

ISSN 2221-6421 (Print), ISSN 2223-2567 (Online)

Coden: PJSIC6 55(3) 117-174 (2012)

Pakistan Journal of Scientific and Industrial Research

Series B: Biological Sciences

Vol. 55, No.3, November-December, 2012



(for on-line access please visit web-site <http://www.pjsir.org>)

Published by
Scientific Information Centre
Pakistan Council of Scientific and Industrial Research
Karachi, Pakistan

Pakistan Journal of Scientific and Industrial Research

Series B: Biological Sciences

EDITORIAL BOARD

Dr. Shoukat Parvez
Editor-in-Chief

Ghulam Qadir Shaikh
Executive Editor

MEMBERS

Dr. T. A. Ajith
Amala Institute of Medical Sciences
Kerala, India
Dr. Christopher Marlowe A. Caipang
Faculty of Biosciences and
Aquaculture, University of Nordland, Norway
Dr. Veronica Leticia Colin
Av. Belgrano y Pasaje Caseros,
Tucuman, Argentina

Prof. E. Miraldi
Pharmaceutical Biology Section
University of Siena, Siena, Italy
Dr. Gunter Muller
Aventis Pharma, Germany
Dr. S. K. Rastogi
Dept. of Chem. & Biochemistry,
Texas State University, USA
Dr. Zafar Saied Saify
ICCBS, University of Karachi,
Karachi, Pakistan

Dr. Hiroshi Shimoda
Oryza Oil & Fat Chemical Co. Ltd.,
Aichi, Japan
Prof. Dr. Toshiyuki Toyosaki
Dept. of Foods and Nutrition
Fukuoka, Japan
Dr. Vasudeo Zambare
Centre for Bioprocessing
Research and Development,
South Dakota, USA

Editors: Shagufta Y. Iqbal Shahida Begum Sajid Ali

Pakistan Journal of Scientific and Industrial Research started in 1958, has been bifurcated in 2011 into:

Series A: Physical Sciences [ISSN 2221-6413 (Print); ISSN 2223-2559 (online)] (appearing as issues of January-February, May-June and September-October) and
Series B: Biological Sciences [ISSN 2221-6421 (Print); ISSN 2223-2567 (online)] (appearing as issues of March-April, July-August and November-December).

Each Series will appear three times in a year.

This Journal is indexed/abstracted in Biological Abstracts and Biological Abstracts Reports, Chemical Abstracts, Geo Abstracts, CAB International, BioSciences Information Service, Zoological Record, BIOSIS, NISC, NSDP, Current Contents, CCAB, Rapra Polymer Database, Reviews and Meetings and their CD-ROM counterparts etc.

Subscription rates (including handling and Air Mail postage): *Local:* Rs. 2000 per volume, single issue Rs. 350; *Foreign:* US\$ 400 per volume, single issue US\$ 70.

Electronic format of this journal is available with: Bell & Howell Information and Learning, 300, North Zeeb Road, P.O. 1346, Ann Arbor, Michigan 48106, U.S.A; Fax.No.313-677-0108; <http://www.umi.com>.

Photocopies of back issues can be obtained through submission of complete reference to the Executive Editor against the payment of Rs. 25 per page per copy (by Registered Mail) and Rs. 115 per copy (by Courier Service), within Pakistan; US\$ 10 per page per copy (by Registered Mail) and US\$25 per page per copy (by Courier Service), for all other countries.

Copyrights of this Journal are reserved; however, limited permission is granted to researchers for making references, and libraries/agencies for abstracting and indexing purposes according to the international practice.

Printed and Published by: PCSIR Scientific Information Centre, PCSIR Laboratories Campus, Shahrah-e-Dr. Salimuzzaman Siddiqui, Karachi-75280, Pakistan.

Editorial Address

Executive Editor

Pakistan Journal of Scientific and Industrial Research, PCSIR Scientific Information Centre,
PCSIR Laboratories Campus, Shahrah-e-Dr. Salimuzzaman Siddiqui, Karachi-75280, Pakistan
Tel: 92-21-34651739-40, 34651741-43; Fax: 92-21-34651738; Web: <http://www.pjsir.org>, E-mail: info@pjsir.org

Pakistan Journal of Scientific and Industrial Research
Series B: Biological Sciences
Vol. 55, No. 3, November-December, 2012

Contents

Effect of Foliar Applied Boron Application on Growth, Yield and Quality of Maize (<i>Zea mays</i> L.) Muhammad Tahir, Asghar Ali, Farhan Khalid, Muhammad Naeem, Naeem Fiaz and Muhammad Waseem	117
Diversity Analysis of Marigolds – <i>Tagetes</i> (Asteraceae) Chithra Santhakumari Amma and Rajalakshmi Radhakrishnan	122
A Study of Poisonous Plants of Islamabad Area, Pakistan Saleem Ahmad	129
Effects of <i>Passiflora foetida</i> Linn. (Passifloraceae) on Genital Tract, Serum Estradiol, Pituitary Gonadotropin and Prolactin Level in Female Adult and Immature Ovariectomized Rats Bleu Gome Michel, Kouakou Koffi, Toure Alassane and Traore Flavien	138
Growth Performance of Juvenile Milkfish <i>Chanos chanos</i> (Forsk.) on Replacement of Fish Meal with Plant Based Diet Supplemented with Dietary Cell Bound Phytase of <i>Pichia anomala</i> Sajad Hassan, Karim Altaff, Tulsi Satyanarayana, Syed Ahamed Ali and Thirunavuarasu	145
Detoxification of Aflatoxin B1 in Poultry and Fish Feed by Various Chemicals Alim-un-Nisa, Naseem Zahra, Sajila Hina and Nusrat Ejaz	154
Qualitative Assessment of Bacteria and Fungi in the Indoor Environment of Hospitals of Islamabad, Pakistan Fouzia Hussain, Subhe Sadiq Tahir, Naseem Rauf and Afifa Batool	159
Short Communications	
Effects of Some Oral Hypoglycaemic Drugs on Erythrocyte Nicotinamide Adenine Dinucleotide Hydrogen Diaphorase (E.C.1.6.4.3) Activity of Wistar Albino Rats (<i>Rattus rattus</i>) Samuel Chimezie Onuoha and Austin Amadike Uwakwe	166
Estimation of Heavy Metals in Medicinal Plants as a Source of Herbal Medicine Used in Cardiovascular Diseases Farah Deeba, Naeem Abbas and Rauf Ahmed	169
Assessment of Selected Quality Attributes of Jam Formulated from Baobab-Hogplum Fruits Adekanmi Oyeyinka Abioye, Samson Adeoye Oyeyinka, Adewumi Toyin Oyeyinka and Sarafadeen Omowumi Kareem	172

Conetnts of Volume 55, Ser. B: Biol. Sci. (No. 1-3)	i
Author Index of Volume 55, Ser. B: Biol. Sci.	iv
Subject Index of Volume 55, Ser. A: Phys. Sci.	vi

Effect of Foliar Applied Boron Application on Growth, Yield and Quality of Maize (*Zea mays* L.)

**Muhammad Tahir^a, Asghar Ali^a, Farhan Khalid^a, Muhammad Naeem^b,
Naeem Fiaz^a and Muhammad Waseem^{a*}**

^aDepartment of Agronomy, University of Agriculture, Faisalabad, Pakistan

^bUniversity College of Agriculture and Environmental Sciences, Islamia University, Bahawalpur, Pakistan

(received April 7, 2011; revised December 17, 2011; accepted January 9, 2012)

Abstract. A field study was carried out to evaluate the effect of foliar applied boron application on growth, yield and quality of maize (*Zea mays* L.). Foliar application of boron was carried out after 20 days of crop emergence at 0, 0.15, 0.30 and 0.45 kg of B/ha. Boron application at 0.30 kg/ha increased the plant height, leaf area, stem diameter, cob weight, number of grains per cob, protein and oil contents. The maximum grain yield (7.14 tons/ha) and biological yield (527.4 tons/ha) was recorded in B₂ where application of boron was carried out at 0.30 kg/ha, however, further increase in boron dose decreased the yields.

Keywords: maize, hybrid, boron, foliar spray, cereal, micronutrient

Diversity Analysis of Marigolds – *Tagetes* (Asteraceae)

Chithra Santhakumari Amma and Rajalakshmi Radhakrishnan*

Department of Botany, University of Kerala, Kariavattom, Thiruvananthapuram- 695581
Kerala , India

(received December 2, 2011; revised September 6, 2012; accepted September 13, 2012)

Abstract. Characterization of 20 *Tagetes* cultivars was achieved using morphological and anatomical markers. *Tagetes erecta* ‘Maurel orange’ (E4) was the most vigorous compared with other genotypes and produced large flowers with high quality and quantity. An anatomical study of leaf secretory cavities differentiated between the cultivars and revealed that foliar secretory cavities were larger and more abundant in *T. erecta* cultivars than in *T. patula* cultivars. The size of oil glands also differed in each cultivar. From this study it is concluded that *T. erecta* cultivars especially *T. erecta* ‘Maurel orange’ appeared as more promising one to cultivate and more appropriate to be selected as the parental genotype in the hybridization processes for obtaining new varieties and cultivars. It is concluded that different marker systems (morphological, and anatomical) are appropriate to differentiate between the cultivars of *Tagetes*.

Keywords: marigold, *Tagetes erecta*, *Tagetes patula*, morphological traits, cultivars, diversity

A Study of Poisonous Plants of Islamabad Area, Pakistan

Saleem Ahmad

Pakistan Museum of Natural History, Garden Avenue, Islamabad, Pakistan

(received June 15, 2010; revised October 1, 2012; accepted October 8, 2012)

Abstract. Poisonous plants growing wild and cultivated in Islamabad area were studied. A total of 45 taxa belonging to 30 families are reported here from the study area. These include 6 trees, 12 shrubs and 27 herbs. Twenty species are found wild in the area, another 20 species are cultivated, while 5 species are found both cultivated and naturally occurring. Besides taxonomic details, poisonous parts, chemical constituents responsible for poisoning, and the human specific physiological effects of poisoning in relation to each plant are presented in a tabular format. The harm caused by these poisonous plants is often not serious, and is primarily restricted to gastrointestinal irritation or mild nervous system effects, that is curable. However, there have been cases of death resulting from the consumption of parts of highly poisonous plants in the area.

Keywords: poisonous plants, vegetation taxonomy, environment, Islamabad

Effects of *Passiflora foetida* Linn. (Passifloraceae) on Genital Tract, Serum Estradiol, Pituitary Gonadotropin and Prolactin Level in Female Adult and Immature Ovariectomized Rats

Bleu Gome Michel^{*a}, Kouakou Koffi^b, Toure Alassane^c and Traore Flavien^a

^aLaboratory of Animal Physiology, UFR Biosciences, University of Cocody,
Abidjan, 22 BP 582 Abidjan 22, Côte d'Ivoire

^bLaboratory of Biology of Reproduction and Endocrinology, UFR Biosciences, University of Cocody,
Abidjan, 22 BP 582 Abidjan 22, Côte d'Ivoire

^cDivision of Anatomy-Pathology, Central Laboratory of Veterinary Medicine (LANADA),
Bingerville, BP 206 Bingerville, Côte d'Ivoire

(received August 26, 2011; revised August 6, 2012; accepted September 4, 2012)

Abstract. The effects of the extracts of *Passiflora foetida* on the genital tract, serum estradiol, pituitary gonadotropin (LH and FSH) and prolactin were studied in female adult (120-140 g) and immature ovariectomized (30-40 g) rats. Results showed that the aqueous extract increased significantly both the ovary and uterus weight whereas the hexane extract increased the weight of the ovary only and the methanol extract increased the weight of uterus only. Histological examination of these organs indicated that *P. foetida* treated rats were in estrous or proestrous phases of the estrous cycle. The hormone analysis showed that the serum LH was significantly increased by 17 β estradiol and by the three extracts dose dependently in immature ovariectomized rats. Moreover, the aqueous extract increased significantly serum estradiol and pituitary gonadotropins and prolactin in adult non ovariectomized rats.

Keywords: *Passiflora foetida*, ovary, uterus, estradiol, gonadotropins, prolactin

Growth Performance of Juvenile Milkfish *Chanos chanos* (Forsk.) on Replacement of Fish Meal with Plant Based Diet Supplemented with Dietary Cell Bound Phytase of *Pichia anomala*

Sajad Hassan^{a*}, Karim Altaff^b, Tulsi Satyanarayana^c, Syed Ahamed Ali^d and Thirunavuarasu^d

^aPublic Health Laboratory, Division of Epidemiology, RFPTC Building, Shah Asrar Colony, Behind Bone & Joint Hospital, Barzulla, Srinagar-190 009, Jammu & Kashmir

^bUnit of Reproductive Biology and Live Feed Culture, Department of Zoology, The New College (Autonomous), Chennai-600 014, Tamil Nadu, India

^cDepartment of Microbiology, University of Delhi, South Campus, New Delhi-110 021, India

^dCentral Institute of Brackishwater Aquaculture (Indian Council of Agricultural Research), 75, Santhome High Road, Chennai-600 028, Tamil Nadu, India

(received January 23, 2012; revised August 29, 2012; accepted September 26, 2012)

Abstract. Results of feeding trials on juvenile milkfish with seven types of fish meal and soybean meal based diets distinctly indicated better results with fish meal based diet. Nevertheless, soybean based diet supplemented with different levels of cell bound phytase from *Pichia anomala* produced better growth performance than the soybean based diet without supplementation of phytase. The observations clearly suggested that milkfish would not show normal growth with plant based diet without phytase supplementation. Among the three concentrations of cell bound phytase of *P. anomala* used in this investigation, 1000 FTU/kg supplementation with plant based diets appeared to be favourable for the growth and survival of milkfish. The results of feed conversion efficiency, weight gain, condition factor, specific growth rate, protein efficiency ratio and survival rate at 1000 FTU/kg of phytase supplementation in soybean meal showed values comparable with the controlled diet. The biochemical profiles of the fish fed first, second, third and sixth diets were similar as compared to the fish fed fourth, fifth and seventh diets. It is suggested that commercial farming of milkfish can be practiced with soybean based diet with microbial phytase supplementation.

Keywords: fish nutrition, soybean meal, cell bound phytase, *Chanos chanos*, *Pichia anomala*

Detoxification of Aflatoxin B1 in Poultry and Fish Feed by Various Chemicals

Alim-un-Nisa^{a*}, Naseem Zahra^b, Sajila Hina^a and Nusrat Ejaz^a

^aFood and Biotechnology Research Centre, PCSIR, Laboratories Complex, Ferozepur Road,
Lahore-54600, Pakistan

^bPakistan Institute of Technology for Minerals & Advanced Engineering Materials,
PCSIR, Laboratories Complex, Ferozepur Road, Lahore-54600, Pakistan

(received February 22, 2012; revised June 20, 2012; accepted July 13, 2012)

Abstract. In this study various poultry and fish feed samples were initially analyzed for presence of aflatoxin. All the samples were found contaminated with aflatoxin B1 only. Contaminated samples were treated with different organic and inorganic chemicals to detoxify aflatoxin B1 in poultry and fish feed samples. The maximum reduction in the aflatoxin B1 concentration was observed with 0.5% HCl as 14.20 ppb to 2.09 ppb (86.50%) in the poultry and 69.26 ppb to 10.46 ppb (84.89%) in fish feed samples.

Keywords: aflatoxin, detoxification, chemicals, thin layer chromatography

Qualitative Assessment of Bacteria and Fungi in the Indoor Environment of Hospitals of Islamabad, Pakistan

Fouzia Hussain*, Subhe Sadiq Tahir, Naseem Rauf and Afifa Batool

Environmental Analytical Laboratory, PCSIR, 16, H-9, Islamabad, Pakistan

(received October 31, 2011; revised June 29, 2012; accepted August 10, 2012)

Abstract. This study was conducted to determine the health risks in the indoor air of the four government hospitals of the Islamabad city, Pakistan. Four different main wards, i.e., general male/female surgical wards, children's ward and microbiology laboratory were included. The sampling was done in the summer season due to the possibility of maximum recovery of microorganisms. Results showed presence of bacterial and fungal pathogens in the air of hospitals especially in surgical wards of all hospitals. Lowest bacterial counts were recorded in microbiology laboratory. Among bacterial isolates *Micrococcus* and *Staphylococcus aureus* were abundantly found in all hospitals as 22.09 % & 21.2 %, respectively followed by gram negative group of bacteria i.e, *Enterobacteriaceae* spp. (*Escherichia coli*), *Pseudomonas* spp. were found to be lowest as 6.5 % of the total bacterial load in all hospitals. Among the fungi *Aspergillus (fumigatus, niger, flavus)* recovery was the most in the environment of all hospitals with the value of 27.7 % and *Tricosporon* was observed lowest with the value of 1.15 %. p- value for total microbial load among the hospitals sampled was not significant.

Keywords: bacteria, fungi, hospitals, indoor air.

Short Communication

Effects of Some Oral Hypoglycaemic Drugs on Erythrocyte Nicotinamide Adenine Dinucleotide Hydrogen Diaphorase (E.C.1.6.4.3) Activity of Wistar Albino Rats (*Rattus rattus*)

Samuel Chimezie Onuoha* and Austin Amadike Uwakwe

Department of Biochemistry, University of Port Harcourt,

PMB 5323 Choba, Nigeria

(received April 9, 2011; revised April 25, 2012; accepted May 2, 2012)

Abstract. The *in vivo* effects of three oral hypoglycaemic drugs, daonil (a glubenclanude), diabenes (a sulphonylurea) and glucophage (a metformin) on erythrocyte nicotinamide adenine dinucleotide hydrogen (NADH) activity of Wistar albino rats (*Rattus rattus*) were monitored at drug concentrations of 0.00, 0.01, 0.02 and 0.03 mg/200 g body weight. The effects of the drugs were monitored at a pH 8.0 and 37 °C for 14 days at intervals of 1, 2, 6 and 14 day(s) following administration of each drug. Three rats were used per each drug concentration per time interval (days). Daonil significantly ($P<0.05$) activated NADH-diaphorase activity in a concentration dependent manner with an optimal activation (11.44 ± 0.82) obtained at a concentration of 0.03 mg/200 g body weight and on the sixth day of drug administration. The increase in enzyme activity following drug administration was progressive with time duration (days); maximum effect was obtained on the 6th day with a decline on the 14th day. At 0.03 mg/200 g body weight, NADH activities (iu/L) of 20.53 ± 0.57 were obtained on the 6th day with glucophage. Comparatively, the activation of the erythrocyte enzyme by the drug (on the 6th day of administration) was in the order: Glucophage >Daonil>Diabenes. Diabenes had no significant effect.

Keywords: daonil, diabenes, glucophage, erythrocyte, NADH, hypoglycaemia

Short Communication

Assessment of Selected Quality Attributes of Jam Formulated from Baobab-Hogplum Fruits

Adekanmi Oyeyinka Abioye^{a*}, Samson Adeoye Oyeyinka^b, Adewumi Toyin Oyeyinka^c
and Sarafadeen Omowumi Kareem^a

^aDepartment of Food Science and Engineering, Lautech, Ogbomoso, Nigeria

^bDepartment of Home Economics and Food Science, University of Ilorin, Ilorin, Nigeria

^cDepartment of Food Science and Nutrition, University of Leeds, United Kingdom

(received November 10, 2011; revised May 18, 2012; accepted August 15, 2012)

Abstract. In this study, possibility of making jam from two underutilized fruits (baobab and hogplum fruits) known to have high pectin content was investigated. This will increase their consumption and further promote the popularity of jam among rural dwellers where these crops are found. Baobab and Hogplum fruits were cleaned, sorted, weighed and their pulps were extracted in each case using a mesh. Formulation was made in different proportions (100:0, 0:100, 70:30, 30:70, and 50:50) using both fruits. Dissolved sugar and acidifying agent (lime) were added to the mixture and heated at 80 °C until it sets. Samples were stored, under refrigeration till analysis. The jam samples were analyzed for pH, total soluble solids (°Brix), titratable acidity (TTA), ascorbic acid, β -carotene and moisture content (MC). Sensory attributes of the samples were compared with a commercial jam (apricot jam (APJ)).

Keywords: baobab fruit, hog plum fruit, ascorbic acid, jam, beta carotene

Pakistan Journal of Scientific and Industrial Research
Series B: Biological Sciences
Volume 55
Contents

Series B: Biological Sciences

Vol. 55, No.1, March - April, 2012

Psychophily and Anemochory in <i>Wendlandia tinctoria</i> (Roxb.) DC. (Rubiaceae): A Dry Season Blooming Tree Species in the Dry Deciduous Southern Eastern Ghats Forest, Andhra Pradesh, India	
Aluri Jacob Solomon Raju, Kunuku Venkata Ramana and Nidugatti Govinda Rao	1
Paddy Yield as Affected by Boron Application Directly Sown on Raised Bed Under Saline Sodic Soils	
Muhammad Arshadullah, Syed Ishtiaq Hyder and Arshad Ali	10
A Systematic Approach to Develop Level A, <i>In-vitro</i> and <i>In-vivo</i> Correlation (IVIVC)-Ketoprofen BCS Class II Drug Example	
Muhammad Sarfraz, Mahmood Ahmad and Attia Sarfraz	15
Detection of Aflatoxins in Various Samples of Red Chilli	
Alim-un-Nisa, Naseem Zahra, Shamma Firdous, Nusrat Ejaz and Sajila Hina	27
Spices Mix Induces Biofilm Mode of Growth in <i>Escherichia coli</i>	
Zulfiqar Ali Mirani, Muhammad Naseem Khan, Mubashir Aziz, Lakht-E-Zehra, Korish Hasnain Sahir and Seema Ismat Khan	30
Studies on Antimicrobial and Antifungal Activities of <i>Ziziphus mauritiana</i> Against Human Clinical Bacterial and Fungal Pathogens	
Adnan Amin, Swahid Shah, Saadia Andaleeb, Muhammad Mohibullah Khan and Muhammad Ayaz Khan	35
Anti Irritant Activity of Extract from the Aerial Parts of <i>Echinops echinatus</i> Compositae	
Muhammad Zaheer, Salma Rahman, Naqi Hussain and Sajid-ur-Rehman	40
Effect of PPR Vaccine on Goat Haematology in Tangail District of Bangladesh	
Ausraful Islam, Shankar Majumder, Amitav Singha and Muhammad Kamrul Islam	46
Forensic Entomology: When Puparia of Insect Stages is the Only Link to Cause Taidi Ekrakene	
	51
 Short Communication	
Antagonism Among Skin Bacterial Isolates	
Azuka Romanus Akpe, Ifeoma Betsy Enweani, Frederick Ikechukwu Esumesh, Peter Usuoge Helen Obiazi, Rachael Ngozi Osagiea and Agbokhaode Oshogwemoh	56

Vol. 55, No.2, July - August, 2012

Effect of Wheat Residue Incorporation Along with N Starter Dose on Rice Yield and Soil Health Under Saline Sodic Soil Syed Ishtiaq Hyder, Muhammad Arshadullah and Arshad Ali	59
Allelopathic Effects of <i>Eucalyptus camaldulensis</i> Leaf Leachate on the Growth of Wheat and Green Gram and its Control by Farm Yard Manure Saima Ibrahim and Shazia Bibi	65
Decomposition and Nutrients Release Pattern of Leaves, Stems/Vines and Roots of Selected Leguminous and Non-Leguminous Plant Species Oladele Abdulahi Oguntade, Abideen Idowu Adeogun, Guogiong Tian and Gideon Adeoye	70
Effects of Different Sources of Organic Waste Application on the Growth and Biomass Production of Kenaf (<i>Hibiscus cannabinus</i> L.) Md. Shayeb Shahariar, Shahrma Tahsin, Md. Nasimul Gani and Shah Muhammad Imamul Haq	82
Determination of Lead and Cadmium in Hen Eggs by Graphite France Electrothermal Atomic Absorption Spectrometry and Estimation of the Daily Intake Ishratullah Siddiqui, Shaikh Sirajuddin Nizami, Farooq Ahmed Khan, Durdana Rais Hashmi Uzma Rashid, Alia Bano Munshi and Shah Ali-UI-Qadar	93
Changes in <i>Bacillus thuringiensis</i> Tolerance Levels Due to Hybridization of Bt-Tolerant and Susceptible Silkworm Populations Hosne Ara Begum, Errol Hassan, John Dingle and Aisha Alkhayat Alshehi	101
Modified Protocol for Genomic DNA Extraction from Newly Plucked Feathers of <i>Lophura leucomelana hamiltoni</i> (Galliformes) for Genetic Studies and its Endo-restriction Analysis Saiqa Andleeb, Sara Shamim, Muhammad Naeem Awan and Riaz Aziz Minhas	108

Short Communication

Energy Expended in Processing <i>Gari</i> (Cassava Flakes) <i>Manihot esculenta</i> Crantz, Using Three Levels of Mechanization Rahman Akinoso and Wasiu Olatunde Kasali	114
--	-----

Vol. 55, No.3, November - December, 2012

Effect of Foliar Applied Boron Application on Growth, Yield and Quality of Maize (<i>Zea mays</i> L.) Muhammad Tahir, Asghar Ali, Farhan Khalid, Muhammad Naeem, Naeem Fiaz and Muhammad Waseem	117
Diversity Analysis of Marigolds – <i>Tagetes</i> (Asteraceae) Chithra Santhakumari Amma and Rajalakshmi Radhakrishnan	122

A Study of Poisonous Plants of Islamabad Area, Pakistan Saleem Ahmad	129
Effects of <i>Passiflora foetida</i> Linn. (Passifloraceae) on Genital Tract, Serum Estradiol, Pituitary Gonadotropin and Prolactin Level in Female Adult and Immature Ovariectomized Rats Bleu Gomé Michel, Kouakou Koffi, Touré Alassane and Traoré Flavien	138
Growth Performance of Juvenile Milkfish <i>Chanos chanos</i> (Forsk.) on Replacement of Fish Meal with Plant Based Diet Supplemented with Dietary Cell Bound Phytase of <i>Pichia anomala</i> Sajad Hassan, Karim Altaff, Tulsi Satyanarayana, Syed Ahamed Ali and Thirunavuarasu	145
Detoxification of Aflatoxin B1 in Poultry and Fish Feed by Various Chemicals Alim-un-Nisa, Naseem Zahra, Sajila Hina and Nusrat Ejaz	154
Qualitative Assessment of Bacteria and Fungi in the Indoor Environment of Hospitals of Islamabad, Pakistan Fouzia Hussain, Subhe Sadiq Tahir, Naseem Rauf and Afifa Batool	159
 Short Communications	
Effects of Some Oral Hypoglycaemic Drugs on Erythrocyte Nicotinamide Adenine Dinucleotide Hydrogen Diaphorase (E.C.1.6.4.3) Activity of Wistar Albino Rats (<i>Rattus rattus</i>) Samuel Chimezie Onuoha and Austin Amadike Uwakwe	166
Estimation of Heavy Metals in Medicinal Plants as a Source of Herbal Medicine Used in Cardiovascular Diseases Farah Deeba, Naeem Abbas and Rauf Ahmed	169
Assessment of Selected Quality Attributes of Jam Formulated from Baobab-Hogplum Fruits Adekanmi Oyeyinka Abioye, Samson Adeoye Oyeyinka, Adewumi Toyin Oyeyinka and Sarafadeen Omowumi Kareem	172
Conetnts of Volume 55, Ser. B: Biol. Sci. (No. 1-3)	i
Author Index of Volume 55, Ser. B: Biol. Sci.	iv
Subject Index of Volume 55, Ser. B: Biol. Sci.	vi

Pakistan Journal of Scientific and Industrial Research
Series B: Biological Sciences
Volume 55
Author Index

- Abbas, Naeem **55B(3)169**
Abioye, Adekanmi Oyeyinka **55B(3)172**
Adeogun, Abideen Idowu **55B(2)70**
Adeoye, Gideon **55B(2)70**
Ahmad, Mahmood **55B(1)15**
Ahmad, Saleem **55B(3)129**
Ahmed, Rauf **55B(3)169**
Akinoso, Rahman **55B(2)114**
Akpe, Azuka Romanus **55B(1)56**
Alassane, Touré **55B(3)138**
Ali, Arshad **55B(1)10**
Ali, Arshad **55B(2)59**
Ali, Asghar **55B(3)117**
Ali, Syed Ahmed **55B(3)145**
Alshehi, Aisha Alkhayat **55B(2)101**
Altaff, Karim **55B(3)145**
Amin, Adnan **55B(1)35**
Ammam, Chithra Santhakumari **55B(3)122**
Andaleeb, Saadia **55B(1)35**
Andleeb, Saiqa **55B(2)108**
Arshadullah, Muhammad **55B(1)10**
Arshadullah, Muhammad **55B(2)59**
Awan, Muhammad Naeem **55B(2)108**
Aziz, Mubashir **55B(1)30**
Batool, Afifa **55B(3)159**
Begum, Hosne Ara **55B(2)101**
Bibi, Shazia **55B(2)65**
Deeba, Farah **55B(3)169**
Dingle, John **55B(2)101**
Ejaz, Nusrat **55B(3)154**
Ejaz, Nusrat **55B(1)27**
Ekkrakene, Taidi **55B(1)51**
Enweani, Ifeoma Betsy **55B(1)56**
Esumesh, Frederick Ikechukwu **55B(1)56**
Fiaz, Naeem **55B(3)117**
Firdous, Shamma **55B(1)27**
Flavien, Traoré **55B(3)138**
Gani, Md. Nasimul **55B(2)82**
Haq, Shah Muhammad Imamul **55B(2)82**
Hashmi, Durdana Rais **55B(2)93**
Hassan, Errol **55B(2)101**
Hassan, Sajad **55B(3)145**
Hina, Sajila **55B(1)27**
Hina, Sajila **55B(3)154**
Hussain, Fouzia **55B(3)159**
Hussain, Naqi **55B(1)40**
Hyder, Syed Ishtiaq **55B(1)10**
Hyder, Syed Ishtiaq **55B(2)59**
Ibrahim, Saima **55B(2)65**
Islam, Ausraful **55B(1)46**
Islam, Muhammad Kamrul **55B(1)46**
Kareem, Sarafadeen Omowumi **55B(3)172**
Kasali, Wasiu Olatunde **55B(2)114**
Khalid, Farhan **55B(3)117**
Khan, Farooq Ahmed **55B(2)93**
Khan, Muhammad Ayaz **55B(1)35**
Khan, Muhammad Mohibullah **55B(1)35**
Khan, Muhammad Naseem **55B(1)30**
Khan, Seema Ismat **55B(1)30**
Koffi, Kouakou **55B(3)138**
Majumder, Shankar **55B(1)46**
Michel, Bleu Gomé **55B(3)138**
Minhas, Riaz Aziz **55B(2)108**
Mirani, Zulfiqar Ali **55B(1)30**
Munshi, Alia Bano **55B(2)93**
Naeem, Muhammad **55B(3)117**
Nisa, Alim-un **55B(1)27**
Nisa, Alim-un **55B(3)154**
Nizami, Shaikh Sirajuddin **55B(2)93**
Obiazi, Helen **55B(1)56**
Oguntade, Oladele Abdulahi **55B(2)70**
Onuoha, Samuel Chimezie **55B(3)166**
Osagiea, Rachael Ngozi **55B(1)56**
Oshogwemoh, Agbokhaode **55B(1)56**
Oyeyinka, Adewumi Toyin **55B(3)172**
Oyeyinka, Samson Adeoye **55B(3)172**
Qadar, Shah Ali-Ul- **55B(2)93**
Radhakrishnan, Rajalakshmi **55B(3)122**
Rahman, Salma **55B(1)40**
Raju, Aluri Jacob Solomon **55B(1)1**
Ramana, Kunuku Venkata **55B(1)1**
Rao, Nidugatti Govinda **55B(1)1**

Rashid, Uzma **55B(2)93**
Rauf, Naseem **55B(3)159**
Rehman, Sajid-ur- **55B(1)40**
Sahir, Korish Hasnain **55B(1)30**
Sarfranz, Attia **55B(1)15**
Sarfranz, Muhammad **55B(1)15**
Satyanarayana, Tulsi **55B(3)145**
Shah, Swahid **55B(1)35**
Shahariar, Md. Shayeb **55B(2)82**
Shamim, Sara **55B(2)108**
Siddiqui, Ishratullah **55B(2)93**
Singha, Amitav **55B(1)46**

Tahir, Muhammad **55B(3)117**
Tahir, Subhe Sadiq **55B(3)159**
Tahsin, Shahrima **55B(2)82**
Thirunavuarasu **55B(3)145**
Tian, Guogiong **55B(2)70**
Usooge, Peter **55B(1)56**
Uwakwe, Austin Amadike **55B(3)166**
Waseem, Muhammad **55B(3)117**
Zaheer, Muhammad **55B(1)40**
Zahra, Naseem **55B(1)27**
Zahra, Naseem **55B(3)154**
Zehra, Lakht-E- **55B(1)30**

Pakistan Journal of Scientific and Industrial Research
Series B: Biological Sciences
Volume 55
Subject Index

A study of poisonous plants of Islamabad area, Pakistan.....	55B(3)129
Aflatoxin B ₁ in poultry and fish feed	55B(3)154
Aflatoxins in red chilli, detection of	55B(1)27
Allelopathic effects of <i>Eucalyptus camaldulensis</i> leaf leachate	55B(2)65
Anemochory and psychophily in <i>Wendlandia tinctoria</i> (Roxb.) DC.	55B(1)1
Antagonism among skin bacterial isolates	55B(1)56
Anti irritant activity of extract from <i>Echinops echinatus</i>	55B(1)40
Antifungal activities of <i>Ziziphus mauritiana</i> , studies on	55B(1)35
Antimicrobial and antifungal activities of <i>Ziziphus mauritiana</i>	55B(1)35
Assessment of selected quality attributes of jam	55B(3)172
Atomic absorption spectrometry for hen eggs.....	55B(2)93
<i>Bacillus thuringiensis</i> tolerance in silkworm populations.....	55B(2)101
Bacteria and fungi in the indoor environment of hospitals	55B(3)159
Bacterial isolates, antagonism among skin.....	55B(1)56
Bangladesh, effect of PPR vaccine on goat haematology	55B(1)46
Baobab-hogplum fruits, assessment of	55B(3)172
Biofilm mode of growth in <i>Escherichia coli</i>	55B(1)30
Boron application on growth, yield and quality of maize	55B(3)117
Boron application, paddy yield as affected by	55B(1)10
Cadmium in hen eggs, determination of lead and	55B(2)93
Cardiovascular diseases, estimation of heavy metals in	55B(3)169
<i>Chanos chanos</i> , growth performance of juvenile milkfish	55B(3)145
Decomposition and nutrients release pattern of	55B(2)70
Detection of aflatoxins in red chilli	55B(1)27
Determination of lead and cadmium in hen eggs	55B(2)93
Detoxification of aflatoxin B ₁	55B(3)154
Diversity analysis of marigold.....	55B(3)122
Drug example, a systematic approach to develop	55B(1)15
<i>Echinops echinatus</i> Compositae, anti irritant activity of.....	55B(1)40
Effect of foliar applied boron application on	55B(3)117
Effect of PPR vaccine on goat haematology	55B(1)46
Effects of organic waste application on kenaf	55B(2)82
Effects of <i>Passiflora foetida</i> Linn. (Passifloraceae) on	55B(3)138
Effects of some oral hypoglycaemic drugs on	55B(3)166
Endo-restriction analysis of <i>Lophura</i> feather DNA	55B(2)108
Energy expended in processing <i>Gari</i> (Cassava flakes)	55B(2)114
<i>Escherichia coli</i> , biofilm mode of growth in	55B(1)30
Estimation of heavy metals in medicinal plants	55B(3)169
<i>Eucalyptus camaldulensis</i> leaf leachate on, allelopathic effects of	55B(2)65
Extract from the aerial parts of <i>Echinops echinatus</i>	55B(1)40
Farm yard manure, allelopathic effects of.....	55B(2)65
Forensic entomology	55B(1)51
Fungi, qualitative assessment of bacteria and	55B(3)159
Genetic studies of feathers of <i>Lophura leucomelana hamiltoni</i>	55B(2)108

Genital tract, effects of <i>Passiflora foetida</i> Linn.	55B(3)138
Genomic DNA extraction from <i>Lophura leucomelana hamiltoni</i>	55B(2)108
Growth and biomass production of kenaf	55B(2)82
Growth performance of juvenile milkfish <i>Chanos chanos</i>	55B(3)145
<i>Hibiscus cannabinus</i> L., effects of different sources of	55B(2)82
Human clinical pathogens, studies on	55B(1)35
Hybridization of Bt-tolerant and susceptible silkworm populations	55B(2)101
Hypoglycaemic drugs, effects of some	55B(3)166
Insect stages, forensic entomology	55B(1)51
<i>In-vitro</i> and <i>In-vivo</i> correlation (IVIVC)-Ketoprofen	55B(1)15
Ketoprofen BCS class II drug example, a systematic approach	55B(1)15
Lead and cadmium in hen eggs, determination of	55B(2)93
Leguminous and non-leguminous plant species, decomposition	55B(2)70
Maize (<i>Zea mays</i> L.), effect of foliar applied boron	55B(3)117
<i>Manihot esculenta</i> , energy expended in	55B(2)114
Marigold – <i>Tagetes</i> , diversity analysis	55B(3)122
Mechanization, energy expended in processing <i>Gari</i>	55B(2)114
Medicinal plants, estimation of heavy metals	55B(3)169
Modified protocol for genomic DNA extraction from	55B(2)108
N starter dose on rice yield.....	55B(2)59
Nutrients release pattern of, decomposition and	55B(2)70
Organic waste application on the growth of kenaf	55B(2)82
Paddy yield as affected by boron application	55B(1)10
Pakistan, a study of poisonous plants of	55B(3)129
Phytase of <i>Pichia anomala</i> for fish meal	55B(3)145
<i>Pichia anomala</i> , growth performance of juvenile milkfish	55B(3)145
Pituitary gonadotropin and prolactin level in female rats.....	55B(3)138
Poisonous plants of Islamabad area, a study of	55B(3)129
Poultry and fish feed, detoxification of	55B(3)154
PPR vaccine on goat haematology, effect of	55B(1)46
Psychophily and anemochory in <i>Wendlandia tinctoria</i> (Roxb.) DC.	55B(1)1
Puparia of insect stages, forensic entomology	55B(1)51
Qualitative Assessment of Bacteria and Fungi	55B(3)159
Quality attributes of jam formulated from Baobab-hogplum fruits	55B(3)172
Rats, effects of <i>Passiflora foetida</i> Linn.	55B(3)138
Red chilli, detection of aflatoxins in	55B(1)27
Rice yield and soil health under saline sodic soil.....	55B(2)59
Saline sodic soil, effect of wheat residue	55B(2)59
Saline sodic soils, paddy yield as affected by	55B(1)10
Silkworm populations, changes in <i>Bacillus thuringiensis</i> tolerance	55B(2)101
Skin bacterial isolates, antagonism.....	55B(1)56
Spices mix induces biofilm mode of growth in <i>Escherichia coli</i>	55B(1)30
Studies of <i>Ziziphus mauritiana</i> against human pathogens	55B(1)35
<i>Wendlandia tinctoria</i> (Roxb.) DC. tree species in India.....	55B(1)1
Wheat and green gram, allelopathic effects of	55B(2)65
Wheat residue incorporation, effect of	55B(2)59
Wistar albino rats (<i>Rattus rattus</i>), effects of some oral hypoglycaemic drugs	55B(3)166

Pakistan Journal of Scientific and Industrial Research

PCSIR - Scientific Information Centre

PCSIR Laboratories Campus, Shahrah-e-Dr. Salimuzzman Siddiqui, Karachi - 75280, Pakistan

Ph: 92-21-34651739-43, Fax: 92-21-34651738, E-mail: info@pjsir.org & pcsir-sic@cyber.net.pk, Website: www.pjsir.org

EXCHANGE FORM

We wish to receive Pakistan Journal of Scientific and Industrial Research Ser. A: Phys. Sci. and/or Ser. B: Biol. Sci. in exchange of :

Name of Journal: _____
Frequency: _____
Subjects Covered: _____
Institution: _____
Address: _____

Signature: _____
Name: _____
Designation: _____
Date: _____
E-mail: _____
Fax: _____
Phone: _____

Pakistan Journal of Scientific and Industrial Research

PCSIR - Scientific Information Centre

PCSIR Laboratories Campus, Shahrah-e-Dr. Salimuzzman Siddiqui, Karachi - 75280, Pakistan

Ph: 92-21-34651739-43, Fax: 92-21-34651738, E-mail: info@pjsir.org & pcsir-sic@cyber.net.pk, Website: www.pjsir.org

SUBSCRIPTION FORM

I / we wish to subscribe to 'Pakistan Journal of Scientific and Industrial Research' Ser. A: Phys. Sci. and/or Ser. B: Biol. Sci.
The filled in proforma is being returned for compliance.

Subscriber's data:

Name: _____
Address: _____

E-mail: _____
Fax: _____
Phone: _____
Signature: _____
Order Membership No. (if any): _____

Tick the relevant box: Send invoice Bill later on Cheque forenclosed

Subscription Rates: Local: Rs. 350/ = per copy; Rs. 2000/ = per volume
Foreign: US\$ 70/ = per copy; US\$ 400/ = per volume

Payment should be made through cross cheque in favour of Pakistan Journal of Scientific and Industrial Research and mailed to the Director PCSIR - Scientific Information Centre, PCSIR Laboratories Campus, Shahrah-e-Dr. Salimuzzaman Siddiqui, Karachi-75280, Pakistan.