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Article 01

Urban Storm Water Management and Mitigation of Water Logging in RDA Campus, Bogra, Bangladesh

Md. Mahabubur Rahman[1], Chowdhury Sarwar Jahan[1],
Md. Ferozur Rahaman[2], Quamrul Hasan Mazumder[1],
M A Matin[3], Md. Nazrul Islam Khan[3], Md. Ferdous Hossain Khan[3]

Abstract

In recent years, the Rural Development Academy (RDA), Bogra campus and its surrounding areas are facing water logging problem. As there is no nearby Khals (canals) or rivers to flow out excess storm/ runoff water especially in rainy season, it inundates the campus as well as surrounding villages and is creating conflict. As the building area has stopped the natural infiltration capacity of rainwater to aquifer, the authority is actively thinking about the management plan for the storm water to mitigate water logging problem. In the present study, the application of the Managed Aquifer Recharge (MAR) technique – a water banking system has considered as mitigation measure for solving the logging problem in the campus and also surrounding villages as pioneer approach. To assess the potentiality of this technique, meteorological as well as hydro-geological study is carried out. Here the annual average amount of rainfall is nearly 1700 mm with an annual increasing trend of 0.19 mm and is the main source of storm water. The average discharged volume of storm water from the residential area (33% of total area) is nearly 166,000 m3 of which 10% is contributed from roof catchment of the major buildings. In the hydro-geological study, the geo-electrical resistivity survey is conducted through the Vertical Electric Sounding (VES) technique and reveals that the upper clay and sandy clay lithology (clay layer)has uniform thickness of 6.7 m and is underlain by 26 m thick sandy aquifer zone (main aquifer). Here the average depth of groundwater table (GWT) is 10.0 m from the ground surface which has a constant declining rate (0.05 m/year) in recent days due to climate variability and irrigation demand. The GWT exists at a depth of 3.3 m from bottom of the upper clay layer provides a room space in each

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year and creates the potentiality for the Rainwater Harvesting (RWH) through applying MAR technique. The volume of potential storage is 208,500 m3/year which is enough to accommodate total storm water volume collected from the roof catchment of the residential buildings. Primarily, five buildings in the campus have selected for implementation using the roof top RWH system with a total harvesting potentiality of 2918 m3/year(covers 18% of the total rainwater collected from the residential area). As case study, a suitable model has been implemented in the Indoor Sports Complex Building in the campus for RWH in 2016 (catchment area 697 m2 and harvesting potentiality1071 m3/year). It shows a successful practice for mitigation of water logging problem and this approach can be replicated for urban logging problem in major cities in Bangladesh which has become burning issue especially in rainy season in the country.

Key words: *Storm water management, Water logging, RDA campus, Bogra, Bangladesh*

1. Introduction

Bangladesh, being situated in the Ganges Deltaic region is a flood-prone country and numerous rivers and tributaries are flowing through it into the Bay of Bengal. In recent days, the urban areas especially major cities of the country including Dhaka (capital city), Chittagong (port and business city), Sylhet have experienced water logging problem in rainy season frequently inundating even for several days. It is creating serious hazard and suffering to dwellers, damages to infrastructures etc. In urban areas, construction of metaled and semi-metaled roads and buildings reduce actually natural groundwater recharge from rainfall in respect to space and quantities. The increasing economic growths of the country has led to extensive urbanization without proper planning that includes insufficient water drainage facility resulting water logging problem.

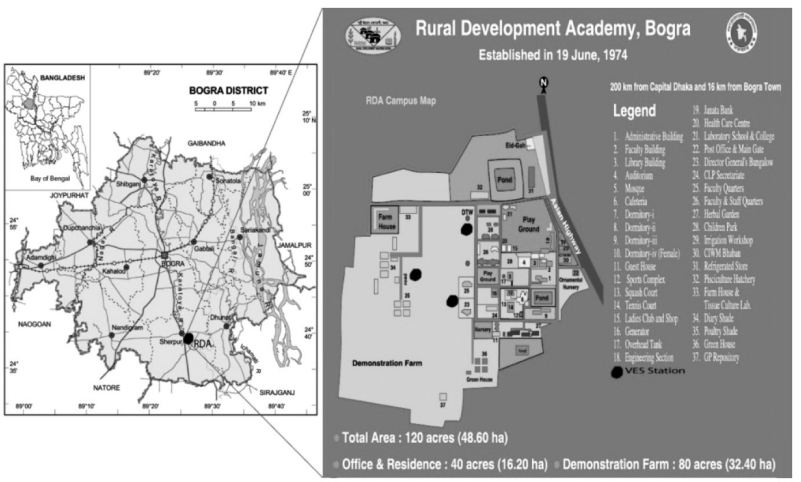

Figure 1: Location of RDA campus in Sherpur Upazila, Bogra (Source- Banglapedia)

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Article 02

Livelihood of Fishermen Communities Fishing in the Jamuna River in Bangladesh

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Md. Rafiqun Nabi PhD[2]

Abstract

The study was conducted on the livelihood of fishermen communities fishing in the Jamuna river in Bangladesh during a period of two consecutive years of 2012 to 2013. Fishermen communities living alongside the Jamuna river under Shariakandi and Sirajganj Sadar Upazila of Bogra and Sirajganj districts respectively were selected to assess the socio-economic and livelihood status. Three categories of fishermen such as permanent, seasonal and subsistence fishermen were found in the study areas. Majority of the fishermen (58%) were middle age group of 31 to 40 years old. Two religious beliefs were existed in which, the Muslims were featuring as the absolute majority (65%). The nuclear and joint families were 68% and 32% respectively. Illiterate, can sign only and primary level educated fishermen were 23, 28 and 37% respectively. Healthy, chronically ill and acute ill fishermen were 56, 24 and 20% respectively. Main diseases prevailing in the fishermen community were Dysentery, Fever, Skin diseases, Diarrhea, Diabetes and Alser. Majority of the fishermen family (67%) was found dependent on village doctors while, 14% and 10% got their health service from Upazila Health Complex and MBBS doctor respectively. Some of the fishermen family (7%) had no toilet while, 21, 40 and 32% fishermen families had, kacha toilet, ring and slab toilet and semi pakka toilet respectively. For disposal of household waste water open earthen drain was found at the houses of few fishermen. Cottages, Katcha and Semi-pucca types of houses were owned by 5, 77 and 18 fishermen respectively. All of the fishermen households used tube-well water for drinking purposes. All the fishermen houses of the main land were connected with electricity supply. Income source of 34% fishermen was only fishing and other three categories of income sources such as agriculture and fishing, fishing and small business and fishing and daily labor were represented by 32, 18, and 16% fishermen. The land holding pattern of the

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fishermen indicated that 32% fishermen had no land at all. The study revealed that annual income of the fishermen varied from BDT 50,000/- to 90,000/-. The average expenditure pattern revealed that, the highest 37% expenditure incurred for food.

1. Introduction

The history of fishing in Bengal is more than 4,500 years old (Breazley, 1993). Thereafter, a distinct group of people from generation to generation involved in fishing from ponds, rivers, flooded land, coastal areas and in the deep sea and as such got their designation in the society as Majhi, Jaley and Malo (Dey *et al*., 2008). Fisheries, especially in developing countries like Bangladesh, contribute to livelihoods in a range of ways: directly as food, as a source of income and through other social benefits, such as reduced vulnerability to poverty. Fishery-related livelihoods are often complex, dynamic and adaptive.

In Bangladesh livelihood of the fishermen community is considerably dependent upon the riverine and floodplains fisheries resources. Thus, considering the nature of those water resources, the livelihood of fisherman communities are also very vulnerable and commonly live on hand to mouth and their living standards are lowering day by day. They are poor by any standard and over the years economic condition of the fishermen had further deteriorated. Alam and Bashar (1995) estimated the average per capital annual income of the fishermen families to be BDT 2,442 i.e. about 70% lower than the per capital income of the country as well as depriving from many amenities of life.

FAO (1994) described that the fishery sector in Bangladesh is characterized by a labor force which is excessive in relation to the limited fishery resources potential. Once, in this profession only the low-caste Hindu tribes were involved, but from the middle of last century, many of the Muslim peoples are joining in this profession either full or part-time basis as an alternative job. As population growth is projected high, the prospects for increasing the fishermen's income through higher labor productivity are gloomy. Ali *et al*. (2010) mentioned that the fishing communities are the main players in the fisheries sector. They are involved in exploring and exploiting fisheries resources with hard labor in the adverse climatic condition to the extent of even risking their lives while providing for nutrient rich food to the people. Kabir *et al*. (2012) mentioned that one of the most vulnerable communities in Bangladesh is a fisherman community who lives hand to mouth.

Department of Fisheries, Bangladesh (2012) reported that there are about 13 lakh fishermen in our country, who live on fishing as their main occupation. Thus, it could easily realize that they are the people can play an important role in the maintaining of fish diversity in all kinds of open waters in Bangladesh. To enroll them more actively in the improvement of fish diversity, their socio-economic condition needs further intensive study.

2. Objectives of the study

The main objective of the study was to document the livelihood situation of the fishermen communities engaged in fishing in the Jamuna river. The specific objectives were to:

i. Know the present socio-economic status of the fishermen communities;

ii. Measure the changes in livelihood of fishermen communities taken place during last two decades;

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Article 03

Shelf Life Study of Trichoderma spp. in Talcbased Formulation

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Suvagata Bagchi[3]

Abstract

This study was undertaken to evaluate the shelf life of Trichoderma spp. in talcbased formulation. In this study potato dextrose agar medium was used for mass multiplication of Trichoderma spp. After achieving full growth within 7-10 days at 25-30^{0}C the 5 culture plate was scraped with scalpel and then mixed with 1 liter distilled water and 5 drops of Tween-20 was mixed in this water and it was homogenized with a blender for three times to make 1 liter Trichosuspension. Trichosuspension was incorporated in talc power in 1:2 ratios. To this mixture, 5g/kg of carboxyl methyl cellulose (CMC) was added as sticker. The whole mixture was dried under shade until moisture level reduced to 11% as determined by oven drying method. The formulation was stored in white polypropylene bags under natural condition in the laboratory at room temperature. One gram sample was drawn at 15 days interval for 120 days from the polypropylene bag stored in natural condition in the laboratory and colony forming units (cfu) were estimated by serial dilution plate method using Trichoderma selective medium. Three replications were maintained for each treatment and populations were counted by average number of colonies developed in each treatment as: cfu of sample=avg. colonies x dilution factor of sample. Initial colony forming unit of sample found in the 0 day was 200×10^6. After 15 days the colony forming unit was 195×10^6. After 30 days cfu was found 190×10^6. In the 45 day's cfu was 165×10^6. After 60 days, the cfu was found 145×10^6. At 75 days the cfu was found 120×10^6. In the 90 days it was 90×10^6. After 105 days the cfu was found 60×10^6. At 120 days finally the cfu was found 45×10^6.It was found that there was a gradual decline of cfu but it still contains a good number of spore propagules above the

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standard cfu indicator (20×10^6) till 120 days. So this formulation was fund to be effective with a longer shelf life until 4 months in room temperature.

Keywords: Trichoderma spp., Shelf life, Talcbased formulation.

1. Introduction

Economically important agricultural, horticultural and ornamental crop plants are attacked by various soil borne and foliar pathogenic fungi, resulting in billions of dollars in cumulative crop losses. Currently, the most widely used control measure for suppressing these diseases are the use of fungicides. However, problems encountered, such as development of pathogen resistance to fungicides, and inability of seed-treated fungicides to protect the roots of mature plants. The chemical method developed to control such diseases has its own limitations such as high capital investment, non-remunerative, poor availability, selectivity, temporary effect, efficacy affected by physic-chemicals and biological factors, development of fungicide resistance, pollution of food and feeds, health hazards, environmental pollution, etc. Soil borne diseases are very difficult and uneconomical to control with chemicals. Considering these limitations biological control is an important approach in this direction. *Trichoderma* species are important potential bioagents against several soil borne fungal pathogens.

Trichoderma-based biocontrol agents possess better ability to promote plant growth and soil remediation activity compared to their counterparts (virus, bacteria, nematodes and protozoa). Their capability to synthesize antagonistic compounds (proteins, enzymes and antibiotics) and micro-nutrients (vitamins, hormones and minerals) enhance their biocontrol activity.

Trichoderma spp. have gained worldwide acceptance as effective biocontrol agents against several commercial phytopathogens. These antagonistic fungi are most common among fungal biocontrol agents because of their multiple characteristics, namely, antagonism and plant- growth stimulation.

Trichoderma has emerged as a potential biological control agent which has been found effective against many economically important plant pathogenic fungi. It is a pre-requisite for biological control application to develop mass production, formulation and delivery system for a micro-organism that control diseases in plants. It appears feasible for industry to produce various beneficial microbes including *Trichoderma*. Against plant pathogens through liquid fermentation using in-expensive media such as molasses and brewer's yeast. Thus large scale production of *Trichoderma spp*. would have great potential for commercial use.

2. Justification of the study

There is abundant literature on the use of conventional synthetic media like glucose, cellulose, soluble starch and molasses to produce *Trichoderma spp*. However the cost of these raw materials for commercial production as biocontrol agents is one of the major limitations behind the restricted use.

To overcome the cost limitation, many researchers have successfully used substrates like corn fiber dry mass, sewage sludge and compost. In several crops, bioagents were successfully used.

But a formulated product for agricultural application should be easy to prepare, stable during

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Article 04

Consequences of River Erosion in Rural Area
-A Study in Shariakandi Upazila.

Mohan Chandra Sarker[1]
Md. Habibur Rahman[2]

Abstract

Bangladesh is very susceptible to various disasters like flood, cyclone, river erosion etc. due to its geographical location and climatic features. Every year thousands of people become homeless due to delusion of the natural calamities. Disasters destroy and sweep away the accumulated assets and dreams of people. Losses of innumerable lives and vast amounts of property are the common characteristics of these disasters. River erosion is considered as one of the major disasters of the study area. Partially river eroded two unions Chandanbaisha and Hatsherpur of Shariakandi upazila under the district of Bogra are considered for the present study. It has been shown that the damages caused by river erosion is irreparable as in most cases the victims loose their entire land, most essential resources for income and employment. This displaced population migrate to nearest villages, chars, embankments or urban slums in search of shelter, employment and food. Their livelihoods become vulnerable during – and after erosion. Considering various issues of river erosion, the present study undertaken the objectives of analyzing the consequences and impacts of river eroded people in the rural area during and after flood. The study areas were partially eroded by the river Jumuna . Almost about 58 percent land of Chandanbaisha and 71 percent of Hatsherpur were eroded and also 36 percent and 37 percent household displaced by river erosion respectively.

1. Introduction

1.1 Background

In the developing countries, two-thirds of the world's population live and they suffer the most debilitating consequences due to natural disasters. About 90 percent of natural disasters and 95

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Article 05

Communication for Social Change: A Study on Jamunna Village of Bogra District, Bangladesh

-Nusrat Jahan[1]

Abstract

Communication is crucial for development and social change as well. Sometimes, providing information is the most powerful strategy available however communication is often about more than providing information. It is about fostering social awareness and facilitating public democratic dialogue. It is about contributing to evidence-based policy, and about building a shared understanding which can lead to social change. In the study, it was intended to observe the social change scenario of a village Jamunna of Bogra district and suggested increasing improvement in social development issues in a rural setting. It was found that among all issues related to social change, polygamy has sharply decreased. There is certain positive attitude toward girls and female education is largely ensured up to secondary level. Progress in other areas of gender equality and women's empowerment has not been so rapid. Dowry remains as a major repression. Achievements are particularly remarkable in immunizing babies, using sanitary latrine and in reducing population growth through the adoption of birth control. From the present study, it was observed that social development effort in rural areas is underway by both government and non-government sources. Interpersonal communication is more effective than mass media in achieving expected development outcome. This means that mass media in its present mode of communicating development messages alone is not bringing desirable change in rural life though in some eases of emergency can supplement the interpersonal channels. In focus group discussion respondents mentioned that more information and frequent communication regarding social change is needed from government service provider, NGOs as well as media.

Key Words: Communication, Social Change, Development, Rural area

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Article 06

Farmers' Adaptation Strategies Used for Climate Change Resilience in Northern Bangladesh

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Afroza Sultana[2]
ATM Hamim Ashraf[3]
Abureza Md. Asaduzzaman[4]

Abstract

The present study was undertaken to determine the use of climate change adaptation strategies followed by the farmers and to assess the relationship between selected characteristics of the farmers with their use of adaptation strategies for climate change resilience. A total of 500 farmers were selected as sample of the study by multistage sampling method from Sadar upazilas of Panchagarh, Thakurgaon, Rangpur and Sundorgonj upazila of Gaibandha district. A structured interview schedule was used for data collection from February to June 2017. In measuring the adaptation strategies for climate change resilience, 14 adaptation strategies related to climate change were selected and was measured by 4-point rating scale as "high", "medium", "low" and "not at all" with weights of 3, 2, 1 and 0, respectively. The total adaptation strategy score of a respondent could range from 0 to 42, while 0 indicating no adaptation strategies followed and 42 indicating high adaptation strategies followed by the farmers. Rank order was determined by calculation of adaptation strategies index (ASI) which ranged from 18.87 to 70.00 against the possible range of 0 to 100. Farmers' top ranked adaptation strategies was 'using more internal inputs rather external inputs' (ASI= 70.00) followed by 'cultivating short duration crops' (ASI= 65.07) and 'improved water management' (ASI= 63.80). The lowest adaptation strategies taken by the farmers was observed on 'integrated farming system (Rice-fish culture, Rice-fish-vegetable cultivation)' (ASI=18.87). The observed score of different adaptation strategies ranged from 5 to 37 with

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a mean and standard deviation of 19.12 and 6.93, respectively. On the basis of scores of adaptation strategies, the respondents were categorized into three groups namely 'low' (up to 12), 'moderate' (13-26) and 'high' (above 26). The majority (63.0 %) of the respondents had followed medium adaptation strategies, while 18.8 % had followed low and 18.2 % had followed high adaptation strategies to resilience with the climate change. Out of eleven selected characteristics of the farm people, annual family income, training received, knowledge of climate change, perception of climate change, information needs for climate change resilience and problems confrontation due to climate change showed positive significant relationship; but age, farming experience, level of education, family size and farm size had no significant relationship with the climate change adaptation strategies.

Keywords: Adaptation strategies, climate change resilience, farming, knowledge on climate change.

2. Introduction

Climate change is not only the environmental concern but also has emerged as biggest developmental challenge for the vulnerable countries including Bangladesh. Bangladesh is likely to be one of the worst affected nations in the face of climate change (Harmeling, 2014). It brings significant changes in agriculture, food security and economic growth (DFID, 2004). The impacts of climate change have the potential to challenge the development efforts, human security and the future. In Bangladesh it is an extremely crucial issue and it placed the country in first rank among the most vulnerable nations that will affect by climate change in the coming decades (David, 2010). It affects many sectors, including water resources, agriculture, ecosystems, biodiversity, food security, and human health (Bishwas *et. al.,* 2009).

Agriculture in Bangladesh supports the livelihoods of the people and directly concern with the food security situation particularly of the northern region. Generally the overall agricultural productivity of the region is low mainly due to unavailability of irrigation facilities, inadequate rainfall in dry season and less water flow in the rivers. Although all the components of agricultural system directly influenced by the climate change, it is anticipated that crop production would be extremely vulnerable under climate change scenarios, and as a result, food security of the region will be in risk. Despite being highly vulnerable, very little efforts have so far been made to understand potential of agricultural adaptation in Bangladesh. Ahmed (2000) made an attempt to analyze the adaptation potential of the country's crop agriculture, whereas Faisal and Parveen (2004) examined food security aspect and implications of climate change. However, farmers' adaptation strategies for climate change resilience are not addressed specifically. To overcome the adverse effect of climate changes in agriculture sector, to improve the present condition and to develop the socio-economic condition of the farmers, the adaptation strategies and their extent of use need to be identified. Considering these issues, the present study was undertaken to identify and outline the adaptation strategies used by the farmers for climate change resilience in northern Bangladesh. To achieve this overall goal the following specific objectives are focused:

1. To identify and determine the adaptation strategies used for climate change resilience by the farmers.

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Article 07

Determinants of Rural Migration and Its Influences on Agricultural Labour in Northern Bangladesh

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Abstract

The objectives of the study was to ascertain the determinants which are responsible for rural migration, to explore the relationships among the farmers selected characteristics with the determinants responsible for migration and to determine the effects of rural migration on agricultural labour. Data for the study were collected from a sample of purposively selected 60 farmers from two upazilas namely Ranisonkail and Baliadangi of Thakurgaon district through personal interview during March to May 2017. Pearson's Product Moment Correlation Co-efficient (r) was used for exploring the relationships between dependent and independent variables. The findings revealed that the majority of the farmers (78.3 percent) had medium determinants of migration, 10.0 percent had low determinants of migration and 11.7 percent had high determinants of migration. 'Lack of employment opportunities in rural areas' was found as the major cause of rural to urban migration. More recreational or cultural diversities in cities were found as the lowest factors of rural urban migration. Among the ten (10) selected characteristics of the farmers, educational qualification, family size, decision making capacity, credit received and extension media contact showed positive significant relationship and household farm size showed negative significant relationship with the determinants affecting rural migration. Labour crisis in peak period of planting was found as the major effect of migration on rural agricultural labour market. 'Labour shortage for applying fertilizers' was found as the lowest factors of rural to urban migration. The majority of the farmers (81.7 percent) had showed medium effects of migration on rural agricultural labour, 13.3 percent had low and 5.0 percent showed high effects of migration on rural agricultural labour. The study concludes that rural-urban migration is not for ignoring agricultural activities but it is for improving the overall life status of a farmer.

Key words: Rural migration, agricultural labour and northern Bangladesh.

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Article 08

Morphometric, Meristic Characters and Length-weight Relationships of *Crossocheilus latius* (Hamilton, 1822) from the Atrai River, Dinajpur, Bangladesh

Md. Ashraful Alam[1]
Yeasmin Ara[2]
Zubaida Parveen Patwary[2]
Imran Parvez[2]

Abstract

The length weight relationship is employed for the assessment of both health status and stock. The present study describes morphometric, meristic characters and length weight relationship (LWR) of Crossocheilus latius. Eighty one fishes were collected from Atrai River, Dinajpur, northwestern part of Bangladesh from July 2014 to June 2015. Mean total length, fork length, standard length were 9.1±1.89, 8.12±1.71, 7.9±1.51 and meristic counts were independent of body size. The length–weight relationships of C. latius were analyzed using the formula W=aLb after transform into straight line equitation. A linear relationship was found between total length and total body weight and these also showed significant positive correlation ($p<0.001$). The equation obtained for C. latius was "Weight = 0.0041Total length3.3551". While b value significantly deviated from the expected cube value of 3, indicated positive allometric growth ($b>3.0$). The determination of coefficient (r^2) of the length weight relationship is 0.85. To the best knowledge of the authors, this study presented the first reference on LWR for this species from Atrai River, Bangladesh.

Keywords: Atrai river, Allometric growth, *Crossocheilus latius*, LWR

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Article 09

Morphological Growth and Biochemical Features of Sorrel (*Hibiscus sabdariffa L.*)

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Shuvrangshu Shekhor Das[2]
Aleya Ferdausi *PhD*[3]

Abstract

Morphological characters, capsule production and proximate composition of sorrel (Hibiscus sabdariffa L.) were investigated. Plant height, number of branches plant $^{-1}$, days required to first flowering (days after sowing, DAS), days to maximum flowering (DAS), days to capsule maturity (DAS), number of capsule plant $^{-1}$, % capsule set, total dry mass (TDM) plant $^{-1}$, fresh calyx yield plant $^{-1}$, fresh weight of hundred capsule and shell ratio (fresh) were 260.27 ± 7.54 cm, 41.32 ± 1.82, 219 ± 1.88 DAS, 237 ± 6.01 DAS, 309 ± 4.98 DAS, 243.43 ± 5.20, 53.28 ± 2.25 %, 949.16 ± 7.44 g, 417.19 ± 17.49 g, 512.47 ± 4.38 g and 42.22 ± 0.63 %; respectively. On dry weight basis, seed was the richer source of protein (34.90 %), fat (20.70 %) and fiber (19.20 %) than that of calyx and leaf. In contrast, amount of total carbohydrate was eight times higher in calyces (55.38 %) than seed (7.19 %) and leaf (7.60 %), along with considerable amount of protein (9.77 %), fiber (11.10 %), sugar (7.0 ± 0.20 % brix) and vitamin C (17 ± 0.24 mg/100 g).

Key words: Canopy structure, Yield, Biochemical composition, *Hibiscus sabdariffa*.

1. Introduction

Sorrel (*Hibiscus sabdariffa* L. *v*ar. sabdariffa) is a short day and multipurpose shrub of Malvaceae family. An array of vernacular names exist for sorrel in different parts of the world, and these include; roselle, Jamaica sorrel, chukar, lal-ambari, bissap, jelly okra or lemon bush. The plant is thought of native to Asia (India to Malaysia) or tropical Africa, cultivated largely in almost all tropical and

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Article 10

Utilization of Educational Stipend: A Study on RDA Laboratory School and College, Bogra

M A Matin[1]
Dr. Md. Abdur Rashid[2]
Md. Tanbirul Islam[3]

Abstract

To encourage the meritorious and underprivileged students' stipend is provided for ensuring education for all under social safety net programmes. RDA Laboratory School and College (RDALSC) also convey scholarships for the students selected by the education board based on their outstanding result along with stipend for disadvantaged students. In addition, RDALSC provides grants for the students for motivating students to continue their study. This study was conducted to examine the utilization effectiveness of stipend and welfare fund provided by RDALSC. A mixed method was used in this study to collect data from different stakeholders including the students and their guardians. A number of 149 students received the stipend in the year 2016-2017. Among them some scored poorly in their previous result. So, the academic result was not only the considering criteria, but emphasis were also given to other factors such as socio-economic conditions and recommendations made by some relevant personnel. Thirteen students were being recommended, but 46% of them didn't get A+ grade. Practices of recommendation sometimes deprive the meritorious students from getting the stipend owing similar socio-economic background. It was also found that 98.13% of the respondents utilized the money for education purposes such as purchasing books, and education materials, paying school fees and spending for private tuitions, etc. although 44.07% respondents mentioned the amount was not adequate. A few of the recipients utilized the money for household expenses. However, the stipend was received by the vulnerable people of the community, and they were benefitted from this. This effort should be continued with increasing the number and amount of money to enhance rural education and ensure quality education for the marginalized.

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