

**List of Publications:**

1.

Didar-ul-Alam, 1980. Nutrient availability with respect to paddy vis-à-vis rubber plant as assessed by different methods in a rubber garden soil of Bangladesh. M. Sc Thesis, Department of Soil Science, Dhaka University.

**Abstract**

Soils of Dantmara rubber garden area of Chittagong districts are relatively more fertile than soils of other rubber gardens reported by Anam *et al* (1978). With exception of available potassium these soils are richer in available nitrogen, phosphorus, calcium and magnesium and in total organic matter and cation exchange capacity. However, it can be expected from the presented tables of various physicochemical analyses that these soils are fertile enough to support optimum rubber growth without fertilizers.

2.

J. Asiatic Soc. Bangladesh (Sc.) vols, 6 & 7 (1980 & '81): 11-17

**A STUDY OF DATMARA RUBBER GARDEN SOILS**

**K. ANAM, A.H.M. AHMED\*, SHAFIQR RAHMAN, AND DIDAR-UL-ALAM**  
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**Abstract**

Some physical and chemical properties of soils from Datmara rubber garden under the district of the Chittagong Hill-Tracts were studied. The effects of soil properties, topography, climatic conditions, local effects, etc., on the growth of *Hevea* were investigated. These soils were found to be relatively more fertile (with the exception of available potassium) and less undulating than the soils of the other rubber producing areas and consequently rubber production can be improved in this area with minimum input. Possible means for the management of the gardens have been suggested on the basis of the investigation.

3.

Bang. J. Soil Sci. Vol. 17 :66-76.

CHOICE OF EXTRACTION METHODS IN ASSESSING  
AVAILABLE NUTRIENTS. II. PHOSPHORUS AND POTASSIUM.

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Department of Soil Science, University of Dacca.

**Abstract**

Few extraction methods were tried to estimate the availability of phosphorus and potassium with respect to BR-3 paddy grown under green house condition. 1N NaCl method was found to be the best in estimating the availability of phosphorus at flowering stage. Phosphorus extracted by 2N KCl was also found to be significantly correlated with plant uptake (BR-3) at flowering stage. In case of potassium all the extractants were found to be positively significant at flowering stage. Among them Morgan's reagent was the best and 1N NaCl method was found to be suitable next to Morgan's reagent.

4.

Dacca University Studies, B, XXX (1) : 71-81, 1982 (January)

AVAILABLE CALCIUM AND MAGNESIUM CONTENTS OF DATMARA  
SOIL WITH RESPECT TO RICE AS ASSESSED  
BY DIFFERENT METHODS

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**Abstract**

Different extractants were used to evaluate the availability of calcium and magnesium with respect to BR-3 paddy grown under green house conditions. Acidified 1N NaCl was found to be the best in assessing the availability of calcium while 1N NaCl was the best for measuring magnesium availability. Water extraction method was found to be suitable for magnesium availability next to 1N NaCl. There existed a good correlation between these methods and the concentration of calcium at flowering stage and magnesium at harvesting stage. Rest of the methods failed to give any meaningful indications.

5.

Dhaka University Studies, B, XXX, (2) : 181-189, 1982 (July).

**EVALUATION OF THE SUITABILITY OF THE METHODS FOR  
ASSESSMENT OF NUTRIENTS OF DATMARA SOILS WITH  
RESPECT TO RUBBER PLANT**

**K. ANAM, DIDAR-UL-ALAM, SHAFIQR RAHMAN**

And

**S. M. IMAMUL HUQ**

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**Abstract**

Out of different extraction methods used in the study to evaluate the availability of nutrients of Datmara soil with respect to rubber plants, Morgan's reagent, 0.5M.  $\text{NaHCO}_3$  and acidified 1N.  $\text{NaCl}$  (pH-1.0) were found to be suitable for phosphorus, potassium and calcium respectively.

6.

Didar-ul-Alam and K.Anam, 1981. Chemical methods as a tool, for determining fertilizer needs of soil. A project work of UGC. Soil Science Department. University of Dhaka.

**Abstract**

Importance of N, P, K, Ca & Mg fertilization and it necessitates to find out all methods which will provide satisfactory information about the availability of all above nutrients and help to predict accurately the amount of respective fertilizers of all above nutrients required to produced a better crop yield. Among seven extractants Morgan's reagent/1N  $\text{NaCl}$ , 1N  $\text{NaCl}/0.5 \text{ M NaHCO}_3$  / 0.5 5M  $\text{NaHCO}_3$ /Morgan's reagent , 1N  $\text{NaCl}$  (pH-1)/1N,  $\text{NaCl}$ (pH-1)/ 1N  $\text{NaSO}_4$  and 1N  $\text{NaCl}$ (pH-1)/water extraction were found to be suitable for N, P, K, Ca & Mg fertilization respectively for Ramu, Rawjan and Dantmara rubber garden soils. But one method may prove to be satisfactory for a certain soil with respect to a certain crop and may not be suitable for others. However, for certain elements a particular method has been found suitable.

7.

Didar-ul-Alam, 1982. Soil Testing Report on four sites of Teesta Barrage Project, Rangpur. Soil Mechanics and Materials Directorate, RRI, BWDB, Report No.91 (82). Dhaka.

**Abstract**

A total number of one hundred and nine soil samples were collected from four sites. Moisture content (5-42%), grain size analysis (fine sand to clay), Atterberg's limit test (27-45%), Consistency and Relative density (sand stiff and stiff, relative density varies from loose to med dense with increasing depth), Unconfined compression test (8.4-18.5%), Consolidation test (0.204-8.16  $\text{kg/cm}^2$  and Compression index test were done for the project and proved to be useful in interpreting laboratory and field test data.



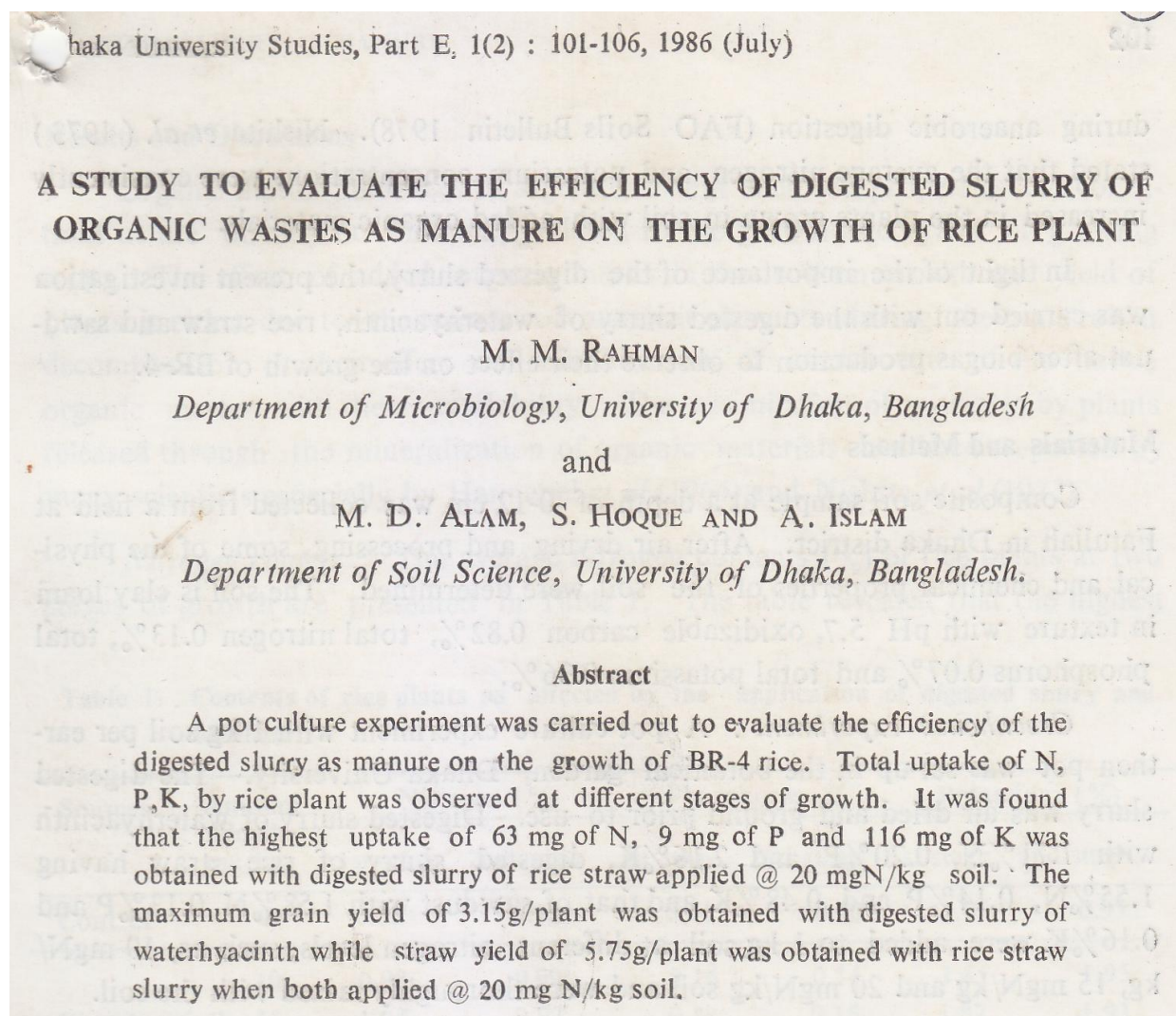
8.

Didar-ul-Alam, 1983. Report on Twenty three water samples. Samples were supplied by Special Studies Directorate, BWDB, and Dhaka. Sediment, Chemical Water Pollution and Ground Water Utilization Directorate. Report No. Chem-1(83) May, 1983.

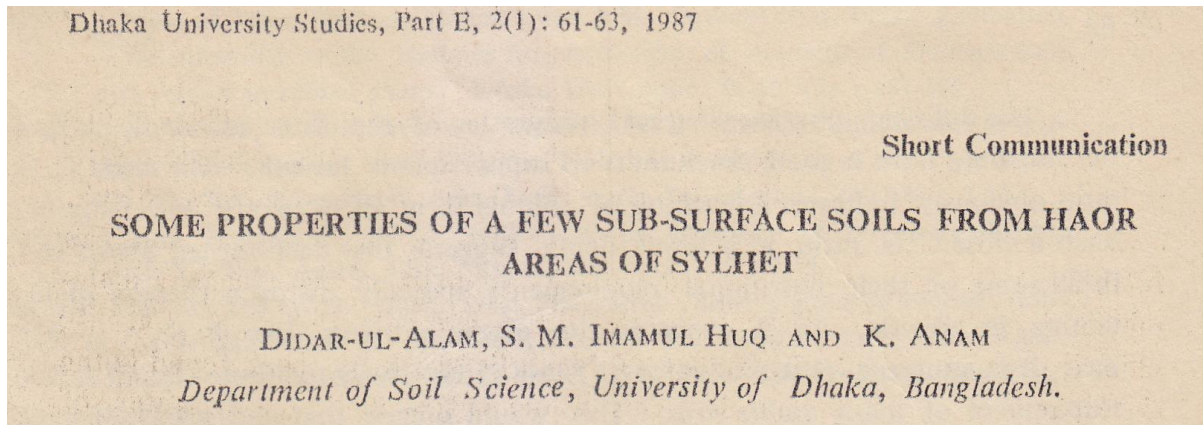
Abstract

Out of 23 water samples 14 parameters were determined according to standard chemical methods for water analysis. Among the parameters (units expressed in mg/L) total evaporated residue (80-340), Ca (21.93-93.84), Mg (8.36-31.59), Fe (1.08-45.6), Si (16.8-27.7), B (ND-0.05), Na (17.87-69.39), Mn (ND-0.2), SO<sub>4</sub> (4.90-34.3), CO<sub>3</sub> (11.76-26.46), HCO<sub>3</sub> (191-361.66), Cl (15.4-59.14), NO<sub>3</sub> (ND-3.0) and FreeCO<sub>2</sub> (ND-8.83) were determined and interpreted.

9.



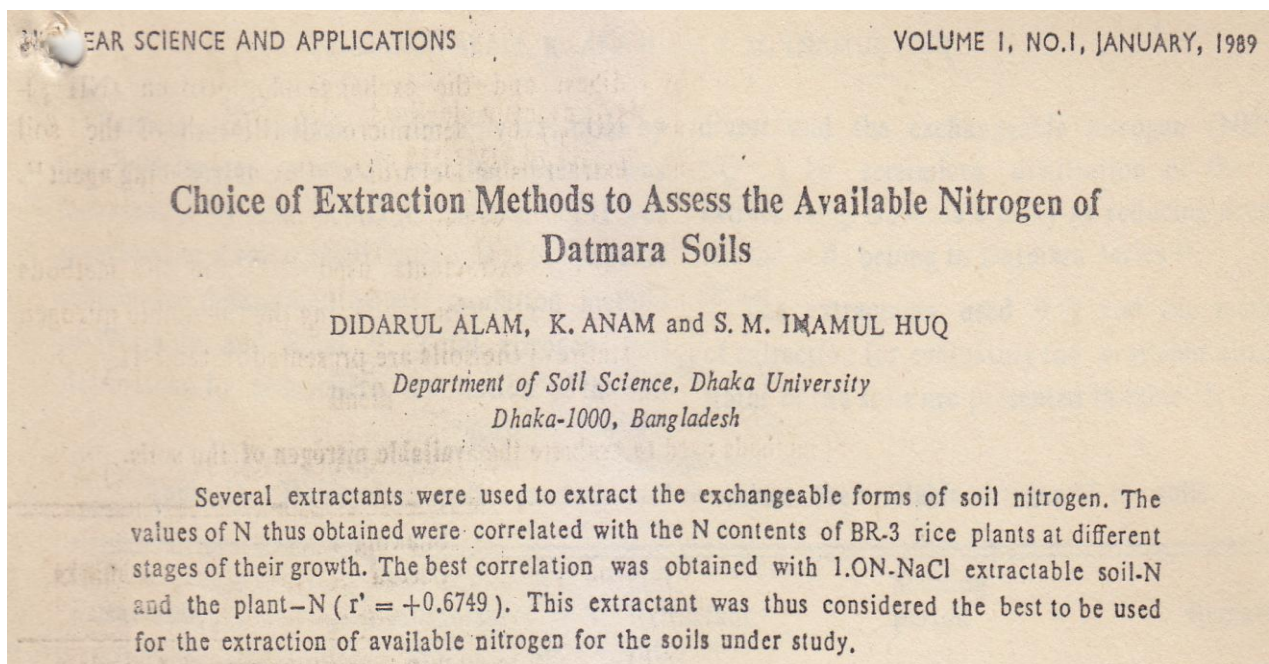
10.



Abstract

C: N ratio clearly indicates a leaching of soluble form of N to the lower depth. Such close relation suggests that deep rooted plants can fulfill their nutritional requirements especially N. Other nutrients like P,K,Ca and Mg values found in the sub surface is no less important in the evaluation of fertility statue of an area.

11.



12.

Didar-ul-Alam, 1990. A study of Nitrogen supplied through blue-green algae or as fertilizer in the growth of rice. PhD thesis. Department of Soil Science, University of Aberdeen, Scotland (UK).

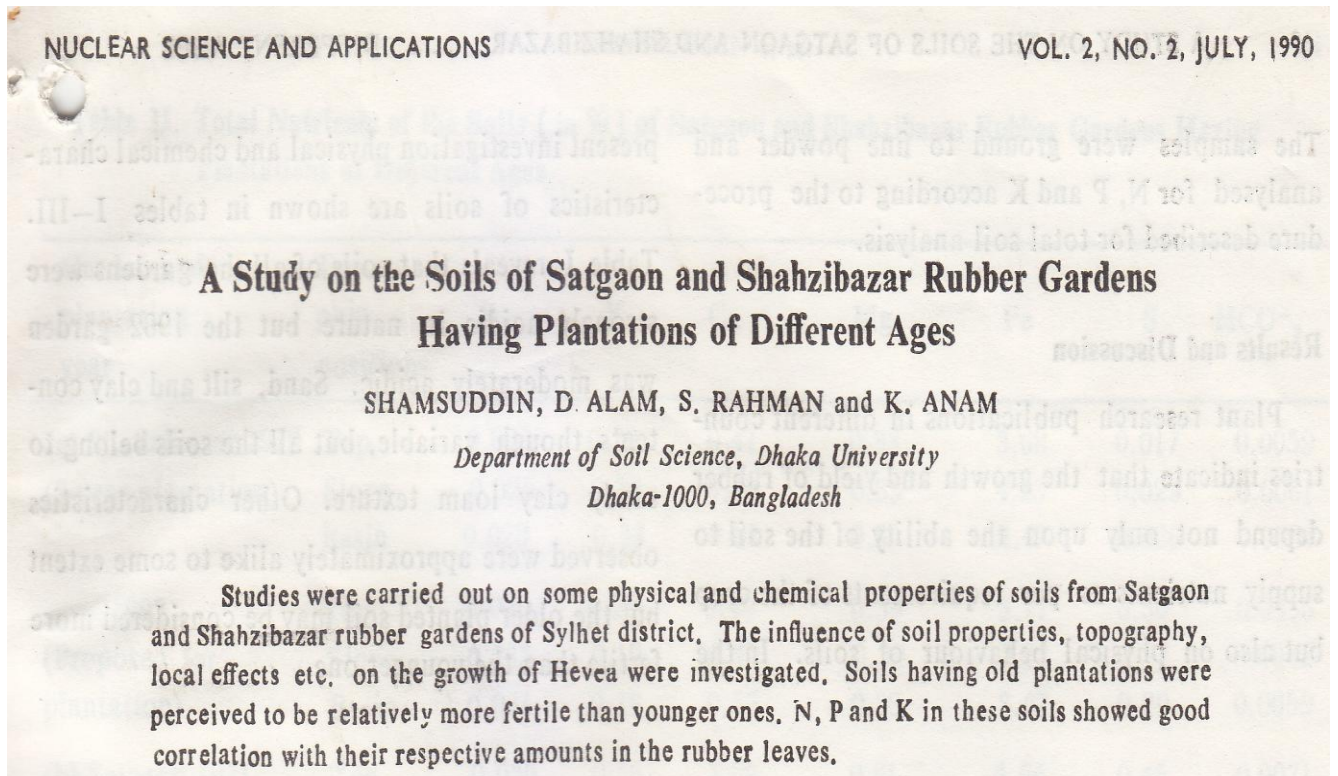
Abstract

The culture media used in this experiment were poorly buffered and as a result of uptake of nutrients by the BGA cells and excretion of OH<sup>-</sup> anions the pH increases were related to the activity of the cells. Watanabe's medium shaking the batch culture proved to be superior to the BG-11 medium. The results of the experiment in which pH was controlled suggest that maximum yields was obtained over the range of 7.9 to 10.0. In incubation experiment the optimum temperature for most

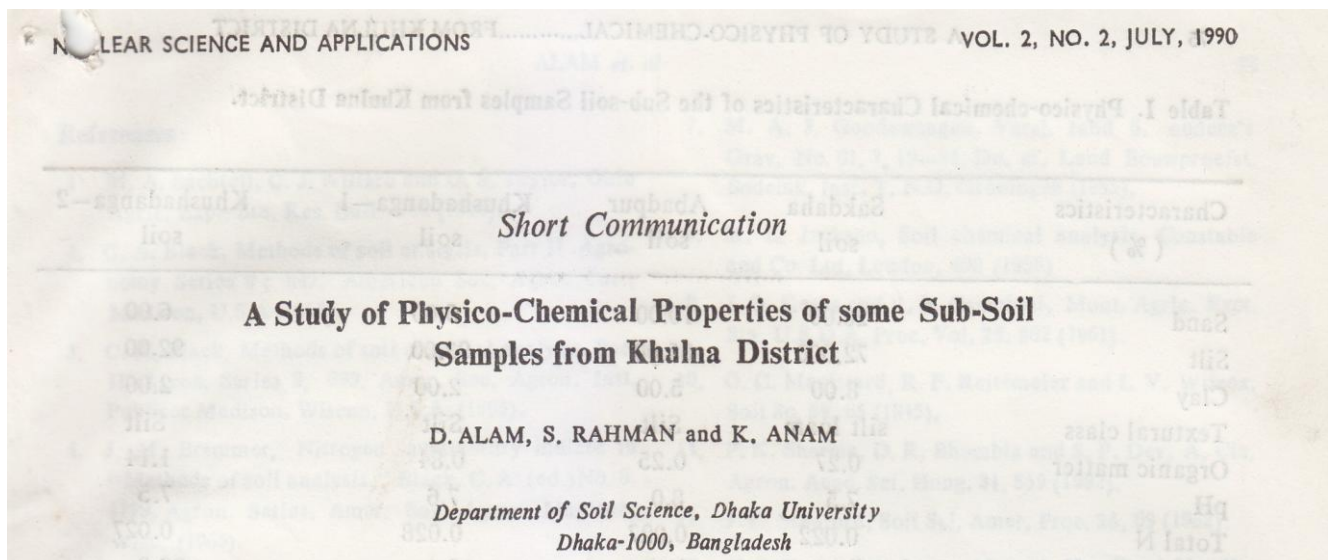


decomposition reactions was found to be 40°C. In case of pot experiment higher dry matter yield was obtained from addition of three fertilizers and five BGA species.

13.



14.



Abstract

The low level fertility status of sub soil below plough layer was reported to be due to less organic matter. But in the present study organic matter content of Khushadanga-1 and 2 are reasonably good compare to other minerals of Bangladesh. Again sub soil of Khushadanga-1 is saline in nature which may limits its use for growing salt tolerant crops only.



15.

Bangladesh J. Sci. Res. 9(2) : 171-176, 1991 (December)

**CHEMICAL CHARACTERS OF GROUND WATER SAMPLES  
COLLECTED FROM SOME DEEP AND HAND TUBE-  
WELLS IN AND AROUND DHAKA CITY**

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**Abstract**

Chemical analysis of water samples collected from some deep and hand tubewells in and around Dhaka city indicates the presence of varying concentration of iron, calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulphate and nitrate rendering the water of the wells not so suitable for drinking purpose.

16.

**BOOK:** Didar-ul-Alam, S.M.I.HUQ, Shafiqur Rahman and K. Anam.1991. *A Handbook of Soil, Plant and Water Analysis*. Published by A.P.Shamsuddin and Madhumati Mudranalaya, Dhaka-1000.

17.

Bangladesh J. Sci. Res. 10 (1) : 53-57, 1992 (June)

**EFFECT OF NUTRIENTS ON GROWTH OF RUBBER PLANT AND LATEX  
PRODUCTION IN BHATTERA RUBBER GARDEN SOIL**

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**Abstract**

A study was undertaken on the soils of Bhattara rubber garden in the district of Sylhet. The soils were found to be light textured, acidic and relatively fertile for the growth of rubber. In case of 5-year garden good relationship (significant at 1%) was found between soil nitrogen and potassium and their uptake by rubber leaves. In case of 1-year garden good correlation was found for total and available potassium but for nitrogen and phosphorus only total values were correlated. Latex production by rubber plant was correlated with girth size and plant height  $\times$  girth size but neither with plant height alone nor with any of the major plant nutrients.



18.

Dhaka Univ. J. Biol. Sci. 2(1) : 41-46, 1993 (January) , copy received on June/93

**EFFECT OF GROWING LEGUMES ON SOIL FERTILITY FOR RUBBER PLANTS**

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*Key words:* Legumes, Soil fertility, Rubber plants.

**Abstract**

Intercropping of soybean (*Glycine max* L.) and bush bean (*Phaseolus vulgaris* L.) were practised with deep rooted rubber plants and its effect on soil fertility status for rubber plants was studied. pH of soils was moderately lowered, the moisture status, contents of organic matter, total nitrogen, phosphorus, potassium, calcium, magnesium, iron, the C:N ratio, CEC and available nitrogen in soils increased while available magnesium and sulphur contents decreased or showed little change after cultivation. Significant correlation was obtained between total nitrogen and organic matter contents of the soils after cultivation of the legumes. Intercropping in rubber plantation with soybean made soil nutrients more available than doing it with bush bean.

19.

Dhaka Univ. J. Biol. Sci. 3(2): 145-152, 1994 (July)

**NUTRIENT RELEASE CHARACTERISTICS OF DUCK MANURE**  
**I. EFFECT OF DIET, BEDDING MATERIALS AND MANURE STORAGE**

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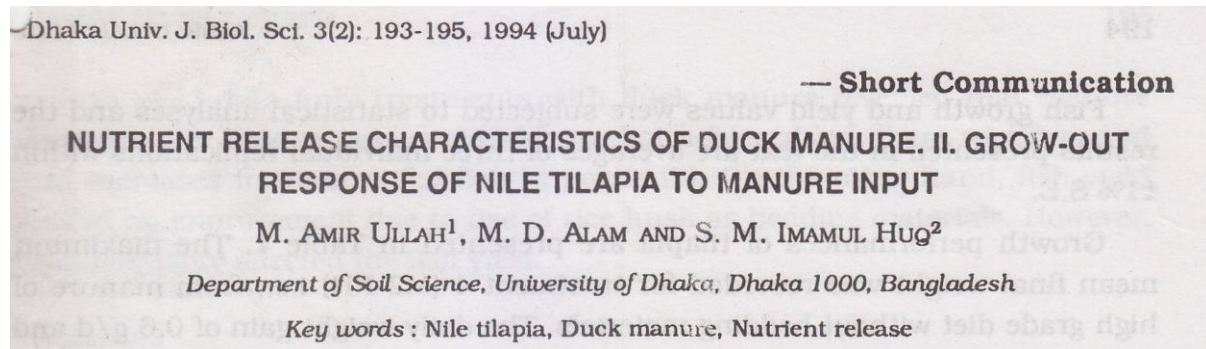
*Key words :* Ammonia-N, Soluble reactive phosphate, Manure, Rice husk

**Abstract**

The cumulative ammonia-N release from fresh manure of low or high grade diet with or without rice husk, varied between a minimum of 6.5 and a maximum of 9.2 mg/g dry matter and the soluble reactive phosphorus (SRP) release was between 1.7 and 2.0 mg/g dry matter. The cumulative ammonia-N release from 4-week-old low or high grade manure stored with or without rice husk, varied between 7.0 and 9.1 mg/g dry matter and the SRP release varied from 2.2 to 4.1 mg/g dry matter. Nearly all soluble nitrogen and phosphorus were released on the 4th day of manure application. The rate of nutrient release was increased by the improved diet manure and proper management of manure. Use of bedding material caused a reduction of the amount of nutrient release on a per unit weight basis.



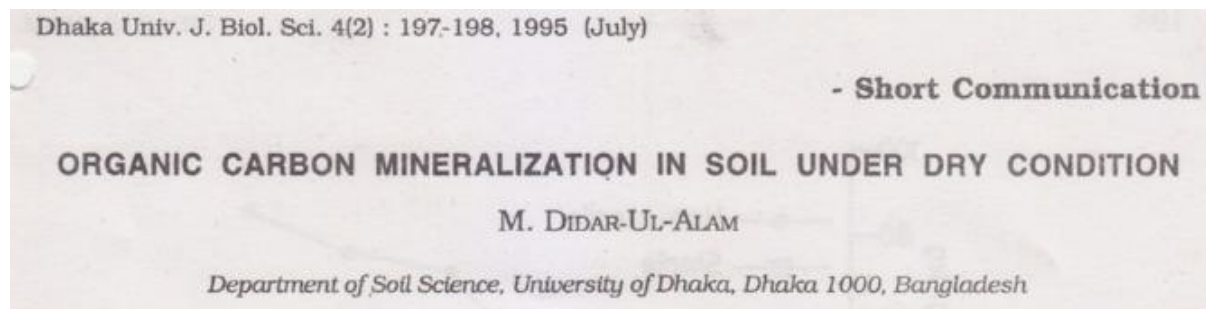
20.



Abstract

It is widely known that organic fertilizers or animal manures can be used as pond inputs to promote fish production. The growth of Tilapia progressively increased with manure input. The specific growth rate, % gain and daily weight gain increased with advancing time. Duck manure alone can give better production comparable to others. No improvement was observed due to use of rice husk as bedding material but manure quality affected the fish yield.

21.



Abstract

In sterile soil a small amount of CO<sub>2</sub> was produced might be due to chemical process. But in non sterile soil CO<sub>2</sub> evolution was much higher and continues up to 48 days of incubation period. It could be related to both chemical and microbial process. It might be considered that organic carbon mineralization in non sterile condition occurred in excess of the control as a result of microbial activity even under dry condition.

22.

Dhaka Univ. J. Biol. Sci. 5(2) : 137-142, 1996 (July)

## RELATION BETWEEN RATE OF DECOMPOSITION (CO<sub>2</sub> RELEASE) AND NUTRIENT RELEASE BY FIVE BLUE-GREEN ALGAE UNDER VARIOUS MOISTURE CONDITIONS

(Manuscript received October 4, 1994 and revised form January 27, 1996)

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*Key words:* CO<sub>2</sub> Evolution, Decomposition, Mineralization.

### Abstract

The correlation between the rate of decomposition of organic matter (CO<sub>2</sub> release) and the corresponding release of N and P were studied in five different species of blue-green algae (BGA) under various moisture conditions at 40°C. Good correlation with CO<sub>2</sub> release was observed for N and P release for *A. doliolum* at 1% and at 50% moisture conditions while at only 1% moisture condition the relationship was found to be well correlated for *A. cylindrica*. Under water-logged condition only *N. muscorum* was found to have a positive correlation between mineral-N release and the rate of decomposition.

23.

Dhaka Univ. J. Biol. Sci. 6(2) : 167-172, 1997 (July)

## EFFECT OF SOIL PROPERTIES ON THE EXTRACTION OF PHOSPHORUS FROM SOME REPRESENTATIVE BANGLADESH SOILS

(Manuscript received March 29, 1997 and in revised form June 4, 1997)

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*Key words :* Soil Properties, Soil Phosphorus, Extractant

### Abstract

The present investigation was undertaken to identify some soil properties regulating P extractability by seven extractants in eleven selected soils of Bangladesh. The ability of the extractants to extract soil P followed the order: 0.5M NaHCO<sub>3</sub> (pH 8.5) > 0.25N NaHCO<sub>3</sub>-0.01M EDTA-0.01M NH<sub>4</sub>F > 0.03N NH<sub>4</sub>F + 0.1N HCl > 0.03N NH<sub>4</sub>F + 0.025N HCl > 0.002N H<sub>2</sub>SO<sub>4</sub> > 100g NaOAc in 30 ml CH<sub>3</sub>COOH/liter > 1M NaCl (at pH 3.0). The best correlation was found between P<sub>HS</sub> and P<sub>NaCl</sub> (r = 0.917, P = 0.001). For acid soils (pH < 7.0) the amounts of phosphorus removed by different extractants were positively correlated with their organic carbon content. The soils were classified on the basis of the soil properties studied.



24.

J. Asiat. Soc. Bangladesh, Sci. 23 (2) : 195-204, 1997

### EVALUATION OF SOME SOIL TEST METHODS FOR PHOSPHORUS IN SOME BANGLADESH SOILS WITH RESPECT TO WHEAT

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*Department of Soil Science, University of Dhaka, Dhaka-1000, Bangladesh*

#### Abstract

Seven extraction methods were tried to evaluate a suitable method for determining available P from eleven soils representing 11 established soil series of Bangladesh with respect to wheat (Aghrani) grown under net-house conditions. 0.002 N H<sub>2</sub>SO<sub>4</sub> appeared to be the best method for all soils in extracting available P which gave high correlations with relative yield and P uptake, particularly at the flowering stage. 0.5M NaHCO<sub>3</sub> was found to be the second best method in estimating the availability of Phosphorus. The third method that correlated significantly with wheat yield and P uptake was 1M NaCl. Remaining methods also correlated significantly with plant parameters except Morgan and ASI with yield from control at the flowering stage.

25.

Dhaka Univ. J. Biol. Sci. 7(1) : 33-39, 1998 (January)

### CRITICAL VALUES FOR PHOSPHORUS OF SOME REPRESENTATIVE BANGLADESH SOILS WITH RESPECT TO WHEAT

S. M. IMAMUL HUQ<sup>1</sup>, MEHERUNA AKTER AND M. DIDAR UL ALAM

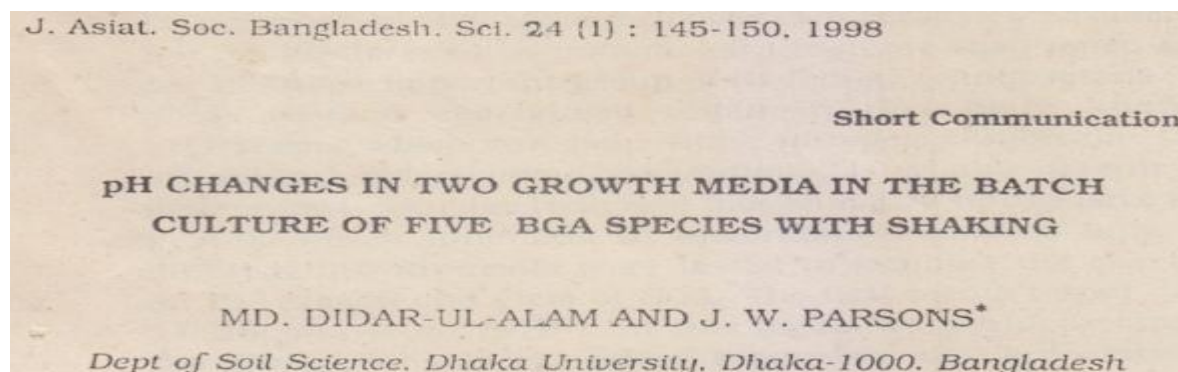
*Department of Soil Science, University of Dhaka,  
Dhaka-1000, Bangladesh*

*Key words:* Soil phosphorus, Critical level, Wheat plant

#### Abstract

A pot culture experiment was conducted with 11 representative soils of Bangladesh to determine the critical levels of soil P for wheat by Bray No.1 (Bray P<sub>1</sub>), Bray No.2 (Bray P<sub>2</sub>), Truog (P<sub>HS</sub>), Morgan (P<sub>MG</sub>), 0.5M NHCO<sub>3</sub> (P<sub>NHC</sub>), ASI (P<sub>AS</sub>) and 1M NaCl (P<sub>NaCl</sub>) extractants. The critical levels of soil P were determined in response to relative yield and relative P uptake/100 plants at both flowering and harvesting stages using the Cate-Nelson graphical method. 6.5, 1.5 and 0.2 ppm were observed as critical values for Bray P<sub>1</sub>, P<sub>HS</sub> and P<sub>NaCl</sub>, respectively. The critical level for Bray P<sub>2</sub> and P<sub>AS</sub> was 12.5 ppm for both stages in response to relative yield only and that for P<sub>MG</sub> was 0.5 ppm except in response to relative yield at harvesting stage (0.65 ppm). For P<sub>NHC</sub>, the critical values were different at both stages. On the basis of these values, soils were expected to be responsive to P-fertilization.

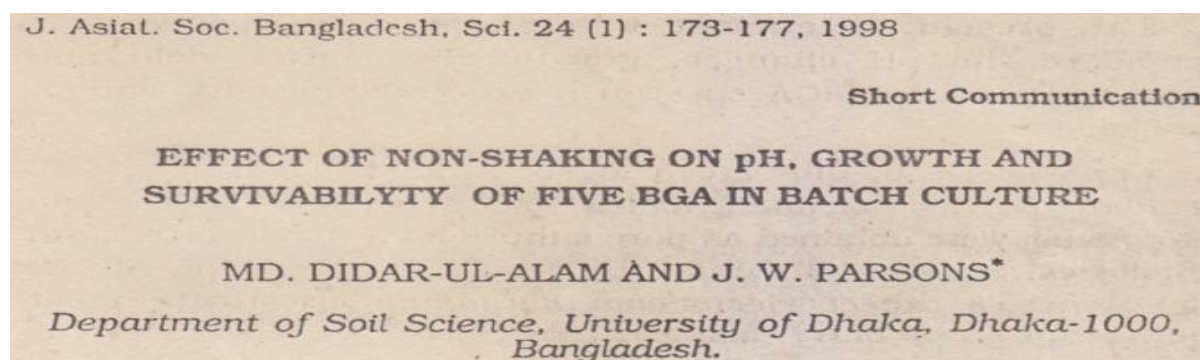
26.



Abstract

The study was aim to compare the yields among five BGA species due to change in two growth media in batch culture. The growth of BGA population was better in Watanabe's medium than BG-11 medium. The lowest yield in Watanabe's solution was almost equal to the highest yield in BG-11 medium. At pH 10.0 appears to be optimum for *Plectoneum boryanum* in both the media but pH 7.9 to 9.0 favors the growth of the other four BGA species.

27.



Abstract

Highest yield was obtained in BG-11 medium with *Anabaena doliolum* (0.084 g) and pH range of 7.8 to 9.0 was better for this species. Whereas *Anabaena variabilis* yielded only 0.006 g. In case of Watanabe's medium, lack of shaking only *Plectoneum boryanum* (0.052 g) and *Anabaena variabilis* (0.048 g) gave some significant increase in yield over other two species. The final pH in this experiment was found to be lowest in all growth experiments.



28.

Bio. Tech. Res. in Dhaka University  
Suppl. Issue Dhaka Univ. J. Biol. Sci. 8(2) : 31-40, 1999 (July)

**EFFECTS OF INOCULATION WITH VESICULAR - ARBUSCULAR MYCORRHIZAL FUNGI AND PHOSPHORUS ON THE GRWOTH AND YIELD OF LENTIL (*LENS CULINARIS*) GROWN IN STERILE AND NON-STERILE SOIL UNDER DROUGHT-STRESSED AND UNSTRESSED CONDITIONS**

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Dhaka - 1000, Bangladesh*

*Key words* : Growth, Yield, Lentil, Nitrogen, Phosphorus, VAM

**Abstract**

The effect of inoculation with vesicular-arbuscular mycorrhizal (VAM) fungi and phosphorus fertilization on growth and yield of lentil (*Lens culinaris*) was studied in pots in sterile and non-sterile soil under drought-stressed and unstressed conditions. The inoculation with *Glomus mosseae* alone and with P increased growth, dry weight of shoot and root, N and P content of lentil plant. Phosphorus application reduced the degree of infection without affecting plant growth, seed yield and nutrient content (N and P). Results showed that *G. mosseae* has the potential to replace 40 kg P/ha fertilization.

29.

Bangladesh J. Sci. Res. 16(2): 253-256, 1998 (December)

Short communication

**STUDY ON THE GROWTH AND YIELD OF BGA IN TWO GROWTH MEDIA ADJUSTED TO pH 7.5**

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**Abstract**

In comparison with BG-11 medium, Watanabe's medium where pH was adjusted gave better results. The favorable pH ranges were found to be 7.0 to 9.0. *Anabaena doliolum* gave the highest (0.162 g) in Watanabe's medium and *Plectonema boryanum* produced the highest yield (0.056 g) in BG-11 medium. As the growth response to pH differ from species to species and even between strains and the composition of the medium and the pH interact to modify the growth response, these interaction need to be understand before definite optimum growth conditions are assigned to various species of algae.

30.

The Journal of Noami. Vol. 17. No 1 & 2. December, 2000.

### HYDROGEOLOGY AND GEOCHEMISTRY OF THE COASTAL AQUIFERS OF NOAKHALI-LAKSHMIPUR-CHANDPUR REGIONS, SE BANGLADESH

Monirul Hoque<sup>1</sup>, Md. Taslim Uddin<sup>2</sup>, Md. Didarul Alam<sup>3</sup> & Kazi Matin Ahmed<sup>1</sup>

#### ABSTRACT

Hydrogeology and hydrogeochemistry of the coastal aquifers from a part of SE Bangladesh have been evaluated using laboratory and field techniques. It has been found that two aquifers occur in the study area with distinct water type, the upper aquifer contains relatively saline water and the lower one contains fresh water. Water in most of the wells is not suitable for potable water as per WHO and Bangladesh standards. However, water in most cases is suitable for irrigation with proper crop selection. The origin of saline water is either due to hydrogeological entrapment or intrusion of seawater during the last sea level rise. Proper management policy is very much essential to develop the very limited fresh groundwater in the aquifers of the study area.

31.

**Popular article:** Didar-ul-Alam, 2001. Cricket Pitch of Banga Bandhu National Stadium. Banglar Bani. 8<sup>th</sup> August, 2001.

#### Abstract

Bangladesh has got Test status in World Cricket from ICC as a 10<sup>th</sup> test playing country in 10<sup>th</sup> Nov. 2002. It is become possible due to huge spectators has popularizing the game throughout the country, infrastructure of the game in the country and organizing capacity of the game. It is assumed that it become too early for Bangladesh in Test arena. Test Cricket is a long version game; it needs long experience with deep concentration and patience among the players. Bangladesh has got one day status in due time, it is O.k. because Bangladesh has the capacity to make surprise result in ODI. But it will difficult for Bangladesh to prove worthy in next 10-15 years in Test Cricket arena with big teams.

32.

**Popular article:** Didar-ul-Alam, 2002. Cricket Pitch of Banga Bandhu National Stadium from view point of Soil Science. Dainik Orthonitii. Series, 29<sup>th</sup> July- 8<sup>th</sup> August, 2002.

#### Abstract

It has been said that moisture, wind and temperature are important factors for cricket ground, pitch and playing environment. But the other parameters present in the soil of the pitch also influence directly or indirectly to the mode of the cricket match of 5 days, 4 days, and 3 days and for ODI. 1<sup>st</sup> ICC one day Cricket champion was held at Banga Bandhu National Stadium in 1997. Pace of Bowling from pitch, gradually slowing down of the track, and growth of green grass on the pitch also depends on physicochemical properties of the soil utilized in the making of pitch. Physicochemical composition of that soil were analyzed and discussed. The parameters were: pH -7.85, O.M - 0.3%, O.C-0.172%, Total-N<sub>2</sub>-0.24% , P-1.20 ppm, exchangeable Ca, Mg, Na, K were 0.35%, 0.13%, 2.61 me/100g and 0.28 me/100g , Fe, Mn, Zn, Cu, Pb, Cd, Ni were 39, 93.9, 3.4, 3.5, 2.2, 0.3 and 1.7 ppm, ESP-5.78% and textural class was clay soil. Except texture, moisture and temperature other chemical elements has a great role in governing the condition of the any pitch.



33.

Bangladesh J. Soil Sci. 27-29: 77-82, 2001-2003

**CARBON DIOXIDE PRODUCTION AND NUTRIENT RELEASE BY THREE BLUE GREEN ALGAE IN NON-CALCAREOUS BROWN FLOODPLAIN SOIL UNDER WATERLOGGED CONDITION**

Md. Didar-ul- Alam

**Abstract**

Highest CO<sub>2</sub> production was found with a similar trend for all amendments at 40°C which was approximately 6 g CO<sub>2</sub>/kg equivalent to 1.64 g C/kg. NH<sub>4</sub>-Nitrogen production followed the trend *N. muscorum* (8.65% N) > *A. cylindrica* (7.5% N) > *A. variabilis* (6.5% N). NO<sub>3</sub>-N production values were too low and variable which was expected under waterlogged conditions. Among three BGA species *N. muscorum* showed a good correlation with NH<sub>4</sub>-N and mineral-N and found to be significant at 5% level ( $r = 0.997$  after 24 days) and 1% level ( $r = 0.999$  after 16 days), respectively.

34.

Bangladesh J. Bot. 32(2): 101-106, 2003 (December)

**DECOMPOSITION RATE AND NUTRIENT RELEASE BY BLUE-GREEN ALGAE IN BANGLADESH SOIL**

MD. DIDAR-UL-ALAM

Department of Soil Science, University of Dhaka, Dhaka 1000, Bangladesh.

Key words: Decomposition, BGA, Mineralization, CO<sub>2</sub> evolution**Abstract**

High rate of decomposition was obtained with *Anabaena variabilis* at 20, 30 and 40 °C and *Anabaena cylindrica* at 50 °C out of five blue-green algae species. NH<sub>4</sub>-N production was higher from the addition of *Nostoc muscorum* and lowest with *Plectonema boryanum*. Rate of nitrification was higher at 20 and 30 °C on 8th day of incubation. Values for extractable-P were higher at 30 and 40 °C along 8th day with *N. muscorum*. Extractable-K values were variable.

35.

**- Short communication**

Dhaka Univ. J. Biol. Sci. 13(1) : 107-112, 2004 (January)

**CHANGES OF pH AND Eh IN SOIL AND WATER IN A STUDY OF THREE SOURCES OF NITROGEN WITH AND WITHOUT GROWING OF RICE**

MD. DIDAR-UL-ALAM

Department of Soil, Water &amp; Environment, University of Dhaka, Dhaka-1000, Bangladesh

## Abstract

In almost all of the treatments the redox potential decreased from high to low values within few weeks after transplanting and reached a minimum; then it increased, attained a maximum, and decrease again after 8 to 12 weeks irrespective of treatments to a value of the soil. A similar pattern of curves was obtained for pH of all above treatments in water as well as in soil.

A strong correlation between different doses of fertilizer and release of N-elements did happen

With respect to said time (12 weeks) after transplanting in the growth period of rice in case of

Eh but on the contrary, pH showed negative values indicating the established relationship

between pH and Eh in the chemistry of submerged soil in the growth of rice.

36.

*Bangladesh J. Sci. Ind. Res.* 39(3-4), 169-176, 2004

### **Effect of Fertilizers and Five BGA (blue-green algae) Species on the Dry Matter Yield of Rice at Two Harvests**

**Didar-ul-Alam**

*Department of Soil Water and Environment, University of Dhaka, Dhaka-1000, Bangladesh*

#### **Abstract**

On evaluating dry matter production it was found that application of nitrogen fertilizer significantly increased dry matter over the control. Maximum amount of dry matter production per pot in the 2nd harvest was achieved with the addition of 90 mg N pot<sup>-1</sup> and the values were 6.2 g with the urea and 6.3 g with ammonium sulphate. The highest dry matter yield obtained for pot inoculated with algae was 5.8 g obtained with *A. variabilis* which was significantly lower than the maximum values produced by either fertilizer. In this experiment *A. variabilis* was the most effective of the five species tested with the other four producing similar results. The lowest dry matter production was found with *N. muscorum* (4.1 g) among five BGA species.



37.

Bangladesh J. Agril. Res. 29(3) : 431-436, September 2004

## RESPONSE OF ONION TO NITROGEN, PHOSPHORUS, AND POTASSIUM FERTILIZATION

M. H. ULLAH<sup>1</sup>, S. M. I. HUQ<sup>2</sup>, M. D. U. ALAM<sup>3</sup> AND M. A. RAHMAN<sup>4</sup>

### Abstract

Field experiments were conducted in the Ganges Tidal Floodplain (AEZ-13) at the Regional Agricultural Research Station, Rahmatpur, Barisal to study the response of onion cv. Taherpuri to a range of doses of NPK and S under irrigated condition during the rabi seasons of 1999-2000 and 2000-2001. There were five levels of N: 0, 50, 100, 150 & 200 kg/ha and four levels each of P<sub>2</sub>O<sub>5</sub>: 0, 40, 80 & 120 kg/ha and K<sub>2</sub>O: 0, 50, 100 & 150 kg/ha. An amount of S @ 20 kg/ha and cowdung @ 5t/ha were also used in the experimental plots except the absolute control. The effect of N was significant and that of PK and S were beneficial on the plant height and number of leaves/plant. The diameter of bulb, weight of single bulb and bulb yield were significantly increased by NPK and S. The economic analysis suggested the treatment combination of 150:80:100: 20 of N: P<sub>2</sub>O<sub>5</sub>: S, respectively, and plus 5 t/ha of cowdung to be optimum for bulb yield of 19.02 t/ha in 1999-2000 and 19.27 t/ha in 2000-2001 and 19.15 t/ha on an average of two years and for obtaining the highest marginal rate of return (2440%) with gross margin of Tk. 183388/ha.

38.

Bangladesh J. Agril. Res. 30(1) : 41-48, March 2005

## EFFECTS OF NITROGEN, PHOSPHORUS AND POTASSIUM ON NUTRIENT CONTENT IN ONION

M.H. ULLAH<sup>1</sup>, S.M.I. HUQ<sup>2</sup>, M.D.U. ALAM<sup>2</sup> AND M.A. RAHMAN<sup>3</sup>

### Abstract

The study was carried out with different levels of N (0, 50, 100, 150 and 200 kg/ha); P<sub>2</sub>O<sub>5</sub> (0, 40, 80 and 120 kg/ha) and K<sub>2</sub>O (0, 50, 100 and 150 kg/ha) along with 20 kg S/ha plus 5 t/ha cowdung at Regional Agricultural Research Station, Rahmatpur, Barisal in order to evaluate their effects on the N, P & K contents in onion. Nitrogen application at higher rate enhanced the N, P & K concentration in onion, while the effect of P was not so prominent. Application of N, P & K at higher levels generally increased the nutrient content in the bulb of onion. Nitrogen at 150 kg/ha had the highest effect in respect of nutrient content, nutrient uptake, fresh weight and dry matter content (%) of onion bulb. The correlation study indicates that the N concentration increased to a higher rate compared to P and K and the dry matter content and removal of nutrient elements were significantly correlated with the application of nitrogen fertilizer.

39.

Bangladesh J. Bot. 35(1): 1-7, 2006 (June)

**INTERACTION OF ARBUSCULAR MYCORRHIZAL FUNGUS *GLOMUS MOSSEAE* AND PHOSPHORUS ON GROWTH AND NUTRIENT UPTAKE OF MAIZE PLANTS GROWN UNDER DIFFERENT SOIL CONDITIONS**

**M. K. RAHMAN, S. M. KABIR, G. M. MOHSIN<sup>1</sup> AND M. DIDARUL ALAM**

*Department of Soil, Water and Environment, University of Dhaka, Dhaka 1000, Bangladesh*

*Key words: Growth, Glomus mosseae, Maize, Nutrient uptake*

**Abstract**

Effects of inoculation with arbuscular-mycorrhizal fungi and phosphorus fertilization on growth and uptake of N and P by maize plants were studied in pots in a net house in sterile and non-sterile soil under drought-stressed and unstressed conditions. The inoculation with *Glomus mosseae* (40 g inoculum per 3 kg soils) alone and with P (120 kg P/ha) increased height, dry weight of the shoot and root, and N and P content of maize plants. Phosphorus fertilization reduced the degree of infection without affecting plant growth and uptake of N and P.

40.

J. Asiat. Soc. Bangladesh, Sci., 32(1): 149-154, June 2006

– Short communication

**RATE OF DECOMPOSITION AND NUTRIENT RELEASE BY FIVE BLUE-GREEN ALGAE AT ONE PER CENT MOISTURE CONDITION IN BANGLADESH SOIL**

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**Abstract**

The rate of mineral –N release due to temperature from 20-50°C at the end of 48 days of incubation was higher and correlated significantly at 5% level ( $r = 0.55$ ) only with *Anabaena variabilis*. *Nostoc muscorum* and *Anabaena doliolum* showed strong correlation with phosphorus significant at 0.1% level ( $r = 0.66$ ) and ( $r = 0.557$ ) respectively. On the contrary, other species and nutrients showed significant relation with various temperature and rate of decomposition.

41.

**BOOK:** S.M.I.HUQ and Didar-ul-Alam, 2005. *A Handbook on Analysis of Soil, Plant and Water*. Published by Bangladesh-Australia Centre for Environmental Research (BACER-DU), Department of Soil, Water and Environment University of Dhaka, Dhaka-1000. Bangladesh.



42.

Academic Open Internet  
Journal  
ISSN 1311-4360

[www.acadjournal.com](http://www.acadjournal.com)

Volume 19, 2006.

## Risk and Water Quality Assessment over view of River Sitalakhya in Bangladesh

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Keywords: Industrial effluents, Agrochemicals, Risk and Quality Assessment

### ABSTRACT

In terms of quality, the river water of the Sitalakhya is vulnerable to pollution from untreated industrial effluents and municipal wastewater, runoff from chemical fertilizers and pesticides, and oil and lube spillage in and around the operation of river ports. The present investigation (2001 - upwards) to previous works (1980 - 2000) on Sitalakhya River, the physico-chemical variables, namely temperature, transparency, total dissolved solids, suspended solids, electrical conductivity, hardness, pH, dissolved oxygen, biochemical oxygen demand, chemical oxygen demand, nitrate, ammonium, phosphate were significantly differs (at <0.05 level by DMRT) in the spatial (pollution source) and temporal (seasonal) sources of variation affecting and consideration measures to be taken for the safe aquatic lives as well as human health.

43.

Dhaka Univ. J. Biol. Sci. 16(1): 49-53, 2007 (January)

## NUTRIENTS RELEASE IN A NON-CALCAREOUS BROWN FLOOD PLAIN SOIL UNDER VARIOUS MOISTURE AND TEMPERATURE

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*Key words : CO<sub>2</sub> evolution, Decomposition, Mineralization*

### Abstract

Of the three moisture and four-temperature conditions, 50% moisture and 40°C were found to be the optimum temperature for release of nutrients. A small amount of CO<sub>2</sub> was evolved in dry soils (1% moisture) particularly at 40 and 50°C possibly as a result of chemical rather than microbial reactions. Very small amount of nutrients were released in the very dry soil. CO<sub>2</sub> production was substantially higher and the release of nutrients under waterlogged condition showed a strong correlation significant at 0.1% level (r = 0.84) than 50% significant at 5% level (r = 0.50). NO<sub>3</sub>-N levels decreased at 20 and 30°C.

44.

Academic Open Internet  
Journal  
ISSN 1311-4360

[www.acadjournal.com](http://www.acadjournal.com)

Volume 23, 2007  
Issue 17/09/2007

### Seasonal variations in physico-chemical characteristics of River Sitalakhya in Narayanganj

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#### Abstract

Various physico-chemical characteristics of the River Sitalakhya in Bangladesh were studied during June'04 to June'05 at the four months intervals. Ecological parameters were analyzed and compared with standard permissible limits. The river water of upstream was worst quality whereas the downstream much better that indicating very low DO, but high BOD, COD, TDS, SS and EC. The differences in various parameters were statistically significant at 1% and 5% levels, particularly in winter season at the month of February 2005. EC VS TDS and BOD VS COD were found to be two important parameters, which showed strong correlation with several other parameters and hence can serve as worst indices of river water quality.

45.

*Bangladesh J. Sci. Ind. Res.* 42(2), 235-238, 2007

Short Communication

### Study on Percent Recovery of Nitrogen in Incubation with Five BGA (Blue-green algae) Species at Four Temperature and Three Moisture Conditions

Md. Didar-ul- Alam

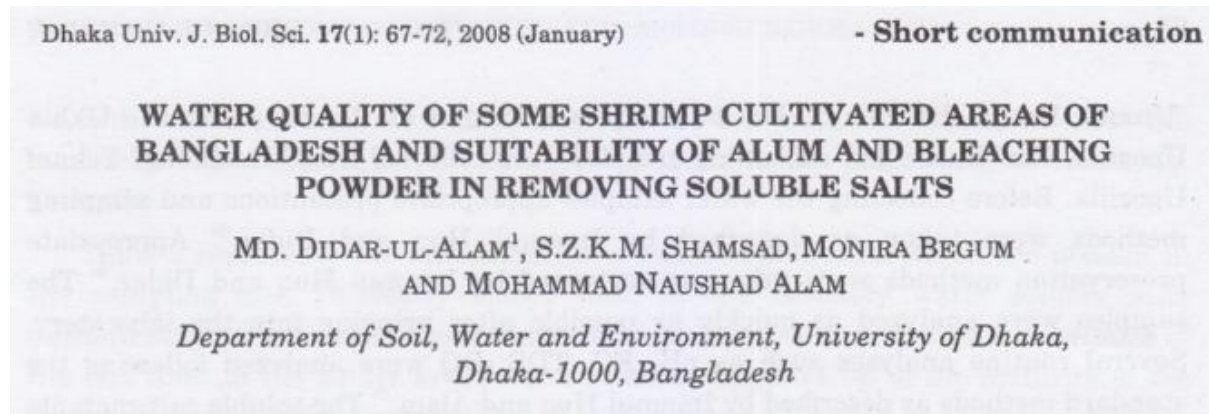
*Department of Soil, Water and Environment, University of Dhaka,  
Dhaka-1000, Bangladesh*

#### Abstract

Relationship between all five BGA species at 20<sup>0</sup>-50<sup>0</sup> C temperatures under three moisture conditions mineral-N showed strong correlatonship under waterlogged condition than that of 50% and 1% moisture conditions. The significant value was obtained at 1% level (r = 0.88) under waterlogged condition. On the other hand, at 1% and 50% moisture conditions showed positive correlationship significant at 10% ( r = 0.40 ) and 5% ( r = 0.48 ) respectively.



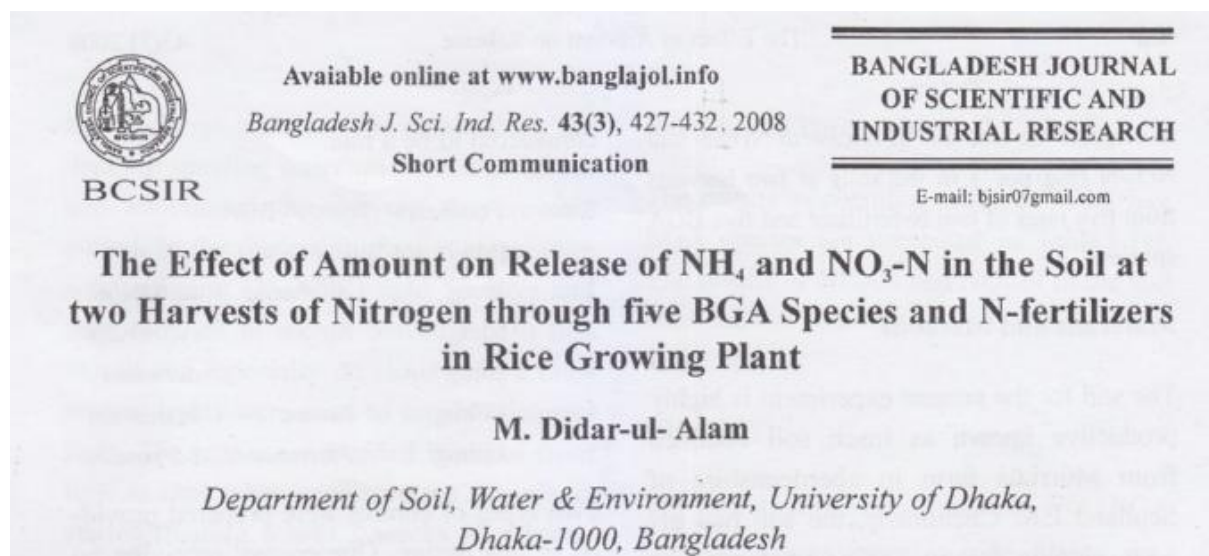
46.



## Abstract

Alum was found to be not so effective in lowering  $\text{Cl}^-$  from the water s whereas bleaching powder increase its concentration where it needed dechlorination process as a treatment for chlorine removal. After treatment with alum the concentration of  $\text{Ca}^{+2}$  in the sample found to be decreased. Between two chemicals bleaching powder and alum both were found to be effective in removing  $\text{Mg}^{++}$  from the water. No  $\text{CO}_3^-$  was detected in all sample sites because pH values were 6.8-7.9. In case of  $\text{HCO}_3^-$  after treating water samples with alum no  $\text{CO}_3^-$  was found indicates that alum is better than bleaching powder in removing soluble salts from the water.

47.



## Abstract

Among all treatments pots without growing rice plants containing *N.muscorum* showed the highest amount of mineral-N and *P.boryanum* was the lowest. On the contrary, treatments with rice plants containing all BGA species the amounts of  $\text{NH}_4\text{-N}$  and  $\text{NO}_3\text{-N}$  remaining were more or less equal to the fertilizer treatments. Among BGA species and fertilizers the highest amount of  $\text{NH}_4\text{-N}$  and  $\text{NO}_3\text{-N}$  were found at the  $90 \text{ mg N pot}^{-1}$  with urea and ammonium sulphate and *A.doliolum* gave the highest amount in comparison to other four species.

48.

ISSN 0258-7122

Bangladesh J. Agril. Res. 33(3) : 539-548, December 2008

### IMPACTS OF SULPHUR LEVELS ON YIELD, STORABILITY AND ECONOMIC RETURN OF ONION

M.H. ULLAH<sup>1</sup>, S.M.I. HUQ<sup>2</sup>, M.D.U. ALAM<sup>3</sup> AND M.A. RAHMAN<sup>4</sup>

#### Abstract

The experiments were carried out at the Regional Agricultural Research Station, Rahmatpur, Barisal during the *rabi* seasons of 2001-2002 and 2002-2003 to study the impact of different sulphur levels on bulb yield, storability and economic return of onion. Sulphur application had significant effect on yield components and bulb yield of onion. The highest bulb yields (19.75 and 19.88 t/ha) were obtained from sulphur levels between 60 and 75 kg/ha in two consecutive years. Both the cumulative weight and rotten loss were significantly influenced by sulphur fertilization. The maximum weight loss (40.78%) was recorded after 180 days of storage in S<sub>60</sub> kg/ha and the minimum (31.40%) was found in S<sub>45</sub> kg/ha. The bulbs stored in bamboo platform were found in acceptable condition after 6 months of storage showing 31.40% of weight loss. The maximum rotten bulbs (63.75%) were observed in control treatment (without S) and the minimum rotten bulbs (37.04%) were observed in S<sub>45</sub> kg/ha after 180 days of storage because application of sulphur enhanced the storability of onion bulbs. The highest (9146 %) marginal rate of return (MRR) with gross margin of Tk. 181844/ha was obtained from the sulphur level S<sub>60</sub> kg/ha.

49.

*J. Phytol. Res.* 21(2) : 247-251, 2008

### EFFECTS OF INOCULATION WITH ARBUSCULAR- MYCORRHIZAL FUNGI AND PHOSPHORUS ON GROWTH, YIELD AND NUTRIENT UPTAKE OF MUNGBEAN GROWN IN STERILE AND NON-STERILE SOIL

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<sup>1</sup>East West Seed (Bangladesh) Ltd., Joydebpur, Gazipur, Bangladesh.

Effects of inoculation with arbuscular-mycorrhizal (AM) fungi and phosphorus fertilization on dry weights of shoot, root and seed, and uptake of N and P by the shoots of mungbean (*Vigna radiata* L.) were studied in pots in sterile and non-sterile soil under water-stressed (60%WHC) and unstressed conditions in a net house. The inoculation with *Glomus mosseae* increased dry weight of shoot and root, seed and N and P content of mungbean. Results revealed that *G. mosseae* inoculum (50g per 3 kg soil) can substitute 40 kg P ha<sup>-1</sup> in yield of mungbean.



50.



Available online at [www.banglajol.info](http://www.banglajol.info)  
*Bangladesh J. Sci. Ind. Res.* **45(1)**, 57-62, 2010

**BANGLADESH JOURNAL  
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**Water Quality of Major Ponds of Comilla Town**

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**Abstract**

Some important physico-chemical properties of water of major ponds of Comilla Town were studied to evaluate the water quality. Eight water samples were collected during the dry period (March 2005) from eight major ponds of Comilla Town (Ranir dighi, Mandir dighi, Nanuar dighi, Fauzdari dighi, Modina dighi, Dargabari dighi, Darma Sagar and Thakurpara). The result revealed that all the chemical constituents, except a few, are beyond the recommended limit for different uses. Higher value of pH (at Dargabari dighi, Darma Sagar dighi), OM (at Thakurpara dighi, Fauzdari dighi and Modina dighi),  $\text{NH}_4^+$  concentration (at Ranir dighi, Mandir Dighi, Fauzdari dighi, Modina dighi and Dargabari dighi), and lower value of DO (at Fauzdari dighi and Modina dighi) may due to continuous disposal of kitchen wastes, organic wastes, sewage running and fall of twigs as well as extensive used for bathing, washing cloths and utensils etc. All indicate eutrophication and affect community health and hygiene and also create aesthetic problem in the locality.

51.

Bangladesh J. Soil Sci. **36(1-2)**: 9-16, 2010

**EFFECTS OF DIFFERENT LEVELS OF SULPHUR ON GROWTH, SULPHUR  
CONTENT AND UPTAKE BY ONION PLANT**

M.H. Ullah<sup>1</sup>, S.M.I. Huq<sup>2</sup>, M.D.U. Alam<sup>2</sup> and M.A. Rahman<sup>3</sup>

**ABSTRACT**

*The field experiment was conducted at the Regional Agricultural Research Station, Rahmatpur, Barisal during the rabi season of 2001-2002 and 2002-2003 to examine the effects of different levels of sulphur (S) on growth, S content and uptake by onion plant. The experimental results showed that S levels had the significant effect on plant growth in terms of plant height, number of leaves/plant, pseudostem length and diameter, horizontal & vertical diameter of onion bulb and total dry matter weight. The S content and uptake were also significantly affected by different levels of S. Application of 75 kg S/ha gave significantly the highest weight of total dry matter which contributed to the maximum yield of onion bulb. The same treatment (S<sub>75</sub> kg/ha) also gave significantly the highest value in respect of S content and uptake in onion plant. Therefore, considering the soil fertility in the Southern region of Bangladesh, 60 to 75 kg S/ha can be applied to the onion crop for its proper growth and maximum bulb yield but further application of S may cause toxicity in the soil along with yield reduction.*

52.

Bangladesh J. Soil Sci. 36(1-2): 41-51, 2010

### EFFECTS OF DIFFERENT COMBINATIONS OF ZINC, BORON AND COPPER NUTRIENTS ON YIELD, STORABILITY AND ECONOMIC RETURN OF ONION

M.H. Ullah<sup>1</sup>, S.M.I. Huq<sup>2</sup>, M.D.U. Alam<sup>3</sup> and M.A. Rahman<sup>4</sup>

#### ABSTRACT

The field experiment was conducted at the Regional Agricultural Research Station, Rahmatpur, Barisal in rabi season of two consecutive years of 2001-2002 and 2002-2003 with a view to determine the effects of different combinations of zinc (Zn), boron (B) and copper (Cu) nutrients on bulb yield, storability and economic return of onion in the study area. The soil of the experimental area belongs to the Ganges Tidal Floodplain Alluvium Tract under AEZ-13. The Zn, B and Cu nutrients consisted of eleven treatment combinations namely  $Zn_0B_1Cu_1$ ,  $Zn_{2.5}B_1Cu_1$ ,  $Zn_5B_1Cu_1$ ,  $Zn_{7.5}B_1Cu_1$ ,  $Zn_5B_0Cu_1$ ,  $Zn_5B_2Cu_1$ ,  $Zn_5B_3Cu_1$ ,  $Zn_5B_1Cu_0$ ,  $Zn_5B_1Cu_2$ ,  $Zn_5B_1Cu_3$  and  $Zn_0B_0Cu_0$  kg/ha. Different plant characters like plant height, leaf length, pseudostem length, horizontal and vertical diameters, single bulb weight and bulb yield of onion were differed significantly due to application of different treatment combinations. Of the treatment combinations, the maximum bulb yield (16.68 t/ha) was obtained with the treatment  $Zn_5B_2Cu_1$  kg/ha due to production of largest horizontal and vertical diameters (4.74 and 4.35 cm, respectively) and heaviest single bulb (36.42 cm) of onion by the treatment. During the storage of onion bulb, the lowest cumulative weight loss (25.66 %) was observed in  $Zn_{7.5}B_1Cu_1$  kg/ha and the highest (45.76 %) was found in  $Zn_0B_1Cu_1$  kg/ha at 180 days after storage. The maximum gross return (Tk 166750.00/ha), gross margin (Tk 154070.18/ha) and benefit cost ratio (12.15) were provided by  $Zn_5B_2Cu_1$  kg/ha followed by  $Zn_5B_3Cu_1$  kg/ha (Tk 157250.00 and 143511.78/ha, respectively) but the treatment  $Zn_5B_1Cu_1$  kg/ha provided the second highest benefit cost ratio (11.86). On the contrary, the lowest gross return, gross margin and benefit cost ratio (Tk 58850.00, 49609.00/ha and 5.37, respectively) were contributed by  $Zn_0B_0Cu_0$  kg/ha. Therefore, the two years experiment concluded that from the economic point of view the suitable fertilizer dose for onion cultivation is  $Zn_5B_2Cu_1$  kg/ha (plus  $N_{100}P_{80}K_{100}S_{20}$  kg/ha) in the soil under study and in its extrapolation area under the southern region of Bangladesh.

53.

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#### Study on Some Dissolve Heavy Metals of Sitalakhya River

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Department of Soil, Water and Environment

University of Dhaka

Bangladesh

#### Abstract

Heavy metals concentrations (Cr, Cu, Fe, Pb and Zn) were measured seasonally from 19 points of Sitalakhya River from June 2004 to June 2005. Analyses of the samples revealed that the Sitalakhya River is polluting by industrial, urban discharges and agricultural runoff. In this work significant differences were observed among the six studied sites (Rupganj, Kaetpara, Godnile, Nabiganj, Vulta and Demra) for heavy metals. Exception with copper in June'05, the highest amount of Cu obtained 1.04 mg/L and lowest amount was found 0.042 mg/L and this result was attributed to the influence of the industrial activities in the region and/or the municipal runoff in this area in different seasons of the year. However, proper management is needed for a saving Sitalakhya River.



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**P 18**

**Impact of persistent organic pollutants on environment and their remediation**

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Increased use of chemicals on vegetables started gaining momentum and continued its up-trend in Bangladesh. Wide spread use of pesticides in agriculture concern of residue accumulation, which may remain in food and agricultural environment causing concern of human health and risking ecological balance. Approach: This study reported a method based on colorimetric spectrometer methods for determination of pesticide residues used in vegetables (Indian spinach). Early the study Three agricultural and industrial areas (Matuail, Fatullah and Hazaribug) were detailed surveyed and studied different categories of organic compounds. The trace residues of organic compounds especially diazinon and Dursban were found in soil, water and plant during wet and dry season. After the field experiment, pot experiment was done at net house of the Soil, Water and Environment Department, University of Dhaka on Indian Spinach. Diazinon and Dursban were applied at recommended dose and double of recommended dose and analyzes their residual contents in soil and plant and also biological remediation were applied to resist the pesticide uptake by plant and expose to the environment. In this experiment, first sampling was done six hours after pesticide application then 15 days after first sampling and 15 days after second sampling. UV spectrophotometer was used to quantify of all these analyses using Sulfuric:Hydrochloric acid (1:4, v/v) as mobile phase. Results: The experimental result shows that there were residual effects of diazinon and dursban found and the positive remediation result were also found. In this experiment 28 pots were taken and each pot contain two kg soil and they were arranged complete randomize. Seven treatment were applied including control in a two row-colum system. Two different doses of pesticides and two doses of biological remediation were applied. The Indian spinach uptake diazinon and dursban at different pots varies due to its application rate and remediation. The analysis result shows that pesticides uptake by plant was found highest at the mid level growth and they were diazinon (0.297 mg kg<sup>-1</sup> at the rate of 0.5 ml diazinon; 0.824 mg kg<sup>-1</sup> at the rate of 1.0 ml diazinon; 0.693 mg kg<sup>-1</sup> at the rate of 0.5 ml diazinon and 2 g Rice hull; 0.356 mg kg<sup>-1</sup> at the rate of 1.0 ml diazinon and 2 g Rice hull; 0.403 mg kg<sup>-1</sup> at the rate of 0.5 ml diazinon and 4 g Rice hull and 0.285 mg kg<sup>-1</sup> at the rate of 1.0 ml diazinon and 4 g Rice hull) per 2 kg soil and on the other hand, dursban uptake by the plant were (0.003 mg kg<sup>-1</sup> at the rate of 1.0 ml dursban; 0.0083 mg kg<sup>-1</sup> at the rate of 2.0 ml dursban; 0.0017 mg kg<sup>-1</sup> at the rate of 1.0 ml dursban and 1 g Charcoal; 0.0013 mg kg<sup>-1</sup> at the rate of 2.0 ml dursban and 1 g Charcoal; 0.0017 mg kg<sup>-1</sup> at the rate of 1.0 ml dursban and 2 g Charcoal and 0.0006 mg kg<sup>-1</sup> at the rate of 2.0 ml dursban and 2 g Charcoal) per 2 kg soil. The application of charcoal as a remediator was found effective than rice hull for both pesticides in crop security.