



Process and Indicators for Germplasm Exchange Program between ICRAF and Bangladesh

Collection and Characterization of *Bauhinia purpurea*



CIFOR-ICRAF South Asia Program

May 2021



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Collection and Characterization of *Bauhinia purpurea*



This effort was financially supported by the Genetic Resources Unit
CIFOR-ICRAF, Nairobi, Kenya.

Acknowledgements

- CIFOR-ICRAF South Asia Program
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Activities

Bauhinia purpurea is a small to medium-sized deciduous fast-growing shrub or tree, which is native to Southeast and South Asia including Bangladesh. It grows well in subtropical climate and is widely planted as an ornamental tree in parks, gardens and homesteads, and along avenues for its showy fragrant, purple flowers. It is a popular species due to its diversified usages such as food, fodder, fire, tannin, medicine, lipid, gum, fuel, timber. It helps control erosion due to deep root system. *Bauhinia purpurea* is also planted as exotic species in many other countries including USA, Australia and African countries. Genetic Resource Unit of World Agroforestry took initiative to collect and characterize *Bauhinia purpurea* under Process and Indicators of Germplasm exchange program. Bangladesh was selected under CIFOR-ICRAF South Asia Regional Program.

World Agroforestry standard was followed in collecting the seeds and measuring respective parameters. Initially, the areas of occurrence of *Bauhinia purpurea* were identified. Four locations namely Dhaka, Gazipur, Jhenaidah and Bandarban were selected for the study. A total 48 middle-aged or mature plants covering all the locations were selected for seed collection. Morphological and phenological parameters such as tree age, height, diameter, bark color, canopy spread, leaf and floral characteristics were measured. Soil samples were collected from all the locations at 0 to 15 cm depth and the parameters mentioned in the Gene Bank Form were analyzed, which was compared with the existing district soil data of Soil Resource Development Institute of Bangladesh. Thirteen parameters of tree, leaf, flower, pod and seed were measured in fields and the laboratories of agroforestry and seed technology with the help of the BSMRAU technicians following the ICRAF Gene Bank guidelines. Seed pathogen test was carried out at the Plant Pathology Lab of BSMRAU. Seeds were processed and packed at the laboratory of Agroforestry. A Phytosanitary certificate from the Plant Quarantine Wing of the Department of Agricultural Extension, Ministry of Agriculture was obtained. Finally, the seeds were sent to ICRAF Headquarter along with a Q-level and Import Permission from ICRAF and the Phytosanitary certificate from Bangladesh.

Executive Summary

Bauhinia purpurea is a well-known shrub or small tree that grown 3-15 m tall throughout Bangladesh. Various parts of this plant are used to cure dropsy, ulcer, wounds, injuries, pain, rheumatism, thigh swelling, convulsion, delirium febris, and the blackness of lip or tongue. It has anticancer properties, and its decoction prevents the growth of tumor cells. Despite its extensive health benefits, the people in Bangladeshi are unaware of this species. Although this species is sporadically present all over the country, it is critical to collect and characterize it for future use. Keeping this objective in mind, the country liaison office of World Agroforestry Centre in Bangladesh aimed to collect morphological features and/or seeds of this species from different geographical locations of Bangladesh between November 2020 to April 2021, in order to evaluate their morphological and yield-related attributes (Figure 1; Table 1). Although, we have collected the morphological data from forty-eight *B. purpurea* accessions; however, we are able to collect seeds from twenty-eight accessions.

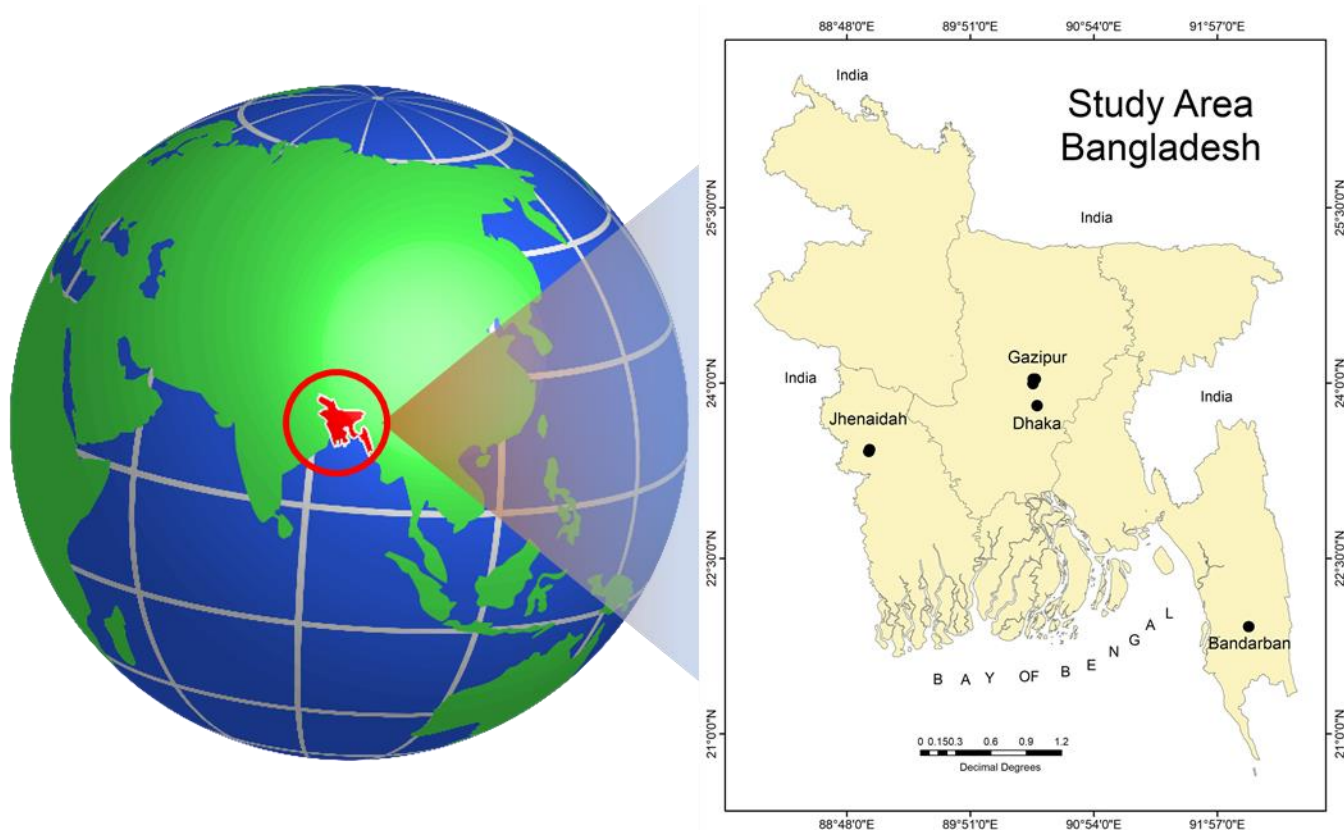


Figure 1: Map showing the four study sites (e.g., Bandarban, Dhaka, Gazipur and Jhenaidah districts) in Bangladesh.

Indeed, the climatic conditions of each location have influence on the growth and life cycle of *B. purpurea* accessions. Therefore, we analyzed the climatic data, including average maximum temperature, average minimum temperature, total rainfall and average relative humidity, over the last 30 years of our studied locations such as Bandarban, Dhaka, Gazipur and

Jhenaidah districts. Regardless of geographical locations, each area's climate varies irregularly; nonetheless, all are demonstrating a downward tendency in recent years, i.e., the last five years ([Figure 2-5](#)).

Soil related features

The variations of soil properties, including physical and chemical properties might also influence the growth of *B. purpurea* accessions. Our results demonstrated that the soils collected from Bandarban, Dhaka, Gazipur and Jhenaidah districts, have a wider variation in clay percentage (12.45-20.74, 12.45-20.74, 10.37-18.25, 17.04-24.28%, respectively), silt percentage (23.48-32.15, 22.90-34.16, 44.59-51.85, 46.03-73.75%, respectively) and sand percentage (48.15-61.84, 52.21-62.58, 34.46-40.89, 6.02-29.69%, respectively). With respect to soil texture, Bandarban has sandy loam and clay loam, Dhaka has sandy loam and sandy clay loam, Gazipur has sandy silt loam and clay loam, and Jhenaidah has clay loam, silt loam and silty clay loam texture. Furthermore, our results revealed that the soil moisture range varies in the districts of Bandarban (37.50-60.53%), Dhaka (42.27-45.57%), Gazipur (32.95-55.06%) and Jhenaidah (13.14-50.51%). Interestingly, soil color varied widely across and even within the regions. For instance, the soil colors obtained in Bandarban were yellow grey, dreier brown, pale brown, silk grey, olive grey and beige brown; in Dhaka, the soil colors obtained were beige brown, fawn brown, olive brown and olive grey; in Gazipur, the soil colors obtained were silk grey, beige brown and nut brown; and in Jhenaidah, the soil colors obtained were dust grey and nut brown ([Table 2](#)).

We also examined the chemical parameters of soils obtained from several study locations, such as pH, soil nitrogen and soil organic carbon content ([Figure 6](#)). We observed that soil pH was lower in Bandarban district, and this lower trend was also present for soil nitrogen, when compared with other three locations. On the other hand, lower organic matter content in soils was recorded in Gazipur district, while highest was recorded in Jhenaidah districts.

We found a wide variation in soil texture classes, such as sandy loam and clay loam type of soil texture in Bandarban, sandy loam and sandy clay loam in Dhaka, sandy silt loam and clay loam in Gazipur, and clay loam, silt loam and silty clay loam in Jhenaidah district ([Table 3b](#), [4b](#), [5b](#) and [6b](#)). Similarly, a greater variation in soil color were also observed among the studied locations, like yellow gray, dreier brown, pale brown, silk gray, olive gray and beige brown color soil in Bandarban, beige brown, fawn brown, olive brown and olive gray color soil in Dhaka, silk gray, beige brown and nut brown color soil in Gazipur, and dust gray and nut-brown color soil in Jhenaidah district ([Table 3b](#), [4b](#), [5b](#) and [6b](#)). In the case of land topography, accessions were collected from a hilly area in Bandarban, a flat area in Dhaka, Gazipur and Jhenaidah district ([Table 3b](#), [4b](#), [5b](#) and [6b](#)). Furthermore, stoniness of the soil was completely missing in Bandarban and Jhenaidah districts, while medium in Dhaka, and none (inside BSMRAU) and low (roadside) in Gazipur district ([Table 3b](#), [4b](#), [5b](#) and [6b](#)). Interestingly, in terms of drainage capacity of soils, we found well-drainage soils in all studied locations ([Table 3b](#), [4b](#), [5b](#) and [6b](#)).

Qualitative features-induced characterization of *Bauhinia purpurea* accessions

Morphological and yield-related qualitative features

Interestingly, we did not find any change in stem bark texture, inflorescence color, seed texture and seed shape throughout the accessions collected from four studied locations (Table 3a, 4a, 5a and 6a). In addition, most of the accessions collected from Bandarban, Dhaka and Gazipur districts had grayish brown color stem bark, while in Jhenaidah, we found both brownish grey and dark brownish color stem bark (Table 3a, 4a, 5a and 6a). In case of trunk color, we found dark brownish, brownish grey and blackish brown color in Bandarban; dark brownish color in both Dhaka and Gazipur; and brownish grey and dark brownish color in Jhenaidah district. With respect to the crown shape, we found a wide variation like pyramidal (BPB1-BPB15 in Bandarban, BPG1 in Gazipur, and BPJ3-BPJ6 in Jhenaidah), broadly pyramidal (BPD1 and BPD4 in Dhaka, and BPG2-BPG18 in Gazipur), irregular (BPD2, BPD3 and BPD5 in Dhaka), and spherical (BPJ1, BPJ2 and BPJ7-BPJ10 in Jhenaidah) among the studied area (Table 3a, 4a, 5a and 6a). Tree growth habit was categorized into three types viz., erect, semi-erect and spreading. However, erect type tree growth habit was noted in all Bandarban accessions, while spreading and semi-erect in Dhaka, spreading in Gazipur; and erect and semi-erect in Jhenaidah (Table 3a, 4a, 5a and 6a). We also observed variations in first appearance of inflorescences, as 1st week of January in Bandarban, 1st week of November in Dhaka and Jhenaidah, and last week of November in Gazipur. In addition, we also observed divergence in fruit initiation time, like 1st week of February in Bandarban, Dhaka and Gazipur, while 1st week of January in Jhenaidah district. Using a color chart (attachment at the end of the report), we observed the pod skin color of mature pods and found that pods collected from Bandarban had sandcastle, tortilla, and syrup colors, while pods collected from Dhaka and Gazipur had syrup, and pods collected from Jhenaidah had walnut and syrup colors (Table 3a, 4a, 5a and 6a). In respect of seed color, we have found fawn color seed in Bandarban district, caramel and tawny color seed in Dhaka, fawn, syrup and caramel color seed in Gazipur, and dijon, tawny, syrup and caramel color seed in Jhenaidah district (Table 3a, 4a, 5a and 6a).

Species habitat features

Species occurrence at collection site were categorized into high (over 40 trees), medium (21-40) and low (below 20 trees). However, Bandarban listed in high category, while Dhaka and Jhenaidah listed in low category; and Gazipur listed in both low (on BSMRAU campus) and medium category (on roadside) (Table 3b, 4b, 5b and 6b). In response to species habitat, accessions were collected from an orchard into a forest area in Bandarban, a park near the roadside in Dhaka, a backyard and the divider of a highway road in Gazipur, and the roadside adjacent to agricultural land in Jhenaidah district (Table 3b, 4b, 5b and 6b).

Quantitative features-induced characterization of *Bauhinia purpurea* accessions

Tree morphological quantitative features

More fundamentally, we have collected a variety of accessions with different ages from several studied areas. For instance, Bandarban accessions were 7 years old, whilst Dhaka accessions were 15-21 years old, Gazipur accessions were 2-15 years old, and Jhenaidah accessions were 15-30 years old (Table 7a, 8a, 9a and 10a). Our results also demonstrated that the accessions collected from Bandarban, Dhaka, Gazipur and Jhenaidah districts, have a

wider variation in tree height (12-23, 35-50, 12-30, and 32-60 ft, respectively), tree DBH (25-51, 56-88, 13-53, and 56-110 cm, respectively), range of tree spread in east-to-west direction (2.50-4.20, 6.20-11, 2-6.5, and 3.0-7.5 m, respectively), range of tree spread in north-to-south direction (2.40-4.50, 6.40-15, 1.5-7.1, and 3.6-8.9 m, respectively), leaf length (9.45-11.89, 14.05-16.00, 9.50-17.00, and 10.30-16.20 cm, respectively), leaf width (11.18-13.60, 15.80-18.37, 11.20-15.47, and 12.25-15.95 cm, respectively), and peduncle length (1.90-2.50, 2.20-2.59, 1.30-2.34, 1.80-2.13 cm, respectively) ([Table 7a](#), [8a](#), [9a](#) and [10a](#)).

Yield-related quantitative features

Our results also demonstrated that the accessions collected from Bandarban, Dhaka, Gazipur and Jhenaidah districts, have a wider variation in pod length (15.94-18.55, 29.25-31.16, 23.09-26.96, and 26.35-33.77 cm, respectively), pod breadth (1.14-1.73, 1.94-1.95, 1.49-2.13, and 1.90-1.20 cm, respectively), number of seeds per pod (3-6, 12-13, 8-13, and 10-15); seed length (1.21-1.48, 1.22-1.30, 1.00-1.43, and 1.55-1.83 cm, respectively), seed width (1.11-1.31, 0.90-1.01, 0.72-1.44, and 1.30-1.83 cm, respectively), and 10-seed weight (0.20-0.34, 0.18-0.19, 0.02-0.32, 0.26-0.43 g, respectively) ([Table 7b](#), [8b](#), [9b](#) and [10b](#)).

Seed pathogenicity test

We also performed the seed pathogenicity test to know whether the kanchan seeds from several study locations were infected with any kind of seed-borne pathogens. To do this, we considered several parameters, including number of infected seeds from total number of inoculated seeds, as well as identify the pathogen using microscopic observation ([Table 11](#)). Interestingly, we did not find any infestation in seeds that were collected from Dhaka district; however, seeds that were collected from other studied locations were more or less infected. More specifically, *Rhizoctonia sp.* was found in the seeds of Bandarban, Gazipur Chowrasta (BPG4 and BPG8) and Jhenaidah district, while *Aspergillus niger* was observed in the seeds of BSMRAU, Gazipur (BPG2 and BPG3) ([Table 11](#)).

Results/Findings

Table 1. List of *Bauhinia purpurea* accessions collected from four geographical locations for assessing their morphological and yield-related features

Accession code	Study area	District	Latitude	Longitude	Accession code number	Study area	District	Latitude	Longitude
BPB1	Lama	Bandarban	N 21° 54' 59.0''	E 92° 13' 2.5''	BPG5	Gazipur Chowrasta	Gazipur	N 23° 59' 44.9''	E 90° 22' 56.9''
BPB2	Lama	Bandarban	N 21° 54' 59.2''	E 92° 13' 2.8''	BPG6	Gazipur Chowrasta	Gazipur	N 23° 59' 44.9''	E 90° 22' 57.1''
BPB3	Lama	Bandarban	N 21° 54' 59.5''	E 92° 13' 2.9''	BPG7	Gazipur Chowrasta	Gazipur	N 23° 59' 44.9''	E 90° 22' 57.1''
BPB4	Lama	Bandarban	N 21° 54' 59.8''	E 92° 13' 2.9''	BPG8	Gazipur Chowrasta	Gazipur	N 23° 59' 45.3''	E 90° 22' 57.0''
BPB5	Lama	Bandarban	N 21° 55' 00.0''	E 92° 13' 2.7''	BPG9	Gazipur Chowrasta	Gazipur	N 23° 59' 45.8''	E 90° 22' 56.9''
BPB6	Lama	Bandarban	N 21° 55' 00.1''	E 92° 13' 2.6''	BPG10	Gazipur Chowrasta	Gazipur	N 23° 59' 49.2''	E 90° 22' 57.4''
BPB7	Lama	Bandarban	N 21° 55' 00.3''	E 92° 13' 2.4''	BPG11	Gazipur Chowrasta	Gazipur	N 23° 59' 49.1''	E 90° 22' 57.0''
BPB8	Lama	Bandarban	N 21° 55' 00.3''	E 92° 13' 2.2''	BPG12	Gazipur Chowrasta	Gazipur	N 23° 59' 49.4''	E 90° 22' 57.2''
BPB9	Lama	Bandarban	N 21° 55' 00.4''	E 92° 13' 1.5''	BPG13	Gazipur Chowrasta	Gazipur	N 23° 59' 49.5''	E 90° 22' 57.2''
BPB10	Lama	Bandarban	N 21° 54' 59.9''	E 92° 13' 0.7''	BPG14	Gazipur Chowrasta	Gazipur	N 23° 59' 49.7''	E 90° 22' 57.2''
BPB11	Lama	Bandarban	N 21° 54' 59.7''	E 92° 13' 0.7''	BPG15	Gazipur Chowrasta	Gazipur	N 23° 59' 50.6''	E 90° 22' 57.6''
BPB12	Lama	Bandarban	N 21° 54' 59.6''	E 92° 13' 0.8''	BPG16	Gazipur Chowrasta	Gazipur	N 23° 59' 50.9''	E 90° 22' 57.9''
BPB13	Lama	Bandarban	N 21° 54' 59.3''	E 92° 13' 0.8''	BPG17	Gazipur Chowrasta	Gazipur	N 23° 59' 51.1''	E 90° 22' 57.1''
BPB14	Lama	Bandarban	N 21° 54' 59.1''	E 92° 13' 0.8''	BPG18	Gazipur Chowrasta	Gazipur	N 23° 59' 52.4''	E 90° 22' 57.9''
BPB15	Lama	Bandarban	N 21° 54' 58.7''	E 92° 13' 2.4''	BPJ1	Kotchandpur	Jhenaidah	N 23° 24' 54.6''	E 88° 59' 12.7''
BPD1	DOHS, Baridhara	Dhaka	N 23° 48' 24.9''	E 90° 24' 56.1''	BPJ2	Kotchandpur	Jhenaidah	N 23° 24' 53.8''	E 88° 59' 12.6''
BPD2	DOHS, Baridhara	Dhaka	N 23° 48' 25.2''	E 90° 24' 55.8''	BPJ3	Kotchandpur	Jhenaidah	N 23° 25' 50.9''	E 88° 59' 29.7''
BPD3	DOHS, Baridhara	Dhaka	N 23° 48' 25.4''	E 90° 24' 55.7''	BPJ4	Kotchandpur	Jhenaidah	N 23° 25' 50.6''	E 88° 59' 30.0''
BPD4	DOHS, Baridhara	Dhaka	N 23° 48' 25.8''	E 90° 24' 55.7''	BPJ5	Kotchandpur	Jhenaidah	N 23° 25' 51.2''	E 88° 59' 30.7''
BPD5	DOHS, Baridhara	Dhaka	N 23° 48' 26.9''	E 90° 24' 54.7''	BPJ6	Kotchandpur	Jhenaidah	N 23° 25' 52.2''	E 88° 59' 31.6''
BPG1	BSMRAU	Gazipur	N 24° 02' 17.7''	E 90° 23' 41.7''	BPJ7	Kotchandpur	Jhenaidah	N 23° 25' 53.8''	E 88° 59' 33.0''
BPG2	BSMRAU	Gazipur	N 24° 02' 04.1''	E 90° 24' 02.2''	BPJ8	Kotchandpur	Jhenaidah	N 23° 25' 54.2''	E 88° 59' 33.0''
BPG3	BSMRAU	Gazipur	N 24° 02' 04.0''	E 90° 24' 02.4''	BPJ9	Kotchandpur	Jhenaidah	N 23° 25' 56.4''	E 88° 59' 35.1''
BPG4	Gazipur Chowrasta	Gazipur	N 23° 59' 44.4''	E 90° 22' 56.9''	BPJ10	Kotchandpur	Jhenaidah	N 23° 25' 56.6''	E 88° 59' 35.5''

****DOHS**, Defense Officer Housing Scheme; **BSMRAU**, Bangabandhu Sheikh Mujibur Rahman Agricultural University; **BPB**, *Bauhinia Purpurea* in Bandarban district; **BPD**, *Bauhinia Purpurea* in Dhaka district; **BPG**, *Bauhinia Purpurea* in Gazipur district; **BPJ**, *Bauhinia Purpurea* in Jhenaidah district.

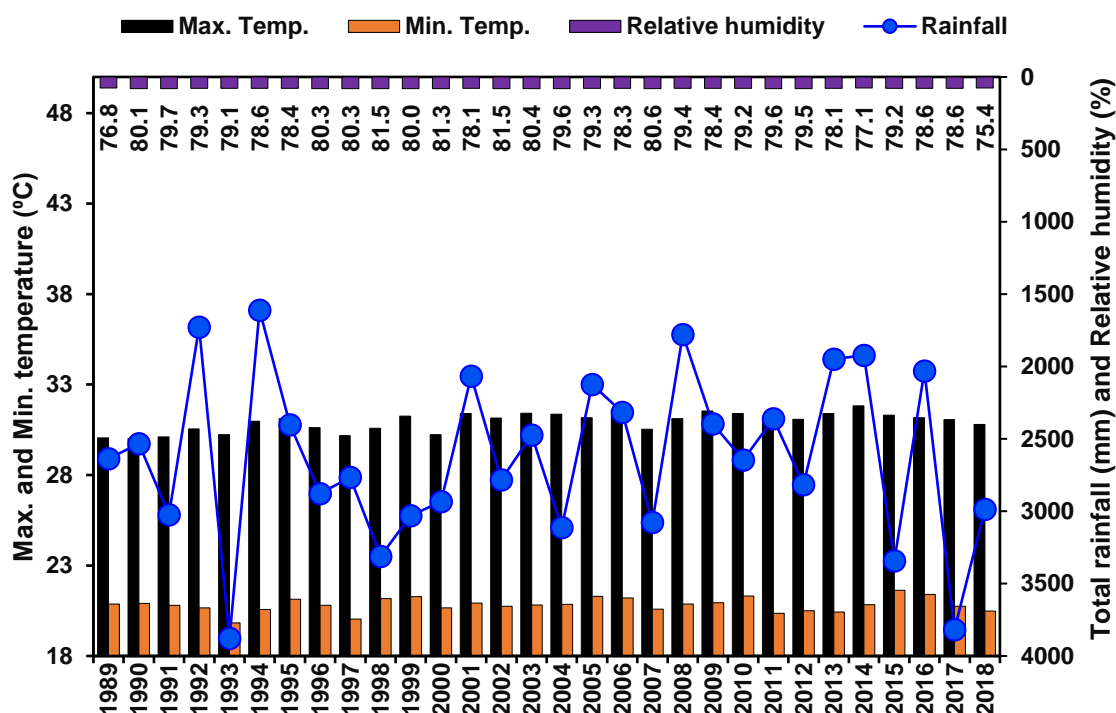


Figure 2. Changes of climatic data (e.g., average maximum temperature, average minimum temperature, total rainfall and average relative humidity) over the 30 years (1989-2018) in Bandarban district of Bangladesh.

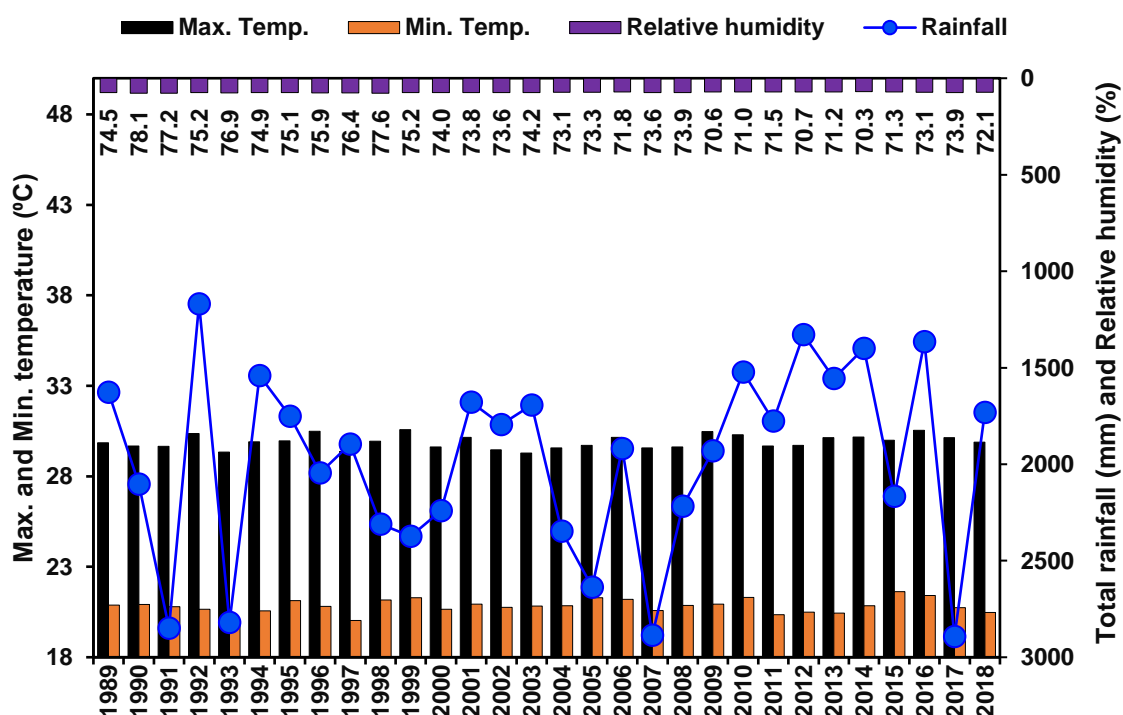


Figure 3. Changes of climatic data (e.g., average maximum temperature, average minimum temperature, total rainfall and average relative humidity) over the 30 years (1989-2018) in Dhaka district of Bangladesh.

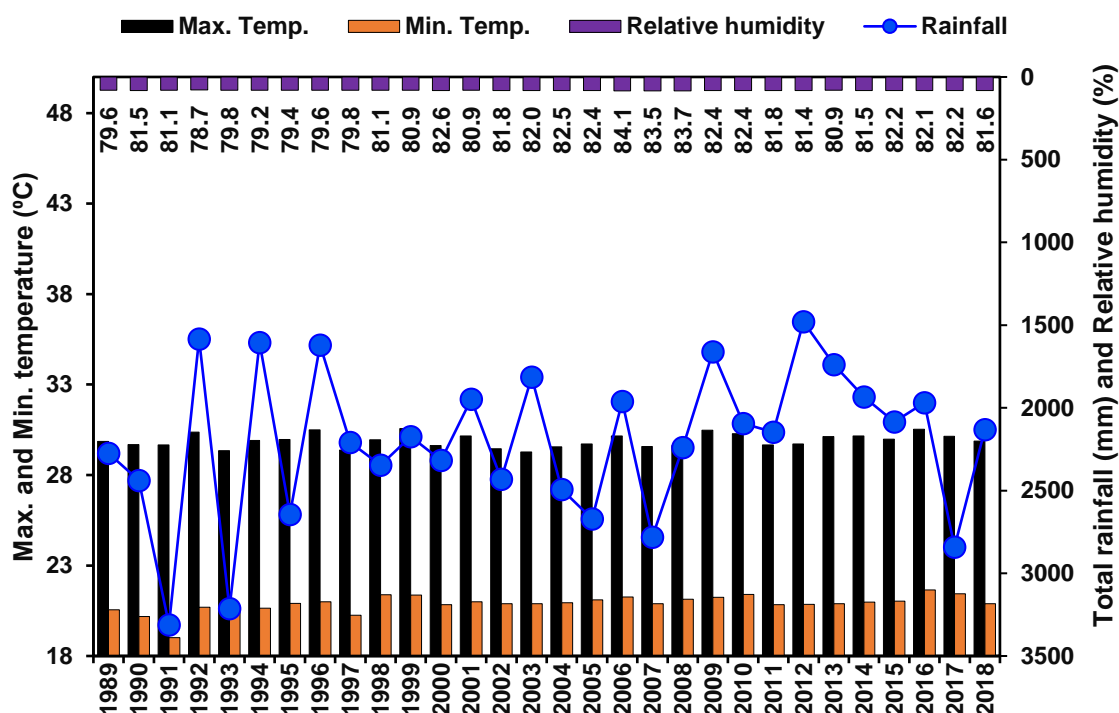


Figure 4. Changes of climatic data (e.g., average maximum temperature, average minimum temperature, total rainfall and average relative humidity) over the 30 years (1989-2018) in Gazipur district of Bangladesh.

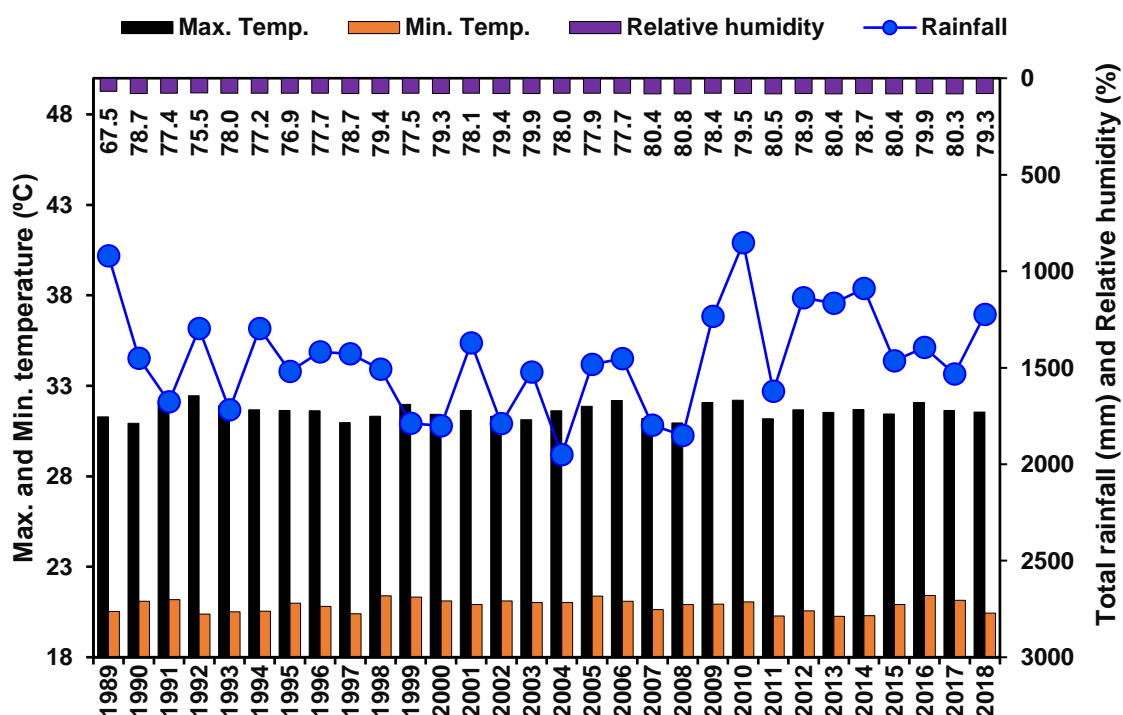


Figure 5. Changes of climatic data (e.g., average maximum temperature, average minimum temperature, total rainfall and average relative humidity) over the 30 years (1989-2018) in Jhenaidah district of Bangladesh.

Table 2. Changes of soil physical properties (e.g., % silt, % clay, % sand, soil texture, soil moisture and soil color) in the respective study areas of Bangladesh

Accession code	% Clay	% Silt	% Sand	Soil texture	Moisture (%)	Soil color
BPB1	15.27	23.48	61.25	Sandy loam	37.50	Yellow grey
BPB2	16.59	28.08	55.33	Sandy loam	40.05	Dreier Brown
BPB4	16.59	29.04	54.37	Sandy loam	39.12	Pale brown
BPB6	20.74	31.11	48.15	Clay loam	38.41	Silk grey
BPB8	12.45	25.72	61.84	Sandy loam	40.56	Silk grey
BPB10	16.59	23.93	59.48	Sandy loam	41.86	Olive grey
BPB12	12.45	31.11	56.44	Sandy loam	50.66	Pale brown
BPB14	12.45	32.15	55.41	Sandy loam	60.53	Beige brown
BPD1	12.45	24.97	62.58	Sandy loam	42.25	Beige brown
BPD2	13.63	34.16	52.21	Sandy loam	41.27	Fawn brown
BPD3	20.74	25.20	54.06	Sandy clay loam	45.57	Olive brown
BPD4	20.74	22.90	56.36	Sandy clay loam	45.29	Olive grey
BPG1	14.19	47.52	38.29	Sandy slit loam	35.93	Silk grey
BPG2	17.86	47.69	34.46	Sandy slit loam	36.38	Silk grey
BPG3	16.47	47.50	36.03	Sandy slit loam	32.95	Silk grey
BPG4	10.37	51.85	37.77	Sandy slit loam	42.83	Beige brown
BPG6	14.52	44.59	40.89	Sandy slit loam	52.42	Nut brown
BPG8	16.59	46.46	36.95	Sandy slit loam	52.72	Nut brown
BPG11	15.56	44.59	39.85	Sandy slit loam	55.06	Nut brown
BPG14	18.25	46.05	35.70	Clay loam	54.70	Nut brown
BPJ1	20.01	56.27	23.73	Clay loam	13.14	Dust grey
BPJ3	17.04	71.69	11.27	Silt loam	50.51	Nut brown
BPJ5	22.76	64.45	12.79	Silty clay loam	48.47	Nut brown
BPJ7	24.28	46.03	29.69	Clay loam	47.73	Nut brown
BPJ10	20.23	73.75	6.02	Silty clay loam	43.73	Nut brown

****BPB**, *Bauhinia Purpurea* in Bandarban district; **BPD**, *Bauhinia Purpurea* in Dhaka district; **BPG**, *Bauhinia Purpurea* in Gazipur district; **BPJ**, *Bauhinia Purpurea* in Jhenaidah district; **BSMRAU**, Bangabandhu Sheikh Mujibur Rahman Agricultural University; **DOHS**, Defense Officer Housing Scheme.

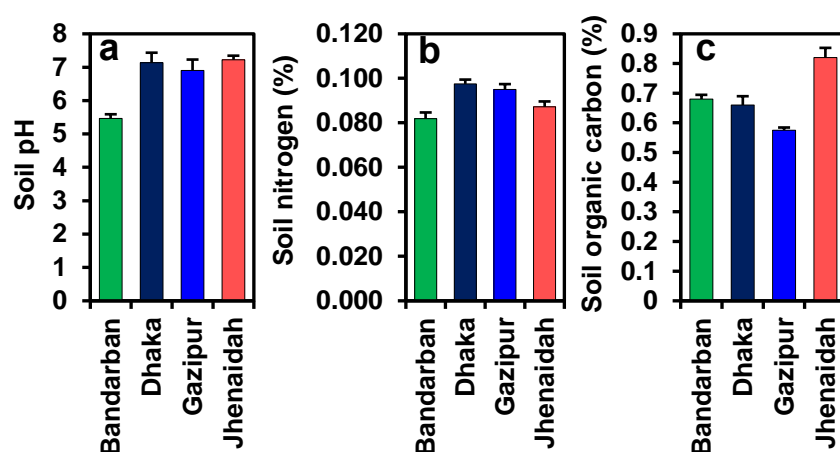


Figure 6. Changes of soil chemical properties (e.g., pH, soil nitrogen and soil organic carbon) in the study area of Bangladesh. (a) soil pH, (b) soil nitrogen (%) and (c) soil organic carbon (%). Values are means \pm standard errors of 8, 4, 8, 5 replicates of Bandarban, Dhaka, Gazipur and Jhenaidah districts, respectively.

Table 3a. Morphological and yield-related qualitative features of *Bauhinia purpurea* accessions collected from Bandarban district

Sample ID	Tree characteristics						Yield characteristics					
	Stem bark texture	Stem bark color	Trunk color	Crown shape	Tree growth habit	First inflorescences	Inflorescence color	Fruiting month	Pod skin color	Seed color	Seed texture	Seed shape
BPB1	Slightly fissured and scaly	Grayish brown	Dark brownish	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Sandcastle	Fawn	Rough	Orbicular
BPB2	Slightly fissured and scaly	Grayish brown	Dark brownish	Pyramidal	Erect	1st week of February	Pinkish purple color	March	-	-	-	-
BPB3	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Sandcastle	Fawn	Rough	Orbicular
BPB4	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Tortilla	Fawn	Rough	Orbicular
BPB5	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Syrup	Fawn	Rough	Orbicular
BPB6	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Tortilla	Fawn	Rough	Orbicular
BPB7	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	-	-	-	-
BPB8	Slightly fissured and scaly	Grayish brown	Blackish brown	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Syrup	Fawn	Rough	Orbicular
BPB9	Slightly fissured and scaly	Grayish brown	Blackish brown	Pyramidal	Erect	1st week of February	Pinkish purple color	March	-	-	-	-
BPB10	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Sandcastle	Fawn	Rough	Orbicular
BPB11	Slightly fissured and scaly	Grayish brown	Blackish brown	Pyramidal	Erect	1st week of February	Pinkish purple color	March	-	-	-	-
BPB12	Slightly fissured and scaly	Grayish brown	Blackish brown	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Sandcastle	Fawn	Rough	Orbicular
BPB13	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	-	-	-	-
BPB14	Slightly fissured and scaly	Grayish brown	Blackish brown	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Sandcastle	Fawn	Rough	Orbicular
BPB15	Slightly fissured and scaly	Grayish brown	Brownish grey	Pyramidal	Erect	1st week of February	Pinkish purple color	March	Syrup	Fawn	Rough	Orbicular

****BPB, *Bauhinia Purpurea* in Bandarban district. Importantly, we have collected data from 15-accessions at flowering stage; however, at fruiting stage, we have found fruits in only 10-accessions.**

Table 3b. Species habitat and soil related qualitative features of *Bauhinia purpurea* accessions collected from Bandarban district

Sample ID	Characters	Species habitat			Soil type				
	Species occurrence at collection site	Wild	Farm or cultivated	Disturbed	Soil texture classes	Soil color	Topography	Stoniness	Drainage
BPB1	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Yellow gray	Hilly	None	Well drained
BPB2	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Dreier brown	Hilly	None	Well drained
BPB3	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB4	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Pale brown	Hilly	None	Well drained
BPB5	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB6	High (over 40 trees)	Forest or woodland	Orchard	No	Clay loam	Silk gray	Hilly	None	Well drained
BPB7	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB8	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Silk gray	Hilly	None	Well drained
BPB9	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB10	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Olive gray	Hilly	None	Well drained
BPB11	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB12	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Pale brown	Hilly	None	Well drained
BPB13	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-
BPB14	High (over 40 trees)	Forest or woodland	Orchard	No	Sandy loam	Beige brown	Hilly	None	Well drained
BPB15	High (over 40 trees)	Forest or woodland	Orchard	No	-	-	-	-	-

** BPB, *Bauhinia Purpurea* in Bandarban district. Importantly, we have collected data tree characteristics from **15-accessions**; however, we have taken soil samples from only **8-accessions**.

Table 4a. Morphological and yield-related qualitative features of *Bauhinia purpurea* accessions collected from Dhaka district

Sample ID	Tree characteristics						Yield characteristics					
	Stem bark texture	Stem bark color	Trunk color	Crown shape	Tree growth habit	First inflorescences	Inflorescence color	Fruiting month	Pod skin color	Seed color	Seed texture	Seed shape
BPD1	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	1st week of November	Pinkish purple color	March	Syrup	Caramel	Rough	Orbicular
BPD2	Slightly fissured and scaly	Grayish brown	Dark brownish	Irregular	Semi-erect	1st week of November	Pinkish purple color	March	-	-	-	-
BPD3	Slightly fissured and scaly	Grayish brown	Dark brownish	Irregular	Semi-erect	1st week of November	Pinkish purple color	March	Syrup	Tawny	Rough	Orbicular
BPD4	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	1st week of November	Pinkish purple color	March	-	-	-	-
BPD5	Slightly fissured and scaly	Grayish brown	Dark brownish	Irregular	Semi-erect	1st week of November	Pinkish purple color	March	-	-	-	-

****BPD, *Bauhinia Purpurea* in Dhaka district.** Importantly, we have collected data from **5-accessions** at flowering stage; however, at fruiting stage, we have found fruits in only 2-accessions.

Table 4b. Species habitat and soil related qualitative features of *Bauhinia purpurea* accessions collected from Dhaka district

Sample ID	Characters	Species habitat			Soil type				
	Species occurrence at collection site	Wild	Farm or cultivated	Disturbed	Soil texture classes	Soil color	Topography	Stoniness	Drainage
BPD1	Low (below 20 trees)	No	Park	Roadside	Sandy loam	Beige brown	Flat	Medium	Well drained
BPD2	Low (below 20 trees)	No	Park	Roadside	Sandy loam	Fawn brown	Flat	Medium	Well drained
BPD3	Low (below 20 trees)	No	Park	Roadside	Sandy clay loam	Olive brown	Flat	Medium	Well drained
BPD4	Low (below 20 trees)	No	Park	Roadside	Sandy clay loam	Olive gray	Flat	Medium	Well drained
BPD5	Low (below 20 trees)	No	Park	Roadside	Sandy loam	Beige brown	Flat	Medium	Well drained

****BPD, *Bauhinia Purpurea* in Dhaka district.**

Table 5a. Morphological and yield-related qualitative features of *Bauhinia purpurea* accessions collected from Gazipur district

Sample ID	Tree characteristics						Yield characteristics					
	Stem bark texture	Stem bark color	Trunk color	Crown shape	Tree growth habit	First inflorescences	Inflorescence color	Fruiting month	Pod skin color	Seed color	Seed texture	Seed shape
BPG1	Slightly fissured and scaly	Grayish brown	Dark brownish	Pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Fawn	Rough	Orbicular
BPG2	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Fawn	Rough	Orbicular
BPG3	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Syrup	Rough	Orbicular
BPG4	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG5	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG6	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG7	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Syrup	Rough	Orbicular
BPG8	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG9	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG10	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG11	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG12	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG13	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Caramel	Rough	Orbicular
BPG14	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG15	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG16	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-
BPG17	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	Syrup	Caramel	Rough	Orbicular
BPG18	Slightly fissured and scaly	Grayish brown	Dark brownish	Broadly pyramidal	Spreading	Last week of November	Pinkish purple color	March	-	-	-	-

** **BPG**, *Bauhinia Purpurea* in Gazipur district. Importantly, we have collected data from 18-accessions at flowering stage; however, at fruiting stage, we have found fruits in only 6-accessions.

Table 5b. Species habitat and soil related qualitative features of *Bauhinia purpurea* accessions collected from Gazipur district

Sample ID	Characters	Species habitat			Soil type				
	Species occurrence at collection site	Wild	Farm or cultivated	Disturbed	Soil texture classes	Soil color	Topography	Stoniness	Drainage
BPG1	Low (below 20 trees)	Shrub-land	Backyard	No	Sandy silt loam	Silk gray	Flat	None	Well drained
BPG2	Low (below 20 trees)	Shrub-land	Backyard	No	Sandy silt loam	Silk gray	Flat	None	Well drained
BPG3	Low (below 20 trees)	Shrub-land	Backyard	No	Sandy silt loam	Silk gray	Flat	None	Well drained
BPG4	Medium (21-40 trees)	No	No	Roadside	Sandy silt loam	Beige brown	Flat	Low	Well drained
BPG5	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG6	Medium (21-40 trees)	No	No	Roadside	Sandy silt loam	Beige brown	Flat	Low	Well drained
BPG7	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG8	Medium (21-40 trees)	No	No	Roadside	Sandy silt loam	Nut brown	Flat	Low	Well drained
BPG9	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG10	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG11	Medium (21-40 trees)	No	No	Roadside	Sandy silt loam	Nut brown	Flat	Low	Well drained
BPG12	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG13	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG14	Medium (21-40 trees)	No	No	Roadside	Clay loam	Nut brown	Flat	Low	Well drained
BPG15	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG16	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG17	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-
BPG18	Medium (21-40 trees)	No	No	Roadside	-	-	-	-	-

** **BPG**, *Bauhinia Purpurea* in Gazipur district. Importantly, we have collected data tree characteristics from 18-accessions; however, we have taken soil samples from only 8-accessions.

Table 6a. Morphological and yield-related qualitative features of *Bauhinia purpurea* accessions collected from Jhenaidah district

Sample ID	Tree characteristics						Yield characteristics					
	Stem bark texture	Stem bark color	Trunk color	Crown shape	Tree growth habit	First inflorescences	Inflorescence color	Fruiting month	Pod skin color	Seed color	Seed texture	Seed shape
BPJ1	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Erect	1st week of November	Pinkish purple color	1st week of January	Walnut	Dijon	Rough	Orbicular
BPJ2	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Semi-erect	1st week of November	Pinkish purple color	1st week of January	Syrup	Dijon	Rough	Orbicular
BPJ3	Slightly fissured and scaly	Brownish grey	Brownish grey	Pyramidal	Spreading	Mid of November	Pinkish purple color	1st week of January	Syrup	Tawny	Rough	Orbicular
BPJ4	Slightly fissured and scaly	Dark brownish	Dark brownish	Pyramidal	Semi-erect	Mid of November	Pinkish purple color	1st week of January	Syrup	Syrup	Rough	Orbicular
BPJ5	Slightly fissured and scaly	Brownish grey	Brownish grey	Pyramidal	Spreading	1st week of November	Pinkish purple color	1st week of January	Syrup	Syrup	Rough	Orbicular
BPJ6	Slightly fissured and scaly	Dark brownish	Dark brownish	Pyramidal	Semi-erect	1st week of November	Pinkish purple color	1st week of January	Syrup	Caramel	Rough	Orbicular
BPJ7	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Erect	1st week of November	Pinkish purple color	1st week of January	Walnut	Dijon	Rough	Orbicular
BPJ8	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Semi-erect	1st week of November	Pinkish purple color	1st week of January	Syrup	Syrup	Rough	Orbicular
BPJ9	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Erect	1st week of November	Pinkish purple color	1st week of January	Syrup	Tawny	Rough	Orbicular
BPJ10	Slightly fissured and scaly	Brownish grey	Brownish grey	Spherical	Erect	1st week of November	Pinkish purple color	1st week of January	Syrup	Tawny	Rough	Orbicular

** BPJ, *Bauhinia Purpurea* in Jhenaidah district

Table 6b. Species habitat and soil related qualitative features of *Bauhinia purpurea* accessions collected from Jhenaidah district

Sample ID	Characters	Species habitat			Soil type				
	Species occurrence at collection site	Wild	Farm or cultivated	Disturbed	Soil texture classes	Soil color	Topography	Stoniness	Drainage
BPJ1	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	Clay loam	Dust gray	Flat	None	Well drained
BPJ2	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	-	-	-	-	-
BPJ3	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	Silt loam	Nut brown	Flat	None	Well drained
BPJ4	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	-	-	-	-	-
BPJ5	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	Silty clay loam	Nut brown	Flat	None	Well drained
BPJ6	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	-	-	-	-	-
BPJ7	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	Clay loam	Nut brown	Flat	None	Well drained
BPJ8	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	-	-	-	-	-
BPJ9	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	-	-	-	-	-
BPJ10	Low (below 20 trees)	Shrub-land	Agricultural land	Roadside	Silty clay loam	Nut brown	Flat	None	Well drained

****BPJ**, *Bauhinia Purpurea* in Jhenaidah district. Importantly, we have collected data tree characteristics from 10-accessions; however, we have taken soil samples from only 5-accessions.

Table 7a. Morphological related quantitative features of *Bauhinia purpurea* accessions collected from Bandarban district

Sample ID	Age of tree	Tree height (ft)	Tree DBH (cm)	Tree spread (m) (E-W)	Tree spread (m) (N-S)	Leaf length (cm)	Leaf width (cm)	Length of peduncle/stalk (cm)
BPB1	7	12	31	3.4	3.2	9.45	11.32	2.23
BPB2	7	18	39	3.3	2.7	10.80	11.99	2.50
BPB3	7	20	44	3.4	4.5	10.70	11.18	2.00
BPB4	7	21	44	4.0	4.5	11.58	13.60	2.10
BPB5	7	19	51	4.0	4.5	10.41	11.93	2.30
BPB6	7	14	32	3.5	3.7	11.89	11.85	1.90
BPB7	7	14	26	2.5	2.7	11.65	12.75	2.20
BPB8	7	13	30	2.5	3.2	11.50	12.81	2.01
BPB9	7	15	25	3.2	3.3	11.34	13.03	2.12
BPB10	7	22	30	4.2	3.1	10.20	11.32	2.00
BPB11	7	17	23	2.7	2.4	11.34	12.43	2.00
BPB12	7	19	34	2.6	3.0	11.85	13.30	2.00
BPB13	7	23	27	3.5	4.0	10.47	12.14	2.10
BPB14	7	20	27	3.4	2.9	9.60	11.50	2.20
BPB15	7	22	35	3.8	3.6	10.75	12.08	2.00
Mean	7	17.93	33.20	3.33	3.42	10.90	12.22	2.11
Range	7	12-23	25-51	2.50-4.20	2.40-4.50	9.45-11.89	11.18-13.60	1.90-2.50
SE	0.00	0.92	2.09	0.14	0.18	0.20	0.19	0.04

**** BPB**, *Bauhinia Purpurea* in Bandarban district; **DBH**, diameter at breast height; and mean and standard error values were calculated from fifteen replications.

Table 7b. Yield-related quantitative features of *Bauhinia purpurea* accessions collected from Bandarban district

Sample ID	Fruit length (cm)	Fruit/pod breath (cm)				Number of seeds per pod	Seed length (cm)	Seed width (cm)	10 Seed weight (g)
		Apex	Middle	Base	Average				
BPB1	17.18	1.82	1.86	0.90	1.53	5	1.42	1.21	0.34
BPB3	15.94	1.46	1.78	1.06	1.43	4	1.46	1.31	0.24
BPB4	17.70	1.78	1.78	0.90	1.49	5	1.34	1.20	0.22
BPB5	18.55	1.25	1.475	0.70	1.14	4	1.21	1.11	0.29
BPB6	16.04	1.88	1.94	1.10	1.64	3	1.38	1.23	0.27
BPB8	16.08	1.78	1.92	1.00	1.57	6	1.28	1.19	0.18
BPB10	17.06	1.88	1.82	1.30	1.67	4	1.32	1.21	0.32
BPB12	17.34	1.94	2.00	1.24	1.73	5	1.48	1.26	0.20
BPB14	18.36	1.86	1.44	1.32	1.54	5	1.46	1.21	0.24
BPB15	17.64	1.92	1.70	1.42	1.68	5	1.23	1.12	0.23
Mean	17.19	1.76	1.77	1.09	1.54	4.60	1.36	1.21	0.25
Range	15.94-18.55	1.25-1.94	1.48-2.00	0.70-1.42	1.14-1.73	3-6	1.21-1.48	1.11-1.31	0.20-0.34
SE	0.30	0.07	0.06	0.07	0.05	0.27	0.03	0.02	0.02

BPB, *Bauhinia Purpurea* in Bandarban district. Importantly, we have collected data from **15-accessions at flowering stage; however, at fruiting stage, we have found fruits in **only 10-accessions**; and mean and standard error values were calculated from ten replications.

Table 8a. Morphological related quantitative features of *Bauhinia purpurea* accessions collected from Dhaka district

Sample ID	Age of tree	Tree height (ft)	Tree DBH (cm)	Tree spread (m) (E-W)	Tree spread (m) (N-S)	Leaf length (cm)	Leaf width (cm)	Length of peduncle/stalk (cm)
BPD1	18	40	86	11	15	15.68	18.37	2.53
BPD2	18	50	56	7	8.50	14.05	14.80	2.50
BPD3	18	45	66	6.20	6.40	14.49	16.29	2.59
BPD4	21	35	88	11	9	16.00	15.80	2.40
BPD5	15	35	68	8.5	8	14.65	16.25	2.20
Mean	18.00	41.00	72.80	8.74	9.38	14.97	16.30	2.44
Range	15-21	35-50	56-88	6.20-11	6.40-15	14.05-16.00	15.8-18.37	2.20-2.59
SE	0.95	2.92	6.17	1.00	1.48	0.37	0.58	0.07

**BPD, *Bauhinia Purpurea* in Dhaka district; DBH, diameter at breast height; and mean and standard error values were calculated from five replications.

Table 8b. Yield-related quantitative features of *Bauhinia purpurea* accessions collected from Dhaka district

Sample ID	Pod length (cm)	Pod breath (cm)			Average	Number of seeds per fruit/pod	Seed length (cm)	Seed width (cm)	10 Seed weight (g)
		Apex	Middle	Base					
BPD1	29.25	2.20	2.13	1.50	1.94	12	1.22	1.01	0.19
BPD3	31.16	2.21	2.12	1.51	1.95	13.30	1.30	0.90	0.18
Mean	30.21	2.21	2.13	1.51	1.95	12.65	1.26	0.96	0.19
Range	29.25-31.16	2.20-2.21	2.12-2.13	1.50-1.51	1.94-1.95	12-13.30	1.22-1.30	0.90-1.01	0.18-0.19
SE	0.96	0.01	0.01	0.01	0.00	0.65	0.04	0.06	0.00

BPD, *Bauhinia Purpurea* in Dhaka district. Importantly, we have collected data from **5-accessions at flowering stage; however, at fruiting stage, we have found fruits in **only 2-accessions**; and mean and standard error values were calculated from two replications.

Table 9a. Morphological related quantitative features of *Bauhinia purpurea* accessions collected from Gazipur district

Sample ID	Age of tree	Tree height (ft)	Tree DBH (cm)	Tree spread (m) (E-W)	Tree spread (m) (N-S)	Leaf length (cm)	Leaf width (cm)	Length of peduncle/stalk (cm)
BPG1	2	16	13	2.0	1.5	15.96	15.47	2.08
BPG2	15	30	53	7.0	7.1	17.00	12.95	2.00
BPG3	15	25	49	6.5	7.0	16.55	13.10	2.10
BPG4	5	16	25	4.3	4.1	10.05	11.68	1.30
BPG5	5	20	30	5.0	4.1	12.20	13.20	2.05
BPG6	5	21	30	5.0	5.3	12.65	13.65	2.25
BPG7	5	21	29	5.0	4.8	10.30	11.20	2.34
BPG8	5	19	26	6.0	6.1	11.60	12.45	2.12
BPG9	5	21	39	5.5	8.5	10.90	12.40	2.04
BPG10	5	22	22	4.2	3.7	10.10	11.80	2.00
BPG11	5	24	27	5.1	4.7	10.90	12.70	2.00
BPG12	5	18	30	5.0	6.0	12.55	14.20	2.25
BPG13	5	12	19	4.0	3.7	11.70	13.85	2.26
BPG14	5	25	30	4.8	6.1	11.45	13.45	1.95
BPG15	5	22	37	5.4	5.8	11.17	15.15	2.29
BPG16	5	23	30	5.4	5.0	11.25	13.90	2.26
BPG17	5	22	28	5.0	6.5	11.40	14.20	2.50
BPG18	5	19	28	5.0	6.6	9.50	14.30	2.00
Mean	5.94	20.89	30.28	5.0	5.4	12.07	13.31	2.10
Range	2-15	12-30	13-53	2-7.0	1.5-7.1	9.50-17.00	11.20-15.47	1.30-2.34
SE	0.79	0.95	2.25	0.25	0.38	0.52	0.27	0.06

** BPG, *Bauhinia Purpurea* in Gazipur district; DBH, diameter at breast height; and mean and standard error value were calculated from eighteen replications.

Table 9b. Yield-related quantitative features of *Bauhinia purpurea* accessions collected from Gazipur district

Sample ID	Pod length (cm)	Apex	Middle	Base	Average	Number of seeds per fruit/pod	Seed length (cm)	Seed width (cm)	10 Seed weight (g)
BPG2	26.38	2.19	2.19	1.77	2.05	11	1.43	1.44	0.32
BPG3	26.96	2.37	2.20	1.82	2.13	11	1.40	1.30	0.21
BPG4	26.15	1.84	1.76	1.20	1.60	8	1.13	1.00	0.11
BPG8	23.09	2.01	1.89	1.17	1.69	9	1.00	0.72	0.02
BPG14	26.47	2.03	1.91	1.62	1.85	13	1.38	1.18	0.19
BPG18	25.35	1.56	1.61	1.30	1.49	11	1.38	1.12	0.16
Mean	25.73	2.00	1.93	1.48	1.80	10.50	1.29	1.13	0.17
Range	23.09-26.96	1.56-2.37	1.76-2.20	1.20-1.82	1.49-2.13	8-13	1.00-1.43	0.72-1.44	0.02-0.32
SE	0.57	0.11	0.10	0.12	0.10	0.72	0.07	0.10	0.04

****BPG**, *Bauhinia Purpurea* in Gazipur district. Importantly, we have collected data from **18-accessions** at flowering stage; however, at fruiting stage, we have found fruits in **only 6-accessions**; and mean and standard error values were calculated from six replications.

Table 10a. Morphological related quantitative features of *kanchan* (*Bauhinia purpurea*) accessions collected from Jhenaidah district.

Sample ID	Age of tree	Tree height (ft)	Tree DBH (cm)	Tree spread (m) (E-W)	Tree spread (m) (N-S)	Leaf length (cm)	Leaf width (cm)	Length of peduncle/stalk (cm)
BPJ1	30	60	82	6.0	7.5	10.94	14.11	1.80
BPJ2	30	48	62	6.6	5.8	12.40	13.00	1.90
BPJ3	16	32	78	6.7	5.6	15.80	15.85	2.00
BPJ4	16	40	110	5.5	7.7	15.25	15.05	1.89
BPJ5	16	35	109	7.5	8.9	16.05	15.70	2.10
BPJ6	16	35	88	6.4	5.4	16.20	15.95	2.00
BPJ7	15	28	56	5.6	3.6	10.30	11.35	2.13
BPJ8	16	36	82	5.0	8.4	12.65	13.45	2.10
BPJ9	16	40	57	3.0	6.4	11.05	12.25	2.00
BPJ10	16	40	60	6.2	4.8	11.00	12.45	1.80
Mean	18.7	39.4	78.4	5.85	6.41	13.164	13.916	1.97
Range	15-30	32-60	56-110	3.0-7.5	3.6-8.9	10.30-16.20	12.25-15.95	1.80-2.13
SE	1.89	2.86	6.35	0.39	0.53	0.76	0.53	0.04

****BPJ**, *Bauhinia Purpurea* in Jhenaidah district; **DBH**, diameter at breast height; and mean and standard error values were calculated from ten replications

Table 10b. Yield-related quantitative features of *Bauhinia purpurea* accessions collected from Jhenaidah district

Sample ID	Pod length (cm)	Pod breath (cm)			Average	Number of seeds per fruit/pod	Seed length (cm)	Seed width (cm)	10 Seed weight (g)
		Apex	Middle	Base					
BPJ1	30.72	2.35	2.29	1.91	2.18	14	1.73	1.38	0.30
BPJ2	33.76	2.40	2.22	1.69	2.10	15	1.77	1.49	0.33
BPJ3	32.30	2.56	2.45	1.86	2.29	12	1.83	1.43	0.29
BPJ4	29.13	2.39	2.30	2.01	2.23	12	1.68	1.47	0.35
BPJ5	29.91	2.31	2.10	1.69	2.03	11	1.68	1.52	0.29
BPJ6	31.33	2.32	2.02	1.82	2.05	14	1.64	1.38	0.31
BPJ7	28.52	2.12	2.05	1.54	1.90	13	1.55	1.30	0.26
BPJ8	26.35	2.36	2.19	1.84	2.13	10	1.71	1.48	0.43
BPJ9	30.53	2.62	2.34	1.94	2.30	12	1.74	1.45	0.39
BPJ10	33.77	2.41	2.21	1.86	2.16	13	1.75	1.36	0.27
Mean	30.60	2.38	2.22	1.82	2.14	12.6	1.71	1.43	0.32
Range	26.35-33.77	2.12-2.62	2.02-2.45	1.54-2.01	1.90-2.30	10-15	1.55-1.83	1.30-1.52	0.26-0.43
SE	0.73	0.04	0.04	0.04	0.04	0.48	0.02	0.02	0.02

**BPJ, *Bauhinia Purpurea* in Jhenaidah district; and mean and standard error values were calculated from ten replications.

Table 11. Seed pathogenicity test of *Bauhinia purpurea* accessions collected from the different study locations (e.g., Bandarban, Dhaka, Gazipur and Jhenaidah)

Sample ID	Total seeds inoculated	Number of infected seeds	Pathogen identification	Sample ID	Total seeds inoculated	Number of infected seeds	Pathogen identification
BPB1	3	0	-	BPG4	5	5	<i>Rhizoctonia sp.</i>
BPB3	3	0	-	BPG8	5	5	<i>Rhizoctonia sp.</i>
BPB4	3	0	-	BPG14	5	0	-
BPB5	3	1	<i>Rhizoctonia sp.</i>	BPG18	5	0	-
BPB6	3	0	-	BPJ1	5	0	-
BPB8	3	0	-	BPJ2	5	0	-
BPB10	3	1	<i>Rhizoctonia sp.</i>	BPJ3	5	2	<i>Rhizoctonia sp.</i>
BPB12	3	0	-	BPJ4	5	0	-
BPB14	3	0	-	BPJ5	5	5	<i>Rhizoctonia sp.</i>
BPB15	3	2	<i>Rhizoctonia sp.</i>	BPJ6	5	5	<i>Rhizoctonia sp.</i>
BPD1	5	0	-	BPJ7	5	0	-
BPD3	5	0	-	BPJ8	5	0	-
BPG2	5	1	<i>Aspergillus niger</i>	BPJ9	5	2	<i>Rhizoctonia sp.</i>
BPG3	5	1	<i>Aspergillus niger</i>	BPJ10	5	0	-

****BPB**, *Bauhinia Purpurea* in Bandarban district; **BPD**, *Bauhinia Purpurea* in Dhaka district; **BPG**, *Bauhinia Purpurea* in Gazipur district; **BPJ**, *Bauhinia Purpurea* in Jhenaidah district.

Photographs of the study



Some of pictorial view while working in Lama, Bandarban.



Some of pictorial view while working in DOHS, Baridhara, Dhaka.



Some of pictorial view while working in BSMRAU and Gazipur Chowrasta, Gazipur.



Some of pictorial view while working in Kotchandpur, Jhenaidah.



Collected pods and seeds from the respective study locations.

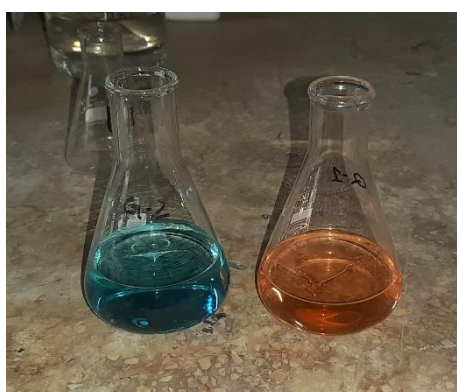
white	pearl	alabaster	snow	purple	mauve	violet	boysenberry
ivory	cream	egg shell	cotton	lavender	plum	magenta	lilac
chiffon	salt	lace	coconut	grape	periwinkle	sangria	eggplant
linen	bone	daisy	powder	jam	iris	heather	amethyst
frost	porcelain	parchment	rice	rasin	orchid	mulberry	wine
tan	beige	macaroon	hazel wood	blue	slate	sky	navy
granola	oat	egg nog	fawn	indigo	cobalt	teal	ocean
sugar cookie	sand	sepia	latte	peacock	azure	cerulean	lapis
oyster	biscotti	parmesan	hazelnut	spruce	stone	aegean	berry
sandcastle	buttermilk	sand dollar	shortbread	denim	admiral	sapphire	arctic
yellow	canary	gold	daffodil	green	chartreuse	juniper	sage
flaxen	butter	lemon	mustard	lime	fern	olive	emerald
corn	medallion	dandelion	fire	pear	moss	shamrock	seafoam
bumblebee	banana	butterscotch	dijon	pine	parakeet	mint	seaweed
honey	blonde	pineapple	tuscan sun	pickle	pistachio	basil	crocodile
orange	tangerine	merigold	cider	brown	coffee	mocha	peanut
rust	ginger	tiger	fire	carob	hickory	wood	pecan
bronze	cantaloupe	apricot	clay	walnut	caramel	gingerbread	syrup
honey	carrot	squash	spice	chocolate	tortilla	umber	tawny
marmalade	amber	sandstone	yam	brunette	cinnamon	penny	cedar
red	cherry	rose	jam	grey	shadow	graphite	iron
merlot	garnet	crimson	ruby	pewter	cloud	silver	smoke
scarlet	wine	brick	apple	slate	anchor	ash	porpoise
mahogany	blood	sangria	berry	dove	fog	flint	charcoal
currant	blush	candy	lipstick	pebble	lead	coin	fossil
pink	rose	fuchsia	punch	black	ebony	crow	charcoal
blush	watermelon	flamingo	rouge	midnight	ink	raven	oil
salmon	coral	peach	strawberry	grease	onyx	pitch	soot
rosewood	lemonade	taffy	bubblegum	sable	jet black	coal	metal
ballet slipper	crepe	magenta	hot pink	obsidian	jade	spider	leather

Color chart that we have used to select color for pod and seed skin color.

The Color Thesaurus for Writers and Designers from... - True Blue Me & You: DIYs for Creatives (truebluemeandyou.com)



Seed Pathogenicity Test at Plant Pathology Laboratory of BSMRAU



Soil test at Soil Science Laboratory of BSMRAU.