



Farmers' Perception on Fig (*Ficus carica*) Cultivation in Kolaroa and Kaligonj Upazilla of Satkhira

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ABSTRACT

Fig (*Ficus carica* L.) grows as wild trees in Bangladesh. Some improved exotic fig cultivars showed cultivation potentials to replace the abundantly grown wilds. However, assessing the farmers' perception about fig would enable the extension workers to provide the farmers with better co-operations for easing its cultivation in a locality and facilitate the introduction of fig as a new fruit crop. To assess farmers' perception about fig cultivation, possible problems and solutions- a survey was conducted using a pretested interview questionnaire from randomly selected 100 respondents at Kolaroa and Kaligong upazilla of Satkhira district through face-to-face interview during December 2018. Farmers' perception index regarding problems and solutions were calculated along with ranking of the problems and solutions using SPSS software. From the study it revealed that, majority of the respondents were willing to grow fig commercially (88%) and could identify the regarding problems (68%) which signifies that majority of them (55%) bear higher level of perception in identification of the problems associated with fig cultivation. Moderate to higher level of perception about possible solutions of the problems were showed by 33% and 65% of the respondents respectively. About 57% respondents possess overall clear perception in identifying the problems and their possible solutions regarding fig cultivation. Among selected characteristics- age, educational qualification, extension media contact, farming experiences, farm size and organizational participation showed significant positive correlation with the perception of the farmers in respect of identification of the problems and possible solutions or overall perception. However, cosmopolitanism showed significant negative correlation in this regard. Among the problems, lack of quality seedlings was identified as the major problem (score 89.00%) and uncertainty about marketing was the most minor one (score 30.00%) which could be mitigated by seedling production and distribution at reasonable price (score 91.25%).

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Introduction

Fig (*Ficus carica*) is a Mediterranean deciduous fruit belonging to the family Moraceae. The Greeks considered the fig to be “more precious than gold” about 2000 years back (Washburn and Brennand, 2010) and it is rich in both nutritional and medicinal value (Soni *et al.*, 2014). Fig possesses traditional therapeutic value as the fruit, root and leaves of *Ficus carica* are used as medicine in different gastro intestinal, respiratory inflammation and cardiovascular disorders. It is also famous for its laxative actions (Marwat *et al.*, 2011).

Fig is mainly grown in the temperate regions as fruit, but also grows in tropical and subtropical zones. It can be grown in coastal areas and are tolerant of most types of soil (Brien, 2002). In Bangladesh wild species of figs are grown. Though its use as vegetable is common in some rural areas, but it is not accepted as fruit to local people (Mehraj *et al.*, 2013). As a developing country, malnutrition is a common feature in Bangladesh (Rahman *et al.*, 2017) where each person consumes only 44.7 g (HIES, 2010) of fruit daily instead of 100 g as recommended by FAO/WHO (2003) (cited in Uddin *et al.*, 2005). About 54% fruits are produced during the four months of summer and rainy season and only 46% produced during the rest eight months in Bangladesh. The most lag period for fruits in this country is November to May (BBS, 2015). Production and the availability of fruits may be improved by introducing new fruit crops as fig in the fruit cultivation schedule of Bangladesh. But fig is not cultivated in Bangladesh as a traditional fruit crop and information is scarce on its status of cultivation here. No attempt has been taken for mass and managed cultivation of fig in our country. This may be due to unavailability of suitable variety or lack of knowledge about its nutritional value and cultural procedure. Moreover, the level of farmers’ perception about the possible problems and their suitable solutions in cultivation of fig as a fruit crop in Bangladesh would enable the extension workers to provide them with better support for its cultivation. The necessity of studying farmers’ perception during introducing and adapting new cultural practices has been described by Pinthukas (2015) while he studied the farmers’ adaptation in organic vegetable production for sustainable livelihood in Chiang Mai Province, Thailand. Studies on farmers’ perception on risks in fruits and vegetable production in Vietnam, India and Nigeria were conducted by Mele (2000), Ali and Kapoor (2008) and Fakayode *et al.* (2012) respectively. Such study was also considered importantly for assessing the impact of climate change on economic crop cultivation in Nigeria (Agwu, 2018) and Japan (Fujisawa and Kobayashi, 2013). Byg and Balslev (2006) evaluated the impact of indigenous crop cultivation practices on socio-economic status of the farmers in Ecuador on the basis of farmers’ perception. In these regards, the current study has been designed to collect information on the farmers’ perception about fig cultivation, its acceptability as a fruit crop, farmers’ opinion about possible problems related to cultivation and their possible solutions to cultivate fig as a fruit crop in Satkhira, Bangladesh.

Methodology

Locale and time of the survey

The survey was conducted by using a pretested interview questionnaire from randomly selected 100 respondents at eight villages from Keralkata and Sonabaria union of Kolaroa upazilla and Varashimla and Bishnupur union of Kaligonj upazilla of Satkhira district, Bangladesh through face-to-face interview during 2 to 30 December 2018. The sample selection method was purposive random sampling (50 farmers from each of the upazilla) technique (Tongco, 2007).

Measurement of variables

Personal and socioeconomic characteristics viz. age, education, family size, experience in agriculture and fruit cultivation, farm size, annual income, extension media contact, organizational participation and cosmopolitanism were considered as independent variables and perception as dependent variable.

Data calculation

Prior to calculate problem confrontation and perception index, data were edited and transferred to coding sheet with numerical scores given to each question.

Indexing problems, solutions and perceptions of the farmers

Calculation of Problem confrontation index (PCI): Respondents were asked to rate each of the six possible problems according to their own opinion. Thus problem confrontation score of a respondent may vary from 0 to 18 where 0 indicates no problem and 18 refer to high problem confrontation. Problem Confrontation Index (PCI) was calculated by using following formula:

$$PCI = (N_1 \times 0) + (N_2 \times 1) + (N_3 \times 2) + (N_4 \times 3) \text{ (Bashar, 2006)}$$

Here, PCI = Problem Confrontation Index, N_1 = No problem, N_2 = Less severe problem, N_3 = Moderately severe problem and N_4 = Highly sever problem.

Problem and solution ranking: For problem and solution ranking total score obtained against the statements in respect of the possible problems and their solutions were calculated and arranged them in ascending order. The score was calculated by the following formula -

$$PS \text{ or } SS = (N_4 \times n) + (N_3 \times n) + (N_2 \times n) + (N_1 \times n)$$

Where, PS = Problem score, SS = Solution score, n = Number of respondents, N_1 = No problem (score 0) or not suitable solution at all (score 1), N_2 = Less severe problem (score 1) or less suitable solution (score 2), N_3 = Moderately severe problem (score 2) or moderately suitable solution (score 3) and N_4 = Highly sever problem (score 3) or highly suitable solution (score 4).

Every respondent (total 100) may assign minimum 0 and maximum 3 for a specific problem which might be 1 and 4 for a specific solution. So, in case of problem the total score may vary from 0 to 300 and for probable solutions the total score may range from 1 to 400.

The extent of possible problem severity (%) related to fig cultivation in Khulna region was measured by using the following formula -

% Problem severity = Calculated problem score ÷ Maximum possible problem score (i.e. 300) × 100

Calculation of Farmers' Perception Index (FPI): Farmers' Perception Index (FPI) was calculated in the same way like PCI calculation technique. Farmers' perception was categorized as perception in problem perspective, perception in solution perspective and overall perception. Here four point Likert type rating scale was assigned as 4, 3, 2 and 1 against both problem and solution related perceptions. In case of problems these indicate high severity (N₄), moderate severity (N₃), low severity (N₂) and not severe at all (N₁) and in case of solution, these refer to solutions as highly suitable (N₄), moderately suitable (N₃), less suitable (N₂) and not suitable at all (N₁) (Likert, 1932; Pervin *et al.*, 2018). The scores were assigned on the basis of the response of the respondents and researchers assumption through wise man discussion. Where both synchronized the farmers scored maximum and other scores were assigned accordingly. Summing up all the scores obtained by a respondent, perception score was determined. Thus perception score of a respondent may vary from 6 to 24. This score was again categorized in three categories as less clear perception (score 6-12), moderately clear perception (score 12 to 18) and clear perception (score >18). Overall perception was calculated by calculating the mean of perception in problem perspective and perception in solution perspective.

Data analysis

Data were analyzed by using Microsoft Excel and Statistical Package for Social Science (SPSS). To explore relationship between dependent and independent variables Pearson's Product Moment correlation coefficient 'r' was employed.

Result and Discussion

Socioeconomic status of the respondents

From the survey it revealed that majority of the respondents are middle aged (67%) with a good portion of young (27%) bearing an average of secondary level of education (62%) (Table 1) with 23.65 years of experience in agriculture and fruit cultivation (67% of respondents) and holding a family of ≤ 4 members having high income (51% of the respondents). Most of the respondents are small (64%) to medium (33%) farmers owing only 51-247 decimal of land property. They are mostly in medium (46%) to high (28%) contact with different extension media though their organizational participation is very low (100%). The respondent also showed low (51%) to medium (44%) cosmopolitanism. The socioeconomic status of the respondents signifies that, majority of them are young to middle aged having at least secondary level of education however they prefer government or

nongovernment jobs or run their own business rather practicing agriculture as they think that it will degrade their social status. Moreover they are interested to adopt modern technologies through extension media or internet but still unwilling to form organization or hold any position in organization. Similar observation was also reported by Huque *et al.* (1996). Akanda *et al.* (2017) reported that organizational participation of the farmers is one of the vital predictors towards motivation on new crop cultivation. From the study it revealed that people who are more cosmopolite are not solely dependent on agriculture.

Table 1 Socioeconomic status of the respondents

Characteristics with category	Respondents (N=100)		Mean	Std. Deviation	Range
	Major findings	Percentage			
Age (Year) {Young (≤ 35), Middle (36-55) Old (≥ 56)}	Middle age	67	42.94	09.97	20 -68
Education (Schooling year) {Illiterate, can sign, primary (I-V), secondary (VI-X), HSC (XI-XII), bachelor (\geq XIII) , graduate ($>$ XVI)}	Secondary level	62	7.39	3.73	00-17
Family size (number) {Small (≤ 4 , medium (5-6), large (>6)}	Small	48	4.68	2.23	2-16
	Medium	42			
Experience in Agriculture (Year) {Low (≤ 10), medium (11-20), high (>20)}	Medium	24	23.65	10.70	10-45
	High	70			
Experience in fruit cultivation (Year) {Low (≤ 10), medium (11-20), high (>20)}	Medium	20	24.51	12.26	3-45
	High	67			
Farm size (Decimal){Landless (≤ 5), marginal (6-50), small (51-247), medium (248-741), large (> 741)}	Small	64	219.28	140.46	30-707
	Medium	33			
Income ('000' BDT) {Low (≤ 120), Medium (120-180) high (>180)}	high income	51	217.71	212.59	4-920
	Low income	40			
Extension media contact (Score) {Low (≤ 13), medium (14-26), high (> 26)}	Medium contact	46	20.54	8.36	7-39
	High contact	28			
Organizational participation (Score) {Low (≤ 7), medium (8-14), high (>14)}	Low	100	1.27	1.39	00-6
Cosmopolitanism (Score) {Low (≤ 10), medium (11-20), high (> 20)}	Low	51	11.27	5.40	4-24
	Medium	44			

They have other occupations for their livelihood. People prefer more easy but luxurious life which is not possible from agriculture as a profession in Bangladesh perspective. So they move place to place in search of new and preferable income source. Sevincer *et al.* (2017) reported similar findings where they found that people migrate from one city to another where income source is more and available for their better lives.

Present status and prospects of fig cultivation

Teen (*Ficus carica*) is a shrub type plant which is also easy to grow even in the homestead of the farmers (Brien, 2002). No respondents cultivate or eat locally grown fig (*Ficus racemosa* or *Ficus hispida*) as fruit. These are spontaneously grown in nature in Bangladesh (Table 2). Majority of the respondents (68%) already know about teen (*Ficus carica*) as an edible fig from the Holy Quran, Hadith and the Bible (Borhany, 2005). Many of them experienced its taste during performing the Hazz or from their relatives who brought these fruits after performing Hazz.

Table 2 Present status and prospects of fig cultivation in Khulna, Bangladesh

Sl. no.	Questions	Answer			
		Tree		Shrub	
		Number	Percent (%)	Number	Percent (%)
1	What type of fig plant grown in your locality?	100	100	00	00
		Naturally		Cultivated	
		Number	Percent (%)	Number	Percent (%)
2	How does fig grown in your locality?	100	100	00	00
		YES		NO	
		Number	Percent (%)	Number	Percent (%)
3	Do you eat fig as fruit grown in your locality?	00	00	100	100
4	Do you cultivate fig in your orchard?	00	00	100	100
5	Do you know about edible fig (teen)?	68	68	32	32
6	Are you willing to eat 'teen' as fruit?	96	96	04	04
7	Would you cultivate 'teen' if it is possible in your locality?	100	100	00	00
8	Would you cultivate 'teen' if you get seedlings of good variety?	100	100	00	00
9	Would you cultivate 'teen' commercially if it is possible in your locality?	88	88	12	12

Sometimes people working in the Middle East also bring fruit as they consider it as a holy fruit. In neighboring country India, *Ficus carica* is also a beloved, popular fruit and grow well in several states (Kumar, 2007). Most of the respondents (96%) are willing to eat *Ficus carica* as fruit if grown in their locality. All respondents are interested to cultivate *Ficus carica* as fruit but they feel lack of appropriate production technology and good varieties. The farmers (about ninety percent) wish to cultivate it commercially because of its very high value (Reddy *et al.*, 2008).

Problem severity was measured based on farmers' opinion where the problem severity score ranged from 4 to 18 in a scale of 0 to 18. Majority of the respondents (68%) considered the sorted problems as moderate severe, 25% rated the problems as acute severe and 7% as low severe (Table 3).

Table 3 Categorization of the respondents on the basis of obtained problem score

Problem category	Score	Number of respondents	Percentage (%)	Mean	Std. Deviation	Range of score
Less severe problem	≤6	7	7			
Moderate severe problem	7-12	68	68	13.33	2.79	4-18
Severe problem	>12	25	25			

Possible problems and their rank order in respect of teen cultivation

As identified by the farmers, lack of quality seedlings was the most severe problem scoring 267 out of 300 (Table 4) followed by high price of seedlings (score 241), lack of knowledge about production technology (score 176) and nutritional value of fig (score 132) and no idea about edible fig (score 119). According to the farmers' opinion, marketing of any fruit is not a problem at all. So, uncertainty about marketing was considered as the least severe problem (score 90 out of 300).

Table 4 Possible problems and their rank order in relation to *Ficus carica* cultivation

Possible Problems	Problem Confrontation Index (PCI) Score (Out of 300)	Rank Order
Lack of quality seedlings	267	1 st
High price of seedlings	241	2 nd
Lack of knowledge about production technology of fig	176	3 rd
No knowledge about nutritional value of fig	132	4 th
Have no idea about edible fig	119	5 th
Uncertainty about marketing of fig	90	6 th

Rank order of the possible solutions related to Teen (*Ficus carica*) cultivation

The most suggested solution was seedling production and distribution at reasonable price through different horticulture centre scoring 365 out of 400 i.e. 91.25%. Besides this, mass circulation about *Ficus carica* by extension workers, electronic and print media, development of production technology and training up the farmers, by establishment of demonstration plots, etc. are also suggested by the respondents to alleviate the possible problems. Arranging seminar /symposium/ conference/ workshops /training programs for the stakeholders was the least preferred solution (score 145 out of 400) (Table 5).

Table 5 Rank order of the solutions related to *Ficus carica* cultivation

Solution	Score (Out of 400)	Ranking
Seedling production and distribution at reasonable price through different horticulture centre	365	1 st
Mass circulation by extension workers	354	2 nd
Mass circulation by electronic and print media	335	3 rd
Training on production technology of fig	321	4 th
Establishing demonstration plots	315	5 th
Training for seedling production at farmers level	311	6 th
Developing suitable production technology by research for Bangladesh	300	7 th
Inclusion of fig in the fruit list of Bangladesh and dissemination of its production technology	255	8 th
Cultivation by farmers' organizations and taking steps for sales though collection points	229	9 th
Creation of markets of fig	208	10 th
Fixing reasonable price of seedlings by the government	202	11 th
Harmonizing supply chain between the super shops and the producers	189	12 th
Involving different NGOs for making fig popular as a fruit.	185	13 th
Training up the nursery owners for seedling production	163	14 th
Arranging seminar /symposium/ conference/ workshops /training programs for the stakeholders	145	15 th

Possible problems and solutions for teen (*Ficus carica*) cultivation as perceived by the respondents

The greater part (55%) of the selected farmers showed clear perception about problem identification while moderate and less clear perception was showed by 42% and 3% respondents respectively. Perception score ranged from 14 to 23 with a mean of 18.68 and a standard deviation of 1.93 in problem perspective (Table 6). In solution perspective, perception ranged from 15 to 24 with a mean and standard deviation of 17.91 and 1.73

respectively. Majority of the respondents (65%) appraised moderate clear perception about the probable solutions followed by clear (33%) and less clear (2%) perception. About 51% of the farmers possessed overall clear perception i.e. the perception on both of the problem and solution perspective. The finding on the farmers' perception signifies the existing active role of extension media in the study area. Agriculture extension media plays pivotal role in making Farmer's knowledge level high and bringing them to know about new technologies and policies. As a result, the farmers enables to identify problems and predict probable solutions regarding crop production, processing, marketing, etc. (Maoba, 2016)

Table 6 Perception of the respondents regarding the identification of possible problems and their solutions in fig (*Ficus carica*) cultivation

	Category	Score	Number	Percentage (%)	Mean	Std. Deviation	Range
Perception (Problem perspective)	Less	6-12	3	3	18.68	1.93	14-23
	Moderate	13-18	42	42			
	Clear	>18	55	55			
Perception (Solution perspective)	Less	6-12	2	2	17.91	1.73	15-21
	Moderate	13-18	65	65			
	Clear	>18	33	33			
Overall perception	Less	6-12	2	2	18.29	1.53	15-22
	Moderate	13-18	47	47			
	Clear	>18	51	51			

Correlation between the selected characteristics of the respondents with their problem confrontation and perception

Age, educational qualification, farming experience, extension media contact, organizational participation and cosmopolitanism showed significant relationship with problem confrontation and perception (perception in problem and solution perspective and overall perception) of the respondents (Table 7).

Age showed significant positive correlation with perception in problem and solution perspective at 1% level of significance and with overall perception at 5% level of significance. Increased age ensured longer involvement with agriculture which may raise their capacity to measure problem severity and to predict probable solutions.

Educational qualification is significantly correlated with the perception in solution perspective at 1% level of significance. Usually educated people do not take agriculture as profession in Bangladesh. Distance with agriculture increases with higher institutional education. So, they cannot perceive the agricultural problems properly but can predict the proper solutions when problems are placed before them.

Extension media contact showed significant positive relationship at 1% level of significance with perception in problem perspective, solution perspective and overall

perception. However, significant positive relationship at 5% level of significance was observed with problem confrontation. Cosmopolitanism showed significant negative correlation at 1% level of significance with perception in problem perspective. This may be due to their involvement with occupations other than agriculture. They have to move from their own locality to other for the need of livelihood but they may not be directly related to agriculture or agriculture may not be their sole occupation (Sevincer *et al.*, 2017). All other relationships were non-significant.

Table 7 Pearson's Product Moment correlation coefficient (r) between the selected characteristics of the respondents and their problem confrontation and perception

Sl no	Characteristics	Pearson's Product Moment Correlation coefficient (r)			
		Problem confrontation in fig cultivation	Perception (Problem perspective)	Perception (Solution perspective)	Perception (Overall)
1	Age	-0.162 ^{NS}	0.285 ^{**}	0.247 ^{**}	0.312 [*]
2	Educational qualification	0.043 ^{NS}	0.149 ^{NS}	0.042 ^{**}	-0.68 ^{NS}
3	Family size	0.072 ^{NS}	0.214 ^{NS}	0.337 ^{NS}	0.331 ^{NS}
4	Farming experience	0.205 [*]	0.052 ^{NS}	-0.082 ^{NS}	0.078 ^{NS}
5	Experience in fruit farming	0.081 ^{NS}	0.36 ^{NS}	-0.200 ^{NS}	0.151 ^{NS}
6	Income	-0.016 ^{NS}	-0.135 ^{NS}	0.224 ^{NS}	-0.108 ^{NS}
7	Farm size	0.172 ^{NS}	-0.277 ^{NS}	0.284 ^{**}	0.004 ^{NS}
8	Extension media contact	0.211 [*]	0.223 ^{**}	0.319 ^{**}	0.209 ^{**}
9	Organizational participation	0.104 ^{NS}	0.028 ^{NS}	0.207 [*]	-0.056 ^{NS}
10	Cosmopolitanism	-0.322 ^{**}	-0.321 ^{**}	-0.094 ^{NS}	0.027 ^{NS}

NS= Non-significant; ** Significant at the 0.01 level (2-tailed); * Significant at the 0.05 level (2-tailed)

Conclusions

Majority of the respondents know (68%) about edible fig (Teen) and all of them are willing to eat and cultivate fig as fruit. Lack of quality seedlings was rated as most important problem which could be mitigated by seedling production and distribution at reasonable price through different horticulture centers. If quality seedlings could be confirmed, fig could be cultivated commercially in Kolaroa and Kaligonj upazilla of Satkhira district.

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References

- Agwu, O.P., A. Bakayoko, S.O. Jimoh and P. Stefan. 2018. Farmers' perceptions on cultivation and the impacts of climate change on goods and services provided by *Garcinia kola* in Nigeria. *Ecol Process* 7: 36.
- Akanda, M., A. Badhan and A.T.M.S. Haque, 2017. Farmer's level motivation on sunflower cultivation in a rice based cropping pattern of Patuakhali district. *Asian Journal of Agricultural Extension, Economics & Sociology*, 18(2): 1–11.
- Ali, J. and S. Kapoor. 2008. Farmers' Perception on Risks in Fruits and Vegetables Production: An Empirical Study of Uttar Pradesh. *Agricultural Economics Research Review*, 21: 317-326.
- Bashar, M.A. 2006. Problem confrontation of the farmers in mushroom cultivation, MS Thesis in Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka.
- BBS (Bangladesh Bureau of Statistics). 2015. Year Book of Agricultural Statistics of Bangladesh. Bangladesh Bureau of Statistics, Statistics Division, Ministry of Planning, Government of the Peoples' Republic of Bangladesh, Dhaka.
- Borhany, Q.S.A. 2005. Fig: the medicinal fruit of the Quraan. *Yemen Times*, 883(14). Available at: <http://www.yementimes.com/article.shtml>. (Accessed on September 23, 2018).
- Brien, J. 2002. Fig Growing in NSW. Agfact H3.1.19, first edition. NSW Agriculture. www.agric.nsw.gov.au. (Accessed on September 12, 2018).
- Byg, A. and H. Balslev. 2006. Palms in indigenous and settler communities in southeastern Ecuador: farmers' perceptions and cultivation practices. *Agroforestry Systems*, 67:147–158.
- Fakayode, S., M. Rahji and S. Adeniyi. 2012. Economic analysis of risks in fruit and vegetable farming in Osun state, Nigeria. *Bangladesh Journal of Agricultural Research*, 37(3): 473-491.
- Fujisawa, M. and K. Kobayashi. 2013. Shifting from apple to peach farming in Kazuno, northern Japan: perceptions of and responses to climatic and non-climatic impacts. *Reg. Environ. Change*, 13:1211–1222.
- Huque, M.M., M.H. Rashid and M.L. Rahman. 1996. Adoption of improved practices by potato farmers. *Bangladesh J. Agric. Econ.*, 2: 59-69.
- Kumar, A. R. 2007. Studies on Integrated Nutrient and Post-Harvest Management of Fig (*Ficus carica*L.). Krishikosh, UAS Dharwad, <http://krishikosh.egranth.ac>. (Accessed on May 22, 2018).
-

- Likert, R. 1932. A Technique for the Measurement of Attitudes. *Archives of Psychology*, 140: 1–55.
- Maoba, S. 2016. Farmers' perception of agricultural extension service delivery in germiston region, gauteng province. *South Africa. S. Afr. J. Agric. Ext.*, 44 (2): 167–173.
- Marwat, S. K., M. A. Khan, F. U. Rehman, A. H. Akbari, M. Ahmad, M. Zafar and F. Ahmad. 2011. Medicinal and Pharmacological Potentiality of the Plant At-Tin-Common Fig (*Ficus carica* L.). *Asian Journal of Chemistry*, 23(1): 1-10.
- Mehraj, H., R.K. Sikder, M.N. Haider, M.S. Hussain and A. F. M. J. Uddin. 2013. Fig (*Ficus carica* L.): A New Fruit Crop in Bangladesh. *International. J. Business, Socio. and Sci. Res.*, 01(01): 01-05. <http://www.ijbssr.com>
- Mele, P.V. 2000. Evaluating farmers' knowledge, perceptions and practices: a case study of pest management by fruit farmers in the Mekong Delta, Vietnam. Doctoral thesis Wageningen University, the Netherlands. 240P.
- Pervin, S., A. R. Chowdhury, M. M. Islam, M. B. Ahmed and R. Ara. 2018. Present status and problem confrontation of oil seed cultivation in southwest region of Bangladesh. *Journal of Bangladesh Agricultural University*, 16(2): 198–207. DOI: 10.3329/jbau.v16i2.37961.
- Pinthukas, N. 2015. Farmers' Perception and Adaptation in Organic Vegetable Production for Sustainable Livelihood in Chiang Mai Province, paper presented in the 1st International Conference on Asian Highland Natural Resources Management, AsiaHiL and 2015, Agriculture and Agricultural Science Procedia, 5: 46 – 51.
- Rahman, M. R., M. K. Hossain and M. Alam. 2017. Prospects and problems of fruit tree cultivation in khagrachari sadar upazilla. *International Journal of Usufruct Management*, 18(2): 13-24.
- Reddy, K. V. R., C. P. Reddy and P. V. Goud. 2008. Effect of auxins on rooting of fig (*Ficus carica*) hardwood and semi hardwood cuttings. *Indian J. Agric. Res.*, 42 (1): 75 - 78.
- Sevincer, A.T., M.E.W. Varnum and S. Kitayama. 2017. The Culture of Cities: Measuring Perceived Cosmopolitanism. *Journal of Cross-Cultural Psychology*, 00(0): 1-21.
- Soni, N., S. Mehta, G. Satpathy and R.K. Gupta. 2014. Estimation of nutritional, phytochemical, antioxidant and antibacterial activity of dried fig (*Ficus carica*). *Journal of Pharmacognosy and Phytochemistry*, 3 (2): 158-165.
- Tongco, M.D.C. 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5: 147–158.
- Uddin, M.S., M.K. Hossain and S.M.S. Huda. 2005. Status, distribution and market prices of major fruits in Chittagong district, Bangladesh. *Int. J. For. Usuf. Mngt.* 6(2): 23-30.
- Washburn, C. and C. Brennand. 2010. Preserve the harvest, Utah State University, FN/Harvest/2005-06pr. (Available from <https://extension.usu.edu/>; Accessed on September 23, 2018).