

FIG (*FICUS CARICA* L.): A NEW FRUIT CROP IN BANGLADESHH. Mehraj¹, R.K. Sikder², M.N. Haider³, M.S. Hussain¹ and AFM Jamal Uddin^{1*}

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Abstract

An experiment was executed at Sher-e-Bangla Agricultural University, Dhaka, Bangladesh to observe the performance of two exotic edible fig cultivars in Bangladesh. Indian and Egyptian fig cultivars are exploited on the experiment. Both of the fig cultivars performed very well in the climatic condition of Bangladesh. Egyptian fig provide 68.3 fruit/plant, fruit length (49.2 mm) and diameter (50.2 mm), fruit weight (46.2 g) and brix (13.1%). On the other hand, Indian fig provided 103.0 fruit/plant, fruit length (37.6 mm) and diameter (41.2 mm), fruit weight (35.8g) and brix (10.7%). So, it is possible to cultivate fig in Bangladesh.

Key words: *Ficus carica*, cultivated fig, Bangladesh

Introduction

The cultivated fig (*Ficus carica* L.) belongs to Moraceae family, is clearly of greatest importance as a source of human food. Fig probably originated in Western Asia and spread to the Mediterranean. Today, fig is a moderately important fruit crop in the whole world. The genus *Ficus* includes over 1400 species classified into about 40 genera (Watson and Dallwitz, 2004), with most found in the tropics or subtropics and only a handful with fruits considered edible (Condit, 1969). Fig is widely planted in door yards throughout the Mediterranean region (and similar climates), and is well adapted to drought and high temperatures (FAO, 2006). The prophet Mohammed (S) indication can be used for the fig cultivation. He said, "If I could wish a fruit brought to paradise it would certainly be the fig" (Condit, 1947). Fig is well adapted to the subtropical and mild temperate climates (Aksoy, 1997). The fig tree is tolerant of a wide range of environmental conditions, has a low chilling requirement, will withstand some frost and is tolerant of drought, although it grows most vigorously with abundant water but for the production of fresh fruit dry climate with light rains is essential because heavy rains during fruiting and ripening are detrimental. In Bangladesh, prior to summer season (March-May) provide suitable climate for fig production. Fig can be grown on a wide range of soils, including heavy clays, loams, and light sands, but ideally the soil should be well-drained. Figs are not usually seriously affected by pests except in high rainfall areas. It must be picked when slightly unripe in order to be firm enough for processing. Workers must wear gloves and protective clothing because of the latex. Harvested fruits are spread out in the shade for a day so that the latex will dry a little. This is composite fruit called a "syconium" (reviewed in Condit, 1947). The mature fruit of the edible fig has a somewhat tough skin, a whitish interior rind, and a sweet, gelatinous pulp comprised of the individual ripe drupelets. The seeds within the drupelets range from virtually nonexistent to subtly crunchy. Fig trees are prone to attack by nematodes (genus *Meloidogyne*) (McBeth, 1949) but control is possible with proper application of nematicides. Besides a common problem is leaf rust, leaf spot and fig mosaic (Salhi-Hannachi *et al.* 2004). Edible fig is a very important dietary fruit for human health because of its high nutrient value, fiber content and laxative peculiarity. It lowers cholesterol, controls blood pressure, helps in weight loss, prevents constipation, increases bone density, prevents cancer, good for those suffering from anemia and prevents asthma attacks. Therefore, it is consumed as fresh, dry, canned and preserved form in worldwide. The nutritional value of fresh figs is comparable to that of many other fruits. The economic importance of fig production is likely to continue into the future. In the world market, there is an increasing demand for fresh figs and a stable demand for dried figs. Edible fig is a new fruit of Bangladesh. Bangladesh has excellent climate and fertile land, also adequate water for irrigation and wide variety of soils, as well as a dynamic human resource. These favorable characteristics permit the

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cultivation of wide ranges of fruit trees. Considering the above facts the fig production was experimented in the climatic condition of Bangladesh.

Materials and Method

A factorial experiment was carried out at Sher-e-Bangla Agricultural University, Dhaka, Bangladesh during the period from January 2013 to June 2013 to observe the response of the two edible fig cultivars under the climatic condition of Bangladesh. Experiment was outlined in randomized complete block design (RCBD) with five replications. Five plants of each variety with the age of one and half years were selected for the experiment. Two fig cultivars were exploited on the experiment viz., Indian fig and Egyptian fig. Data were collected on plant height, number of branch/plant, number of sub-branch/branch, number of leaves/branch, leaf area, number of fruit/branch, number of fruit/plant, fruit length, fruit diameter, fruit weight and brix percentage. Leaf area, fruit length and diameter, fruit weight and brix percentage were measured by using CL-202 Leaf Area Meter, Digital Caliper-515 (DC-515), Electronic Precision Balance and Portable Refractometer (ERMA, Tokyo, Japan) respectively. All parameters were statistically analyzed by using MSTAT-C program. Mean for all the treatments was calculated, analysis of variance for each of the characters was performed by F-test and difference between treatments was evaluated by Least Significant Difference (LSD) at the 5% level of significance (Gomez and Gomez 1984).

Result and Discussion

Plant height: Fig cultivars showed significant differentiation in terms of plant height. Taller plant found from Indian fig (3.1 m) whereas shorter plant was observed from Egyptian fig (2.8 m) (Table 1).

Number of branch/plant: Number of branch/plant varied significantly between fig cultivars. More number of branch/plant was found from Egyptian fig (20.7) while Indian fig showed less number of branch/plant (10.7) (Table 1).

Number of sub branch/ branch: Number of sub-branch/branch also differed between the fig cultivars. More number of sub-branch/branch was observed from Egyptian fig (9.0) while less number from Indian fig (3.3) (Table 1).

Number of leaf/branch: Number of leaves of two fig cultivars varied significantly. More number of leaves/branch was found from Egyptian fig (48.0) while less number of leaves/branch was observed from Indian fig (18.3) (Table 1).

Leaf area: Significant variation was found between fig cultivars in case of leaf area. Indian fig provided more leaf area (1212.0 cm²) than the Egyptian fig (884.2 cm²) (Table 1).

Number of fruit/branch: Significant variation was found in terms of number of fruits/branch between the fig cultivars. Indian fig provided more number of fruit/branch (26.7) than the Egyptian fig (16.3) (Table 1).

Number of fruit/plant: Significant variation was found in terms of number of fruits/plant between the fig cultivars. Indian fig presented more number of fruit/plant (103.0) than the Egyptian fig (68.3) (Table 2).

Fruit length: Fruit length differed significantly between the fig cultivars. Fruit of Egyptian fig was longer (49.2 mm) than the fruit of Indian fig (37.6 mm) (Table 2).

Fruit diameter: Fruit diameter varied significantly among the cultivars. Maximum diameter was found from Egyptian fig (50.2 mm) whereas minimum from Indian fig (41.2 mm) (Table 2).

Fruit weight: Individual fruit weight of fig cultivars varied significantly between the cultivars. Egyptian fig provided greater individual fruit weight (46.2 g) than the Indian fig (35.8 g) (Table 2).

Brix%: Brix percentage of both fig cultivars varied significantly. Egyptian fig provided more brix (13.1%) than the Indian fig (10.7%) (Table 2).

Table 1. Response of two exotic edible fig cultivars under climatic condition of Bangladesh to different growth related attributes

Variety	Plant height (m)	Number of branch / plant	Number of sub branch / branch	Number of leaf/ branch	Leaf area (cm ²)	Number of fruit/ branch
Indian	3.1 a	10.7 b	3.3 b	18.3 b	1212.0 a	26.7 a
Egyptian	2.8 b	20.7 a	9.0 a	48.0 a	884.2 b	16.3 b
LSD0.05	0.2	2.4	1.2	12.4	101.1	8.7
CV%	5.7	11.2	8.4	9.3	15.7	5.7

Table 2. Response of two exotic edible fig cultivars under climatic condition of Bangladesh to different yield related attributes

Variety	Number of fruit/ plant	Fruit length (mm)	Fruit diameter (mm)	Fruit weight (g)	Brix %
Indian	103.0 a	37.6 b	41.2 b	35.8 b	10.7 b
Egyptian	68.3 b	49.2 a	50.2 a	46.2 a	13.1 a
LSD0.05	16.9	7.3	6.8	7.9	1.1
CV%	12.3	10.3	11.2	13.5	2

A comparative analysis was done within the fig varieties and presented in the table 3 and plate 1 and plate 2

Table 3. Comparison between the Indian fig and Egyptian fig (Plate 1 and 2)

Sl. No.	Characteristics	Indian Fig	Egyptian Fig	Plate No.
1	Form	low-branching tree; usually single trunked	More-branching tree; usually single trunked	1a
2	Leaves	Simple, 2-3 lobes	Simple, 4-5 lobes	1b
3	Leaf shape	Base calcarate, lobes latate	Base calcarate, lobes linear	1b
4	Tree vigor	Intermediate	High	
5	Terminal bud color	Light green	Green	
6	Petiole color	Light green	Green	1c
7	Harvest period	June-July	June-July	
8	Shape of fruit stalk	Long and slender	Short and thick	
9	Fruit size	Small to Medium	Medium to Large	2a
10	Fruit shape	Oblate	Oblate	2a
11	Fruit skin color	Whitish	Brownish	2a
12	Fruit pulp color	Deep brown	Off white	2b
13	Ease of peeling	Moderate	Moderate	
14	Use	Fresh or dried	Fresh or dried	
15	Seed content	More	Less	2b
16	Taste	Less	More	

Conclusion

From the above result and discussion it can be concluded that the both of exotic edible fig cultivars are able to cultivate in Bangladesh condition. But in consideration of quality Egyptian fig is better to cultivate.

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Indian Fig



Egyptian Fig

(a)



Indian Fig



Egyptian Fig

(b)



Indian Fig



Egyptian Fig

(c)

Plate 1. Variation between Indian and Egyptian fig cultivars in terms of growth characteristics (a) Whole plant overview, (b) Leaf variation and (c) Petiole color and fruiting pattern



Indian Fig



Egyptian Fig

(a)



Indian Fig



Egyptian Fig

(b)

Plate 2. Variation between Indian and Egyptian fig cultivars in terms of fruit characteristics (a) Fruit shape and color and (b) Horizontal section of fruit