies mainly depend on these phytochemicals (Sevindik, 2019).

Fruit from eggplants are available in the market throughout the year, as they are generally grown twice or thrice in a year. The fruit of eggplants display a variety of shapes (egg to long club shaped) and colours from white, green, yellowish and different shades of purple and black (Sihachkr *et al.*, 1993). Eggplant cultivars produce fruits with a wide diversity of shapes, sizes and colours (Kashyap *et al.*, 2003; Kantharajah and Golegaonkar, 2004). Various forms, colours and shapes of eggplants are found throughout Southeast Asia, suggesting that this area is an important center of variation and possibly of origin. Vavilov (1928) suggested that its center of origin was in the Indo-Burma region. It originated in India but has a secondary center

of variation in China. In China, eggplant has been known for the last 1,500 years. It is extensively grown in Bangladesh, India, Pakistan, Nepal, China, Japan and the Philippines. We think different types of eggplants will contain the different nutritional qualities as well as the physiological characteristics. It is therefore necessary to study the individual eggplant cultivars for their nutrition status. The aim of this work was to study the morphological characteristics, nutritional composition and to compare the proximal composition, mineral content and antioxidant bioactive compounds of the popular eggplant cultivars in Bangladesh.

2. Research Methods

2.1 Experimental Site

The investigation was conducted at the Olericulture Division of Horticulture Research Centre, Bangladesh Agricultural Research Institute (BARI). The laboratory work was done at Vegetable Research Technology Section, Institute of Food Science and Technology, Bangladesh Council of Scientific and Industrial Research, Dhaka, Bangladesh, during 2019-20. The experimental field was at 23.9920° N Latitude and 90.4125° E Longitude having an elevation of 8.2 m from sea level under agro-ecological zone (AEZ) 28 (Anon., 1995). The experimental site is situated in the sub-tropical climatic zone and characterized by scanty rainfall during the experimental period. The average minimum and maximum temperature were 18.37°C and 29.37°C.

2.2 Plant Materials

Ten types of eggplant cultivars viz., BARI Begun-4, BARI Begun-6, BARI Begun- 8, BARI Begun-10, BARI Hybrid Begun-2, BARI Hybrid Begun-4, SM233, SM275, Hybrid 5x216 and Hybrid 21x11 were used in this study (Figure 1).

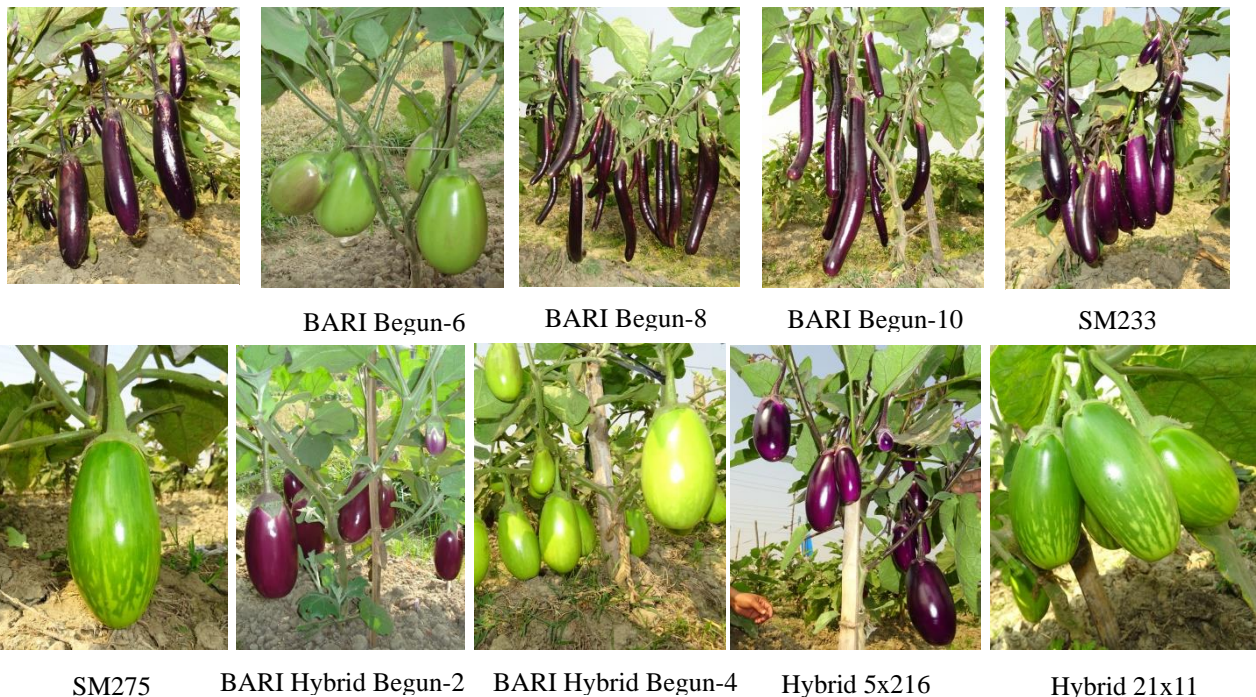


Figure 1. Morphological differences among eggplant cultivars in Bangladesh

2.3 Sample Preparation

Eggplant fruits from the representative ten types of cultivars viz., BARI Begun-4, BARI Begun-6, BARI Begun-8, BARI Begun-10, BARI Hybrid Begun-2, BARI Hybrid Begun-4, SM233, SM275, Hybrid 5x216 and Hybrid 21x11 were harvested at commercial mature stage from the experimental farm of Olericulture Division, Horticulture Research Centre, Bangladesh Agricultural Research Institute (BARI), during 2019-20 (23.9920° N Latitude and 90.4125° E Longitudes). The fruits were washed and sorted by colour and size and divided into two groups. The first group was used fresh for proximate and mineral analysis, while the second group was freeze dried and stored at -80°C, for further evaluations of ascorbic acid and anthocyanins.

2.4 Proximate Composition

Moisture, ash, protein (N x 6.25), crude fibre, fat and carbohydrates (by difference) contents were determined according to AOAC methods (AOAC, 1998).

2.5 Mineral Content

Mineral analysis was done based on AOAC methods (AOAC, 1998). Potassium (K), sodium (Na), calcium (Ca), magnesium (Mg), iron (Fe), zinc (Zn), copper (Cu) and manganese (Mn) were determined by atomic absorption spectroscopy using a Varian SpectrAA 220. Phosphorus (P) was determined colourimetrically at 650 nm in a Varian Cary E1 UV-Vis spectrophotometer.

2.6 Ascorbic Acid (Vitamin C)

Ascorbic acid extraction was done according to Ozgur and Sungur (1995) with small modifications as described by Nino-Medina et al. (2014). Ascorbic acid was quantified according to Doner and Hicks (1981) using a Varian Pro Star 330 photodiode array detector HPLC system and a Varian Bondesil NH₂⁻ column (250 x 4.6 mm). Results were expressed in milligram per 100 gram of eggplant fresh weight.

2.7 Total Anthocyanins

Total anthocyanin was determined using a spectrophotometric method adapted from Abdel-Aal and Hucl (1999). An eggplant sample of 0.5 g was homogenized with 10 mL of chilled, acidified methanol (95% methanol and 1 N HCl 85:15, v/v). Solution absorbance was measured immediately at 535 and 700 nm. Anthocyanin content was calculated as the concentration of total anthocyanin, expressed as mg of cyanidin-3-glucoside equivalents per 100 g of sample (mgC3GE 100g⁻¹).

2.8 Statistical Analysis

ANOVA was used to assess statistical differences among eggplant types with a 5% confidence's level. When significant difference was found, Tukey's multiple range tests were carried out to separate means using MSTAT-C. Data were expressed as mean values of three samples.

3. Results and Discussion

3.1 Morphological Characteristics of Popular Eggplant Cultivars

In our study, we evaluated ten eggplant cultivars of Bangladesh including six OP and four hybrid cultivars. We evaluated the collection source, horticultural characters [growth habit, plant vigour, earliness (days to 1st harvest), fruit shape, fruit colour, leaf/calyx prickles, bearing habit, fruit length (cm), fruit diameter (cm), individual fruit weight (g) and fruit no/plant], fruit yield, pest and disease infestation [bacterial wilt, little leaf, phomopsis blight, nematode, aphid, jassids and fruit and shoot borer]. Considering the growth habit, plant vigour, earliness (days to 1st harvest), fruit shape, fruit colour, fruit no/plant, fruit yield, pest and disease infestation BARI Begun-6, BARI Begun-8, BARI Begun-10, SM275, BARI Hybrid Begun-4 and Hybrid 21x11 were found to be superior in comparison with the other cultivars (Table 1).

Table 1. Morphological characteristics of popular eggplant cultivars in Bangladesh

| Test parameters | BARI Begun-4 | BARI Begun-6 | BARI Begun- 8 | BARI Begun-10 | SM233 | SM275 | BARI Hybrid Begun-2 | BARI Hybrid Begun-4 | Hybrid 5x216 | Hybrid 21x11 |
|---|---|--------------------------------------|--------------------------------------|---|-----------------------------------|--------------------------------------|-----------------------------------|------------------------------|-----------------------------------|-----------------------------------|
| Collection source | Pedigree selection | Local collection Isurdhi, Bangladesh | Local collection Gazipur, Bangladesh | Local collection Norshindhi, Bangladesh | Pedigree selection | Local collection Jashore, Bangladesh | Crossing material | Crossing material | Crossing material | Crossing material |
| Growth habit | Intermediate | Intermediate | Big | Big | Intermediate | Big | Big | Intermediate | Intermediate | Intermediate |
| Plant vigour | Moderate | High | Moderate | High | Moderate | High | High | Moderate | Moderate | Moderate |
| Earliness (Days to 1 st harvest) | Early 100-103 | Medium 105-108 | Medium 105-108 | Medium 105-108 | Early 100-103 | Medium 105-108 | Early 100-103 | Early 100-103 | Early 100-103 | Early 100-103 |
| Fruit shape | Medium long, cylindrical with round end | Oval | Long, cylindrical with round end | Long, cylindrical with flat end | Elongate with round end | Oval | Oblong with round end | Oblong with round end | Oblong with round end | Oblong with round end |
| Fruit colour | Glossy uniform black purple | Light green | Uniform purple | Shiny dark purple | Uniform black purple | Green with white stripe at bottom | Uniform light purple | Light green | Uniform purple | Green with white stripe at bottom |
| Leaf/calyx prickles | Absent | Absent (leaves), few (calyx) | Absent (leaves), very few (calyx) | Absent (leaves), few (calyx) | Absent (leaves), very few (calyx) | Absent (leaves), few (calyx) | Absent (leaves), very few (calyx) | Absent (leaves), few (calyx) | Absent (leaves), very few (calyx) | Absent (leaves), few (calyx) |
| Bearing habit | Cluster | Solitary | Cluster | Solitary | Cluster | Solitary | Solitary | Cluster | Solitary | Cluster |
| Fruit length (cm) | 17-18 | 10-12 | 26-28 | 28-30 | 17-18 | 10-12 | 14-15 | 10-12 | 12-14 | 12-13 |
| Fruit diameter (cm) | 3.7-4.2 | 8-9 | 3.7-4.2 | 4.0-4.5 | 3.7-4.2 | 8-9 | 5.0-5.5 | 5.0-5.5 | 6.0-6.5 | 5.0-5.5 |
| Individual Fruit weight (g) | 100-110 | 230-250 | 130-140 | 140-150 | 100-110 | 230-250 | 130-140 | 100-110 | 130-140 | 100-110 |
| Fruit no/plant | 45-50 | 17-20 | 25-30 | 22-25 | 50-55 | 15-18 | 22-25 | 45-50 | 33-35 | 40-45 |
| Yield/plant (kg) | 4.5-5.0 | 4.0-4.2 | 3.8-4.0 | 4.0-4.2 | 4.5-5.0 | 4.0-4.2 | 4.0-4.2 | 4.0-4.2 | 4.0-4.2 | 4.0-4.2 |
| Bacterial wilt | Susceptible | Moderately tolerance | Tolerance | Tolerance | Susceptible | Moderately tolerance | Moderately tolerance | Moderately tolerance | Susceptible | Moderately tolerance |
| Little leaf | Susceptible | Tolerance | Tolerance | Tolerance | Susceptible | Tolerance | Susceptible | Moderately | Susceptible | Moderately |

| | | | | | | | | | | |
|-------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------------|-------------|----------------------|
| | | | | | | | | tolerance | | tolerance |
| Phomopsis blight | Susceptible | Tolerance | Tolerance | Tolerance | Susceptible | Tolerance | Susceptible | Moderately tolerance | Susceptible | Moderately tolerance |
| Nematode | Susceptible | Tolerance | Tolerance | Tolerance | Susceptible | Tolerance | Susceptible | Moderately tolerance | Susceptible | Moderately tolerance |
| Aphid jassids | & Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible |
| Fruit shoot borer | and Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible | Susceptible |

3.2 Nutritional Composition of Popular Eggplant Cultivars

3.2.1 Moisture Content (g 100g¹ Fresh Weight)

All eggplant cultivars had moisture contents greater than 90%, ranging from 91.39% to 94.87% (Table 2). Higher amounts were observed in BARI Begun-4 (94.87%), Hybrid 5x216 (94.31%), moderate amounts were observed in BARI Begun- 8 (93.27%), BARI Hybrid Begun-2 (93.86%) and a lower amount was observed in BARI Begun-10 (91.39%). Flick et al. (1978), Munoz de Chavez et al. (1996) and Maroto (2002) obtained a moisture content ranging from 91.8 to 94.2%, while Nino-Medina et al. (2014) reported a range with smaller values from 90.10 to 92.70%.

3.2.2 Crude Fiber (g 100g¹ Fresh Weight)

The crude fiber content of all the cultivars ranged from 1.01% to 2.48% (Table 2). The highest amounts were observed in BARI Begun-8 (2.48%) and BARI Begun-4 (1.92%), with the lowest amount observed in BARI Begun-6 (1.01 %). Nino-Medina et al. (2014) obtained a crude fiber content ranging from 0.65% to 1.54%.

3.2.3 Ash (Total) (g 100g¹ Fresh Weight)

Generally, ash content levels are less than 1%. In this study the same trend was observed with the range of 0.37%-0.61% (Table 2). Flick et al. (1978), Munoz de Chavez et al. (1996) and Maroto (2002) obtained similar ash content to our study in different cultivars with a range of 0.3% to 0.7%. Nino-Medina et al. (2014) obtained a range with larger values from 0.36% to 1.04% than our study.

3.2.4 Protein (g 100g¹ Fresh Weight)

The protein content observed in this study ranged from 0.85% to 1.54% (Table 2). The highest values were observed in BARI Begun-8 (1.54%), BARI Hybrid Begun-4 (1.42%), followed by BARI Begun-10 (1.38%) and Hybrid 21x11 (1.38%), while the lowest value was from BARI Hybrid Begun-2 (0.85 %). Smaller values were obtained by Flick et al. (1978), Munoz de Chavez et al. (1996) and Maroto (2002) ranging from 0.11% to 1.2%, while Nino-Medina et al. (2014) obtained a range from 0.65% to 0.90%. The larger values observed in this study is very encouraging for future breeding.

3.2.5 Fat (g 100g¹ Fresh Weight)

The fat content ranged from 0.02 to 0.4% (Table 2). The highest fat content observed in the eggplant cultivars were BARI Hybrid Begun-2 (0.40%) followed by BARI Begun-4 (0.19),

Hybrid 21x11 (0.19%) and BARI Hybrid Begun-4 (0.17 %). The lowest value was observed in BARI Begun-10 (0.02%). Nino-Medina et al. (2014) analyzed the fat content in different eggplant types reporting values ranging from 0.03 to 0.04 %.

3.2.6 Carbohydrate *

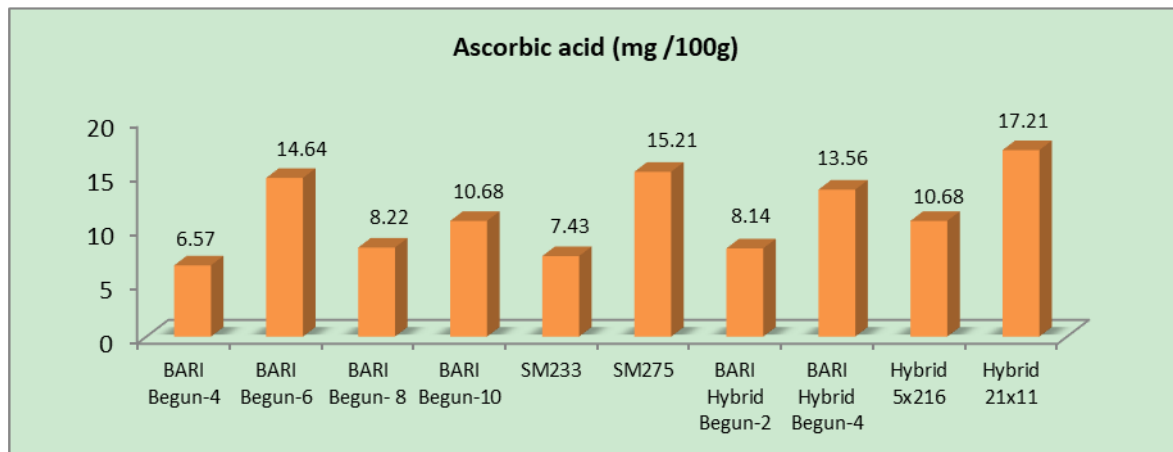
The range of carbohydrate content was from 4.27% to 6.63% (Table 2) The maximum content was observed in BARI Begun-6 (6.63%), Hybrid 5x216 (6.27%) and SM233 (6.05%). These results were similar to those obtained by Nino-Medina et al. (2014), where they obtained a carbohydrate content ranging from 5.96% to 7.92% in different eggplant types. In our study we observed several low carbohydrate contents in eggplant cultivars which were less than 5% viz., BARI Begun-8 (4.27%), BARI Hybrid Begun-4 (4.61%), BARI Begun-4 (4.73%), Hybrid 21x11 (4.91%) and BARI Begun-10 (4.94%).

Table 2. Nutritional composition of popular eggplant cultivars in Bangladesh (g 100g⁻¹ fresh weight)

| Test parameters | BARI Begun-4 | BARI Begun-6 | BARI Begun-8 | BARI Begun-10 | SM233 | SM275 | BARI Hybrid Begun-2 | BARI Hybrid Begun-4 | Hybrid 5x216 | Hybrid 21x11 |
|--|--------------|--------------|--------------|---------------|-------|-------|---------------------|---------------------|--------------|--------------|
| Moisture content (%) | 94.87 | 92.15 | 93.27 | 91.39 | 92.17 | 93.49 | 93.86 | 92.81 | 94.31 | 92.51 |
| Crude Fiber (g/100g) | 1.92 | 1.01 | 2.48 | 1.89 | 1.53 | 1.33 | 1.50 | 1.72 | 1.19 | 1.74 |
| Ash (total) (g 100g ¹ fresh weight) | 0.47 | 0.37 | 0.62 | 0.61 | 0.42 | 0.50 | 0.42 | 0.50 | 0.38 | 0.50 |
| Protein (g/100g) | 1.05 | 1.04 | 1.54 | 1.38 | 1.02 | 1.12 | 0.85 | 1.42 | 0.95 | 1.38 |
| Fat (g/100g) | 0.19 | 0.03 | 0.05 | 0.02 | 0.04 | 0.07 | 0.40 | 0.17 | 0.13 | 0.19 |
| Carbohydrate * | 4.73 | 6.63 | 4.27 | 4.94 | 6.05 | 5.72 | 5.20 | 4.61 | 6.27 | 4.91 |
| Energy Kcal/100g | 19.59 | 30.07 | 24.69 | 32.1 | 29.84 | 24.39 | 24.88 | 27.61 | 21.89 | 28.91 |
| Sugar (total) (g/100g) | 0.83 | 1.38 | 0.51 | 0.87 | 0.72 | 0.63 | 0.48 | 1.06 | 0.66 | 0.66 |

3.2.7 Ascorbic acid (Vitamin C)

The ascorbic acid content in eggplant cultivars (Figure 2) showed values ranging between 6.57 and 17.21 mg 100g⁻¹ with BARI Begun-4 and Hybrid 21x11 with the lowest and highest content respectively. All of our results are higher than the 4 mg ascorbic acid 100g⁻¹ reported in Spain (Esteban *et al.*, 1992) and Turkey (Durust *et al.*, 1997). Prohens et al. (2007) found 1.4, 1.6 and 1.8 mg ascorbic acid 100g⁻¹ for a Thai ('Thai Round'), a Chinese ('Kermit') and a European ('Black Beauty') cultivars respectively. On the other hand, Hanson et al. (2006) quantified ascorbic acid contents of 10.2, 7.3 and 5.2 mg 100g⁻¹ for Hindu, Philippine, and Chinese eggplant types respectively, while Nino-Medina et al. (2014) reported 11.2, 8.6, 8.9, 22.0 and 7.4 mg ascorbic acid 100g⁻¹ for Chinese, Philippines, American, Hindu and Thai types respectively. To put consumption in perspective, Young (1999) suggested a recommended daily intake (RDI) of vitamin C in the range from 60 to 100 mg. Eggplant consumptions of 100 g day⁻¹ as analyzed in this study, will account for 6 to 17% of the RDI.



BARI Begun-4
Figure 2. Ascorbic acid (Vitamin C) amount (mg/100g) of popular eggplant cultivars in Bangladesh

3.2.8 Anthocyanins

Among the purple eggplant types, the highest amount of anthocyanins was observed in BARI Begun-10 with 78.51 mg C3GE 100g⁻¹), followed by BARI Hybrid Begun-2 (67.81 mg C3GE 100g⁻¹), Hybrid 5x216 (63.45 mg C3GE 100g⁻¹), while the lowest result was found in BARI Begun-4 with 45.20 mg C3GE 100g⁻¹ (Figure 3). In case of green type eggplants, the anthocyanins contained were 6.31 to 12.33 mg C3GE 100g⁻¹. Kumari et al. (2018) reported that the fruits of green and white colour have low or negligible anthocyanin content, which is a supplement to our study. Anthocyanins data obtained in this study of purple fruits are similar or slightly higher than those reported by Papanga et al. (1999) and Sadilova et al. (2006) whom reported 55 and 64 mg 100g⁻¹, respectively. On the other hand, our anthocyanins data in BARI Begun-10 and Hybrid 5x216 are similar to those reported by Lo Scalzo et al. (2010) and Koponen et al. (2007) who measured 90 and 107 mg 100g⁻¹.

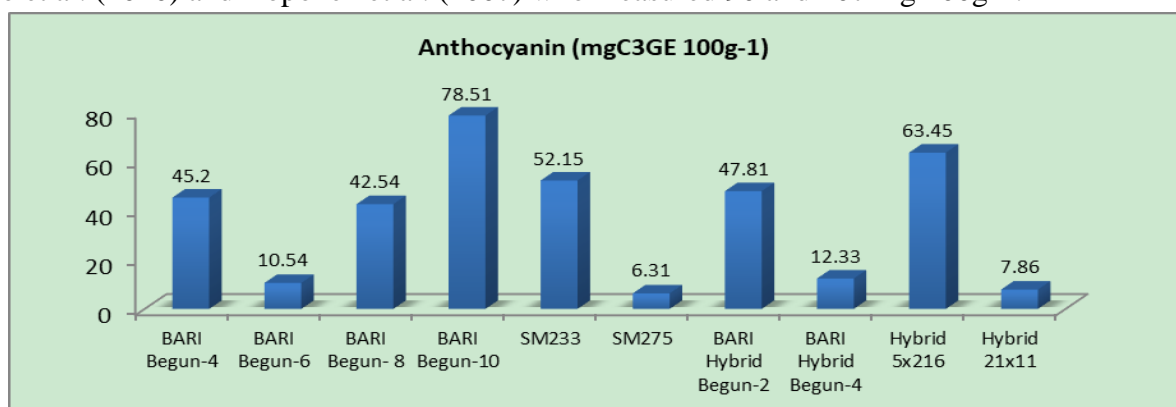


Figure 3. Anthocyanins amount (mgC3GE 100g⁻¹) of popular eggplant cultivars in Bangladesh

3.2.9 Mineral Content

Mineral content values for the ten eggplant cultivars are shown in Table 3. Vegetables are characterized for the high content of mineral composition, especially in eggplant viz., K, Na, Ca, P, Mg, Fe, Zn, Mn and Cu. BARI Begun-6 had the highest values for Ca, while BARI Begun-10 had the highest concentrations of P and Zn. BARI Hybrid Begun-4 reported the highest values for K, while the cultivar SM275 recorded the highest values for three minerals viz., Na, Mg and Mn and Hybrid 5x216 for Fe. The BARI Hybrid Begun-2 recorded the highest Cu content, but there were non-significant differences observed among the ten eggplant cultivars for Cu concentration. Na content varied largely in our study with a range from 4.06 to 8.51 mg 100g⁻¹. It was similar to the findings of Nino-Medina et al. (2014), where the concentration was 5.61 to 11.54 mg 100g⁻¹. Ekholm et al. (2007) found a similar pattern and mineral content in eggplants cultivated in Finland, as compared to our work, where K displayed the highest concentration (175 mg 100g⁻¹) and Cu displayed the lowest concentration (0.03 mg 100g⁻¹). On the other hand, a study carried out in eggplants grown in Saudi Arabia by Mohamed et al. (2003) displayed different mineral concentrations (mg 100g⁻¹), reporting 274 for Ca, 222 for Na and 212 for K. Those values are higher than those recorded in our study.

Eggplants are a good source of biologically essential minerals like K, Ca, Mg, P, Na and Fe. Their contents are similar to those found in tomatoes and higher than those reported in carrots, potatoes and onions, which are the most common vegetables consumed by the people.

Table 3. Minerals content of popular eggplant cultivars in Bangladesh (mg 100g⁻¹ fresh weight)

| Minerals | BARI Begun-4 | BARI Begun-6 | BARI Begun-8 | BARI Begun-10 | SM233 | SM275 | BARI Hybrid Begun-2 | BARI Hybrid Begun-4 | Hybrid 5x216 | Hybrid 21x11 |
|----------|--------------|--------------|--------------|---------------|--------|--------|---------------------|---------------------|--------------|--------------|
| K | 131.20 | 142.55 | 152.75 | 154.91 | 142.63 | 134.53 | 143.73 | 162.27 | 122.38 | 155.44 |
| Na | 4.14 | 4.79 | 6.54 | 7.23 | 7.32 | 8.51 | 4.89 | 5.32 | 4.90 | 4.06 |
| Ca | 30.27 | 48.33 | 31.78 | 33.93 | 45.93 | 33.94 | 35.74 | 30.28 | 47.59 | 26.62 |
| P | 14.45 | 20.67 | 21.09 | 23.45 | 18.26 | 19.37 | 21.94 | 15.91 | 18.46 | 20.62 |
| Mg | 19.30 | 18.21 | 15.42 | 21.40 | 20.69 | 24.80 | 17.67 | 21.40 | 21.61 | 19.30 |
| Fe | 1.44 | 1.35 | 1.50 | 1.86 | 1.60 | 1.17 | 1.40 | 1.65 | 5.00 | 0.91 |
| Zn | 0.22 | 0.45 | 0.56 | 0.57 | 0.36 | 0.42 | 0.47 | 0.49 | 0.36 | 0.52 |
| Mn | 0.37 | 0.36 | 0.40 | 0.25 | 0.33 | 0.41 | 0.30 | 0.29 | 0.26 | 0.32 |
| Cu | 0.15 | 0.14 | 0.12 | 0.14 | 0.14 | 0.13 | 0.16 | 0.14 | 0.10 | 0.14 |

4. Conclusion

The ten eggplant cultivars were evaluated in two ways viz., morphological characteristics and nutritional composition. In both studies the four OP cultivars viz., BARI Begun-6, BARI

Begun-8, BARI Begun-10, SM275 and one hybrid viz., Hybrid 21x11 performed well with better horticultural characteristics along with significant concentrations of some human promoting health components, such as crude fibre and biologically essential minerals like K, Ca, Mg, P, Na and Fe. They also provide important amounts of antioxidants like ascorbic acid and anthocyanin. These cultivars can therefore be cultivated and consumed for better human health.

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