

Coden: PSIRAA 27(1) 1-56 (1984)

PAKISTAN JOURNAL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Vol. 27, No. 1, February, 1984

Physical Sciences. Pages 1-19

Biological Sciences. Pages 20-43

Technology Pages 44-55



Published bimonthly by

PAKISTAN COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
KARACHI

Physical Sciences Section

Pakistan J.Sci. Ind. Res., Vol. 27, No. 1, February 1984

REDUCTION OF ^{99}Tc IN THE PRESENCE OF STANNOUS CHLORIDE — CORRELATION OF CHROMATOGRAPHIC BEHAVIOR WITH THE U.V. / VISIBLE SPECTRA FOR THE IDENTIFICATION OF REDUCED SPECIES

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(Received May 30, 1983)

Chromatographic scanning was used to detect the position of activities of the reduced forms of ^{99}Tc and R_f values correlated with the U.V./visible spectra. The different species of ^{99}Tc that occur in radiopharmaceuticals when it is reduced by stannous chloride ($\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$) appeared to be in the forms Tc(IV) , Tc(V) and Tc(VII) .

BIOCHEMICAL CHANGES IN SHELL COATED EGGS DURING STORAGE

Muhammad Afzal Malik, A.H.K. Niazi and Mahmood Islam Chaudhary

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(Received September 14, 1981)

Egg shells were coated with chlorinated wax emulsion, liquid paraffin and carboxymethyl cellulose (CMC) and stored at 35° for 42 days for the determination of changes occurring in solid content, pH, volatile nitrogen and water soluble phosphorus. Minimum changes were observed in eggs coated with 9% chlorinated wax emulsion, a small portion of which migrated into the edible part of the egg.

OCCURRENCE OF PYRUVATE DECARBOXYLASE IN *ERWINIA AMYLOVORA*

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(Received August 7, 1982)

Occurrence of a yeast-type pyruvate decarboxylase, that produces from pyruvate CO_2 and acetaldehyde in *Erwinia amylovora*, is demonstrated. Conditions for the maximum activity and co-factor requirements of the enzyme are determined. *E. amylovora* is placed in the family Enterobacteriaceae but the presence of pyruvate decarboxylase distinguishes it and alters its fermentation pattern from the other members of the family. The findings are discussed in relation to the comparative biochemistry of the family Enterobacteriaceae.

Pakistan J.Sci.Ind.Res., Vol.27, No.1, February 1984

**A STUDY OF AVAILABILITY AND SEASONAL VARIATION OF
DIFFUSE SOLAR RADIATION ON HORIZONTAL AND INCLINED
SURFACE AT KARACHI, PAKISTAN**

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(Received February 19, 1983; revised November 13, 1983)

A detailed study of diffuse solar radiation for Karachi is made. Estimated values of diffuse radiation are obtained by employing different relationship as given by Liu *and* Jordan, Page and Iqbal. From the standard method diffuse solar radiation on various inclined surface are also estimated. The result obtained from these relationships are in good agreement. It has been found that the diffuse solar radiation attains a maxima during the months of May and June.

Pakistan J.Sci.Ind.Res., Vol.27, No.1, February 1984

CULTIVATION TRIALS OF BUFFALO GOURD – A POTENTIAL OILSEED CROP AT THE PCSIR LABORATORIES LAHORE

Sadaqat Hamid, Salma, Abdul Waheed Sabir and Shafiq Ahmad Khan

PCSIR Laboratories, Lahore, Pakistan

(Received October 10, 1983)

Short Communication

Pakistan J.Sci.Ind.Res., Vol.27, No.1, February 1984

PARTICIPATION OF 3,5-DINITROBENZAMIDE IN MANNICH REACTIONS

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(Received November 17, 1983)

Biological Sciences Section

Pakistan J.Sci.Ind.Res., Vol.27, No.1, February 1984

CORRECT SCIENTIFIC NAME OF "BABUNA" USED WIDELY AS A DRUG IN UNANI SYSTEM OF MEDICINE

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(Received May 24, 1981)

Three plants, namely *Anthemis nobilis* Linn., *Corchorus depressus* Linn., and *Matricaria chamomilla* Linn., are reported under only one Unani name "Babuna" at different places in the literature. Since one name is not possible for three different plants, it created a lot of confusion and misuse of the drug. To resolve this discrepancy, detailed taxonomic and anatomical studies were conducted. Based on these studies, it has been found that *Corchorus depressus* Linn. belongs to the family Tiliaceae whereas *Anthemis nobilis* Linn. and *Matricaria chamomilla* Linn. belong to compositae. As a result of further studies it was determined that "Babuna" also belongs to the family compositae and is nothing but *Matricaria chamomilla* Linn. Thus, it has been proved that the correct scientific name of "Babuna" is *Matricaria chamomilla* Linn.

GENETIC VARIABILITY AND PATH COEFFICIENT ANALYSIS IN GREEN GRAM (*VIGNA RADIATA*)

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(Received February 18, 1982; Revised September 14, 1983)

Genetic variability and path coefficient study of exotic collections of green gram population was conducted at the Agronomy Section, Agricultural Research Institute, Tandojam, Pakistan. Estimates of variability, heritability and expected genetic advance were computed for plant height, branches per plant, pods per plant, pod length, seeds per pod, 100 grain weight and grain yield per plant. High heritability values recorded for all the traits accompanied with high genetic advance suggest that all these characters are controlled by an additive gene effect and suitable selection schemes will result in significant genetic improvement.

Further, the results of phenotypic correlation coefficient and path coefficient analysis indicate that maximum weightage should be given to branches, pods per plant, pod length and 100 grain weight in formulating selection indices for grain yield improvement in mungbean.

**BIOLOGICAL STUDIES ON THE FRESHWATERS OF PAKISTAN
CORRELATION OF THE ALIMENTARY CANAL STRUCTURES OF
SOME FISHES OF HALEJI LAKE WITH THEIR HERBIVOROUS NATURE OF
FEEDING**

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(Received April 22, 1982; revised Sept. 21, 1983)

Haleji lake is situated at $28^{\circ} 48^{\circ}$ North and $67^{\circ} 47^{\circ}$ East 55 miles from Karachi. This lake is rich in plant material. Nine herbivorous species belonging to three genera, *Labeo*, *Puntius* and *Sarotherodon* (Tilapia) were identified. Alimentary canal structures of these species were studied and it was found that these species were stomachless and contained an enlarged foregut or intestinal bulb instead of a true stomach. Relative length of the gut is always greater than the body length in these fishes. The structure of the alimentary canals of these fishes supported by their predominantly plant material gut contents, confirm their herbivorous nature of feeding.

A SAMPLE STUDY OF STEM BORER INFESTATION OF RICE CROP AND ITS EXPECTED EFFECTS ON YIELD OF RICE AT GUJJO (SIND) 1981

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(Received April 28, 1982)

A sample study of stem borer infestation of rice crop of 1981 and its expected relationship with loss in yield was studied in 18 representative 16 sq. ft. field plots at Gujjo (Sind). The means of data showed that there were 100188 hills per acre, 11.68 tillers per hill, on which the mean infestation was 21.35%. Of the infested tillers 18.46% were 'Dead Hearts', 4.18% 'White Heads,' and 5.46% were late tillers. The mean number of grains per panicle on uninfested and infested stems were 100.74, and 75.61 respectively, with corresponding weights of 2.40 and .32g. The total calculated actual and potential yields turned out to be 2016.62 and 2779.83 Kgs. respectively, showing a loss of 763.21 Kgs. per acre (= 27.45%). The hibernating larvae were present in 4.38% of tillers in stubble, showing a total of 35528.62 larvae per acre. These results on 'Ganjja' variety of rice in lower Sind are in many ways in contrast with those of Rahman and Ghouri (1981) obtained with 'Basmati' variety of rice in Punjab.

ZINC STATUS OF SOME SOIL SERIES OF BALUCHISTAN

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(Received July 3, 1982)

Five important agricultural soils of Quetta district, Baluchistan were examined, on the profile basis, for their Zn status. DTPA — extractable Zn did not show any significant correlation with pH, O.M., CaCO_3 and C.E.C.

**CORRELATION AND PATH COEFFICIENT ANALYSIS STUDIES
IN MUNGBEAN (*VIGNA RADIATA* (L.) WILCZEK**

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(Received December 19, 1982)

F₂ and their respective F₁ and parental generations of four mungbean crosses namely MG-50-10-A(G) x No.6601; MG-50-10-A(G) x No.15227; CES-59 x No.661 and PHLV-18 x ML-62 were studied to estimate phenotypic and genotypic association and direct and indirect influence of some commercially important characters on yield. Plant height was positively correlated with all the characters studied except seed weight. Positive association was found between number of branches per plant and number of pods per plant, number of seeds per pod and seed yield and in turn these characters were also positively interrelated. Seed weight was negatively associated with all the characters except number of seeds per pod. Path analysis showed that number of pods per plant and number of seeds per pod were the major components influencing the yield. In general genotypic correlations were found to be higher than the phenotypic correlations.

Technology Section

Pakistan J.Sci.Ind.Res., Vol. 27, No. 1, February 1984

PREPARATION AND CHARACTERIZATION OF MULTIMINERAL IRON-SACCHARATE

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(Received January 20, 1982)

A preparation is described in which iron saccharate has been supplemented with manganese, copper and cobalt. The preparation is stable between pH 6 to 8.

INTRODUCTION

non-existent in villages, where anaemia is more common

**FUNGAL MASS PRODUCED BY GROWTH OF *ASPERGILLUS FLAVIPES* ON
ROTTEN FRUITS AND VEGETABLES – A CHEAP SOURCE OF PROTEIN**

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(Received: March 27, 1982 – Revised: October 10, 1983)

Growth of *Aspergillus flavipes* a new substrate of rotten fruits and vegetables was found to be more economical than on Czapeck's synthetic medium. The resultant fungal mass was analysed for the presence of protein and amino acids, and the cell-free broth for other metabolites. The results of preliminary studies are being reported.

INTERACTIVE EFFECT OF APPLIED FERTILIZERS AND SYMBIOTIC MICRO-ORGANISMS IN COWPEA CROP.

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(Received November 13, 1982)

Results of this study demonstrated that cowpea yields were higher in mycorrhizal as compared to non-mycorrhizal treatments. Phosphorus application contributed to an increase in the yield, however, increase was greater in mycorrhizal treatments at 0.0, 2.5, and 5.0 mg P Kg⁻¹ soil levels and reverse happened at 10.0 and 20.0 mg P treatments. As regards phosphorus concentration in cowpea plants, it was higher in mycorrhizal treatments. Number and weight of nodules was also higher with mycorrhizal inoculation. However, probability of response to applied phosphorus fertilizer was more in non-mycorrhizal treatments.