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Editorial Note

The year 2007 marks completion of 50 years of publication of *Pakistan Journal of Scientific and Industrial Research (Pak. J. Sci. Ind. Res.)*, the prime Journal of Pakistan Council of Scientific and Industrial Research (PCSIR) which was founded by Prof. Dr. Salimuzzaman Siddiqui (late), way back in 1953 with a small nucleus of scientists, for performing research on projects of national importance. As soon as quite enough research results accumulated, the journal was launched in the year 1958 as a quarterly; presently, it is a bimonthly research Journal. Contributions to the Journal are received from the scientists all over the world and the published papers are pre-reviewed by the eminent scientists and subject experts of international stature.

It would be pertinent here to acknowledge the commendable part played by the distinguished members of the Editorial Board of the Journal in evaluating the manuscripts submitted for publication. The present issue includes the review of an eminent scientist Dr. Muhammad Anwar Waqar and Co-workers on the interesting subject of "The Protective Action of Prostaglandins on the Fetus and the Neonate and its Modulation". Such reviews of our elite members in the area of their expertise would appear in *Pak. J. Sci. Ind. Res.* regularly during the current year.

This year also boasts of the activation of the website of the Journal with a number of built-in features, designed to facilitate on-line users, authors and referees of the Journal, (<http://www.pjsir.org>), in an effort to further improve the scholarly quality of the Journal. By logging-in to the website, they shall have free access to the contents of the Journal. Through creation of a log-in account, on one hand, the author will find it easier to submit the manuscripts and correspond with the Editor, and will be able to know the updated status of all his submissions as well. On the other hand, it shall assist the referee in book keeping of the papers assessed or awaiting assessment.

Work on creation of archives of the Journal is in full swing and presently, the users can view abstracts of 7 volumes of the Journal, for which quick search option is available on the website.

The Editor would welcome suggestions for improving the Website.

Dr. Kaniz Fizza Azhar
Executive Editor

Physical Sciences

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Geotechnical Study of Sub-Surface Sediments in Sirajgonj Town and its Adjoining Areas, Bangladesh

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(received January 1, 2007; revised February 7, 2008; accepted February 8, 2008)

Abstract. Engineering bore logs of 86 holes, installed in the Sirajgonj town of Bangladesh and adjoining areas, were used to identify the geotechnical characteristics of the sub-surface sediments. The study area was divided into four major zones on the basis of surface and sub-surface geological characters, engineering properties of soil, such as lithology, atterberg limit, consistency, SPT, bearing capacity, plasticity, compaction, consolidation and compressibility etc., and geotechnical map. Each zone can be used for different types of construction purposes, characterized by specific engineering properties. Detailed engineering geological information should be used for sustainable land-use planning and development to reduce environmental hazards.

Keywords: geotechnical study, land-use planning, Sirajgonj, Bangladesh

Synthesis of 3', 4', 5, 6, 7-Pentamethoxy-8-C-Prenylflavone

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(received December 24, 2007; revised February 17, 2008; accepted February 18, 2008)

Abstract. 3', 4', 5, 6, 7-Pentamethoxy-8-C-prenylflavone, isolated from the leaves of Malaysian *Orthosiphon stamineus*, was synthesized starting with treating 2, 4, 5, 6-tetrahydroxyacetophenone with dimethyl sulphate which yielded several other minor compounds as well. The synthesized title compound is identical in all respects with the natural sample.

Keywords: flavones, medicinal plants, *Orthosiphon staminens*, methoxy-prenylflavone

Effect of Microwave and Sand Roasting on Physicochemical Values and Fatty Acids of *Cicer arietinum* (White Gram) and *Vigna mungo* (Black Gram) Oils

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(received January 7, 2007; revised February 12, 2008; accepted February 13, 2008)

Abstract. The oils extracted from raw seeds of *Cicer arietinum* and *Vigna mungo* of different areas of Punjab province of Pakistan were found to possess, more or less, the same physicochemical properties and fatty acid composition. The oils of both the grains showed an increase in the peroxide and free fatty acids values after both, sand and microwave roasting. Other physicochemical values did not show any significant change in the roasted seed oils. The oils of *Vigna mungo* showed a higher concentration of unsaturated fatty acids. The oils of both the species had a significant amount of linoleic acid in raw, microwave and sand roasted seeds.

Keywords: *Cicer arietinum*, *Vigna mungo*, fatty acids, microwave roasting, sand roasting

Peanut Hull as Biosorbent for Removal of Reactive, Acid and Disperse Dyes from Aqueous Solutions

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(received July 3, 2007; revised January 31, 2008; accepted February 7, 2008)

Abstract. In the investigations on peanut hull as a low cost locally available biosorbent for the potential to remove reactive, acid and disperse dyes from aqueous solutions, the acid treated peanut hulls exhibited maximum adsorption efficiency as biosorbent.

Keywords: peanut hull, biosorbent, dye removal, textile dyes

Short Communication

Steroid Estimation in Different Dental Applications

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Abstract. Study of various brands of regular and medicated toothpastes of the local markets of Lahore and Karachi for the presence of steroids revealed the presence of synthetic steroids in medicated toothpastes only while all common, popular brands were devoid of steroids with a few exceptions.

Keywords: steroids, cortisone, toothpastes

Biological Sciences

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Different Agroresidues Used in Solid Substrate Fermentation for α -Amylase Production by *Bacillus subtilis*-239

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(received April 5, 2007; revised February 8, 2008; accepted February 12, 2008)

Abstract. The best mass ratio for agroresidue fermentation for α -amylase production by locally isolated *Bacillus subtilis*-239 was found to be wheat bran to rice bran 2:1 with 70% initial moisture content for 60 h incubation time. Among different inorganic nitrogen sources supplemented, sodium nitrate and ammonium chloride (0.5% w/w) increased the enzyme yield upto 178 U/ml and 176 U/ml, respectively, whereas all the organic nitrogen sources decreased the enzyme production. Addition of glucose (1% w/w) as a carbon source enhanced α -amylase synthesis to 185 U/ml as compared to the control (134 U/ml).

Keywords: α -amylase production, fermentation, *Bacillus subtilis*, agroresidues

Growth Response and Ionic Relation in Two *Brassica* Species under Water Stress Conditions

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Abstract. A glasshouse study of *Brassica campestris* and *Brassica juncea* showed that the growth and the ionic parameters of both the species were significantly ($p < 0.01$) affected due to water stress. Shoot length of both the species decreased consistently with decrease in solute potential (ψ_s) in the root medium. Relative growth rate and dry mass was higher in *B. juncea* than *B. campestris*, but leaf area was less. Concentrations of K^+ , Ca^{2+} , P and S generally decreased with gradual increase in water stress. *B. campestris* was more susceptible to water stress than *B. juncea*.

Keywords: *Brassica* sp., water stress, growth, ionic parameters

Estimates of Genetic Parameters from Line x Tester Mating Design for Some Quantitative Traits in Upland Cotton, *Gossypium hirsutum* L.

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(received December 19, 2006; revised February 6, 2008; accepted February 13, 2008)

Abstract. Combining abilities of cotton varieties were evaluated using a line x tester design with eight lines and 4 testers. Good performance combination was found between the varieties CRIS-134 and BH-147. The former was a good candidate for fibre length improvement and the latter, a good parent for yield improvement. The specific combining ability suggested that both additive and dominant genes controlled the characters. Hybrid performance *per se* may be used to predict the parental performance for specific combining ability and thus for hybrid crop development.

Keyword: cross breeding, combining ability estimates, fibre length, *Gossypium hirsutum*

Short Communication

Formulation and *in vitro* Evaluation of a Cosmetic Multiple Emulsion from Olive Oil

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(received July 20, 2007; revised February 13, 2008; accepted February 18, 2008)

Abstract. Stability of multiple emulsion prepared using olive oil was evaluated at different storage temperatures. The formulation remained stable at lower temperatures for 28 days without any phase separation. Significant changes in the pH were observed in the formulation, kept at 8 °C from the 5th day onwards, in the electrical conductivity at 40 °C from 14th day onwards and in the globule size, at 40 °C and 40° C + 75% RH condition from 24 h onwards.

Keywords: Multiple emulsion, olive oil, globule size, stability.

Technology

Beneficiation Studies on Low-Grade Stibnite Ore of Chitral, NWFP, Pakistan

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(received March 3, 2007; revised January 17, 2008; accepted January 20, 2008)

Abstract. Antimony ore of Chitral in North West Frontier Province (NWFP) of Pakistan, containing stibnite as an economical mineral, was upgraded by froth flotation technique. Through optimizing the flotation parameters, the grade of the final antimony concentrate produced was raised to 62% Sb with 95 % recovery.

Keywords: stibnite, beneficiation, flotation, antimony, Chitral, Pakistan

Review

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Regulation of Arachidonic Acid Metabolism in the Human Fetus and the Neonate

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Abstract. The human fetus exists in an environment in which there is an apparent over-abundance of prostaglandins (PGs). Neonates are also believed to contain high concentrations of PGs. Since both fetus and the neonate have a significant potential for prostaglandin catabolism, it may be inferred that some benefits accrue from a prostaglandin rich environment and that prostaglandins (PGs) are serving important roles in both intrauterine and early extrauterine life. Prostaglandins are formed from non-esterified arachidonic acid (AA) by the action of cyclooxygenase (COX). AA is also metabolized by way of lipoxygenase enzyme pathway. Products of this pathway are known to modulate prostaglandin biosynthesis. Little information is available concerning these pathways in fetal and neonatal tissues. In this review article, the results of studies designed to evaluate AA metabolism in the fetus and the neonate are described. In addition, AA metabolism in uterine and intrauterine tissues is also considered, since the products of such metabolism are important for normal fetal growth and development.

Keywords: arachidonic acid metabolism, inhibitors/stimulators, the neonate, uterine, intrauterine tissues
