

## WASTE

**0601–205.** Abirami P, Anjana Devi N, Chandra Thangavel (Dept Bot, Vellalar Coll Women, Erode-9). **Pollutant abatement of dye industry effluent using aquatic macrophyts.** *J Indl Polln Contl*, **21**(2) (2005), 309–314 [5 Ref].

The pollutant removal efficiency of *Eichhornia crassipes* Solms and *Pistia stratiotes* L. from the dye industry effluent and the effect of dye industry effluent on the growth of *Eichhornia crassipes* Solms. and *Pistia stratiotes* L. were analysed. TDS, COD, BOD, DO, total hardness, calcium, magnesium, nitrate, chloride, sulphate and iron were highly reduced by *Eichhornia* and *Pistia* at 20%.

**0601–206.** Aparna A, Saxena M, Asokan P (Regl Res Lab (CSIR), Habib Ganj Naka, Bhopal 462026). **Soil health of sandy soil profile amended with flyash: a case study.** *Cheml Environ Res*, **13**(3&4) (2004), 181–194 [24 Ref].

Paper evaluates the effect of fly ash on soil health in terms of its fertility through certain biological indicators. Results revealed that soil enzymes mineralization, mycorrhizal population, microbial biomass in terms of ATP activity were increased with one time application of fly ash at the rate of 25% (650 tonnes per hectares) over control (without fly ash) and repeat application at the rate of 5% (135 tonnes per hectare in every year).

**0601–207.** Arutchelvan V, Elangovan R, Venkatesh KR, Nagarajan S (Dept Civil Engng, Annamalai Univ, Annamalainagar 608002). **Biodegradation of cyanide using *Bacillus megaterium*.** *J Indl Polln Contl*, **21**(2) (2005), 213–220 [22 Ref].

The cyanide-utilizing bacteria from municipal sewage, bearing gold plating industrial wastewater was isolated and identified as *Bacillus megaterium*. From the experimental studies, it was found that cyanide concentration of about 150 mg/L at pH 6.5 with biomass 4 % (v/v) was completely degraded using the isolated bacterial organism at a residence time of 5 days.

**0601–208.** Ash B, Mukherjee PS, Nanda B, Satpathy D, Gumaste JL (Regl Res Lab, (CSIR), Bhubaneswar, Orissa). **Activated carbon from waste coconut pith.** *Int Symposium Environ Manag Mining Metallurgical Industries*, 11–14 Dec, 2005, Bhubaneswar 80–86 [9 Ref].

Attempt has been made to prepare the activated carbon from coconut pith, under different conditions and its activity was compared with commercial grade activated charcoal. It was found that the activated carbon obtained by presoaking the coconut pith waste in phosphoric acid and heat treatment at 550°C in carbonaceous atmosphere for 1-2 h, is comparable to the commercial grade samples. Experiments carried out for the removal of heavy metal ions and toxic colouring matter from effluents of dye industries showed encouraging results.

**0601–209.** Banerjee Subash, Das Sutapa, Mitra Abhijit (Polln Contl Cab, Cheml Engng Dept, Jadavpur Univ, Kolkata 700032). **Study on the post-treatment status of painting industry effluent.** *Ultra Sci*, **17**(3) (2005), 463–468 [9 Ref].

Study highlights the characteristics of the generated waste from a paint processing unit in the eastern region of India. The effluent is subjected to several treatment process to alter the parameters in relation to ambient environment. Very encouraging results were obtained by adopting pure oxygen based activated sludge treatment technique as BOD and COD values were reduced by 90–95% and 79-80% respectively.

**0601–210.** Bharani A, Mahimaraja S, Augustine Selvaseelan D (48, Gokhale Street, Ram Nagar, Coimbatore 641009). **Phytoavailability of heavy metals to ochra (*Abelmoscus esculentum*) as influenced by graded doses of sewage biosolids.** *Indian J Environ Sci*, **10**(1) (2006), 1-7 [11 Ref].

The results revealed that the pH decreased with increasing levels of sewage biosolids and the available plant nutrients increased markedly. Phytoavailable heavy metals increased as the dosage of sewage biosolid increased. A nine times increase in phytoavailable Cu and Pb at 100% biosolid application was observed. Shoots accumulated more of Pb and Cu, while roots accumulated much of nickel and managanese.

**0601–211.** Binu Kumari S, Kavitha Kirubavathy A, Rajammal Thirumalnesan (Dept zoo, Chikkanna Govt Arts Coll, Tirupur 641602). **Use of municipal sewage farm water at Vellore, Coimbatore for fish culture.** *J Ecophysio Occupl Hlth*, **5**(1&2) (2005), 41–44 [6 Ref].

The physico-chemical properties of the municipal sewage water of Vellore, Coimbatore were studied to see their nutritive value and possible use for the cultivation of fishes following the adequate treatment.

**0601–212.** Bishno Narsi R, Khumukcham RK, Kumar Rajendra (Dept Environ Sci Engng, Guru Jambheshwar Univ, Hisar 125001). **Biodegradation of pulp and paper mill effluent using anaerobic followed by aerobic digestion.** *J Environ Bio*, **27**(2 Supplement), (2006), 405–408 [15 Ref].

An experimental study was carried to find out the degradability of black liquor of pulp and paper mill wastewater for biomethanogenesis in continuous stirred tank reactor (CSTR) (for anaerobic digestion) and followed by activated sludge process (ASP) (for aerobic digestion). A maximum methane production was found upto 430ml/day.

**0601–213.** Chitra VS, Jaya DS (Dept Environ Sci, Univ Kerala, Kariavattom 695581). **Phytoremediation of sewage by grass cultivation a case study of Valiathura sewage farm in Trivandrum district, Kerala.** *Asian J Microbio Biotechno Environ Sci*, **7**(4) (2005), 693–698 [18 Ref].

The biological filtration process in the sewage farm reduces BOD, TDS, COD etc. of the sewage effluent. It was also found that the grass cultivation in the sewage farm helps to remediate the contaminants like cadmium, copper present in the sewage to some extent. The result of the present study on heavy metal accumulation in plants irrigated with sewage shows that the grass, *Hybrid napier* accumulates inorganic contaminants more compared to that of the Para grass cultivated in the sewage farm.

**0601–214.** Dilip Meghna, Venkateswaran P, Palanivelu K (Cent Environ Std, Anna Univ, Chennai 600025). **Removal of textile dyes from textile dye effluent using TBAB based aqueous biphasic systems.** *J Environ Sci Engng*, **47**(3) (2006), 176–181 [14 Ref].

The partitioning behaviour of two commercially used textile dyes-Cibacron Scarlet LS 2G and Astacryl Red 3B were investigated in a TBAB-salt aqueous biphasic systems. It was found that all three salts, namely sodium chloride, sodium sulphate and sodium carbonate, investigated caused partitioning of dye into the upper TBAB rich phase. The efficiency of separation increased in the order  $\text{NaCl} < \text{Na}_2\text{SO}_4 < \text{Na}_2\text{CO}_3$ .

**0601–215.** Esakku S, Selvam A, Palanivelu K, Nagendran R, Joseph Kurian (Cent Environ Std, Anna Univ, Chennai 600025). **Leachate quality of municipal solid waste dumpsites as Chennai, India.** *Asian J Water Env Polln*, **3**(1) (2006), 69-76[43 Ref].

Leachate samples from Perungudi and Kodungaiyur dumping grounds were collected and analyzed. Leachates were slightly alkaline. The maximum chemical oxygen demands recorded were 1370 and 58 mg/L, respectively. Heavy metals were in microgram levels. A comparison of the quality in the two sites showed that the pollution potential of Perungudi leachates was slightly higher than that of Kodungaiyur.

**0601–216.** Feroz S, King P, Prasad VSRK (Dept Cheml Engng, RVR & JC Coll Engng, Guntur 522019, Andhra Pradesh). **Treatment of metallic effluents using coconut shell coke.** *J Environ Sci Engng*, **47**(2) (2005), 109–114 [10 Ref].

The effect of various parameters on the removal of metal ions (zinc and cadmium) by adsorption using coconut shell coke is investigated. The time of contact, initial metal ion concentration, adsorbent dosage, volume of the adsorbate solution, size of the adsorbent particle and the effect of the presence of another metal at various concentrations are the parameters studied.

**0601–217.** Gopalsamy V, Ganapathy A, Vimal Raj V (Dept Civil Engng, Fac Engng Techno, Annamalai Univ, Annamalainagar 608002). **Biosorption and its application in removal of heavy metals wastewater.** *Nature Env Polln Techno*, **5**(3) (2006), 337–342 [9 Ref].

Sorption experiments using the powder of *Artocarpus heterophyllus* (jackfruit) leaves for chromium removal from wastewater were carried out to study the influence and optimization of the biosorption of Cr (VI). The effect of pH (1.0-10.0), different contact periods and varying biomass quantities were also examined. It was observed that *Artocarpus heterophyllus* possessed better specific uptake capabilities for Cr (VI), showing approximate uptake of 0.043mg/g of biomass.

**0601–218.** Guna PR (Dept Microbio, SGM Coll, Karad 415124). **Utilization of microbiology laboratory waste for production of biogas and vermicompost.** *Nature Env Polln Techno*, **4**(3) (2005), 373–376 [7 Ref].

Production of biogas and vermicompost from this microbiology laboratory waste was found to be easy way having potential to take care of both ecology and economy. It was found that about 12–15 liters of biogas/liter slurry of the waste and about 1.0-1.5kg vermicompost can be generated daily from average microbiology laboratory waste.

**0601–219.** Guru Prasad B (Civil Engng Dept, KL Coll Engng, Vaddeswaram 522502, Guntur (Dt), Andhra Pradesh). **A case study on biomedical work management.** *Nature Env Polln Techno*, **4**(3) (2005), 433–435 [1 Ref],

Among the waste monitored in the present investigation 63% is infectious and 37% in non-infectious is nature. Majority of doctors and nurses have awareness about biomedical waste and most of the higher age group (50–60) workers get affected with cuts, finger damage and ulcers.

**0601–220.** Hemalata B, Meenambal T (Environ Engng Dept (PH Lab), Govt Coll Techno, Coimbatore 641013). **Reuse of industrial sludge along with yard waste by vermicomposting method.** *Nature Env Polln Techno*, **4**(4) (2005), 597–600 [3 Ref].

Study was carried out to stabilized yard waste and industrial sludge. Industrial sludges used were tannery sludge, distillery sludge and paper mill sludge. *Eudrilus eugineae* was the species of earthworms used in the vermicomposting process. The results show that the reuse of industrial sludge and yard waste into useful form i.e., natural fertilizer can be made efficiently.

**0601–221.** Jain Monika, Shrivastava Rashoni, Singh Anil Kumar, Jain Praveen (Govt MLB Girls PG Coll, Bhopal). **Bioassay experiments to determine the toxicity of hospital effluent and its treatment through on ecofriendly technique.** *Ultra Sci*, **17**(2) (2005), 313–318 [19 Ref].

Bioassay experiments are conducted in the laboratory under different set of conditions to evaluate the toxicity level of different heavy metal available in the effluent of different hospitals. Concentration of Pb and Cr were above the permissible limit prescribed by bio medical waste [Handling & Management] rule 1998. As compared to lead, chromium is much more toxic for *Daphnia magna* in very low concentration. Root zone treatment is an effective device to reduce these pollutants.

**0601–222.** Jebamani M, Issac Solomon, Saseetharan MK (Dept Civil Engng, Govt Coll Techno, Coimbatore 641013). **Adsorption batch studies on Ni (II) and Pb (II) removal using bark of *Casuarina equisetifolia* wood based activated carbon.** *Nature Env Polln Techno*, **4**(3) (2005), 345–351[4 Ref].

The adsorption ability in removing nickel (II) and lead (II) from aqueous solutions has been analyzed through batch adsorption experiments. The optimum dose of this carbon to remove nickel from 63 ppm concentration wastewater was 20 g/L and the optimum contact time was 15 minutes. The optimum dose of this carbon to remove lead from 50 ppm concentration, synthetic solution was 1.5 g/100 mL (= 15 gm/L) with the optimum contact time of 15 minutes. The isotherms are in conformity with the Langmuir adsorption isotherm.

**0601–223.** John Siby, Tare Vinod (Punjab Technical Univ Jalandhar 144001). **Methanogenic activity test as an aid in evaluating performance and stability of anaerobic bioreactors.** *J Environ Sci Engng*, **47**(2) (2005), 125–130 [13 Ref].

Attempt has been made to suggest a new parameter, defined on the basis of the relative activity of acetoclastic and hydrogen oxidizing methanogens. Results indicated that the acetoclastic to total methanogenic activity ratio 0.7 yielded stable and optimal reactor performance. The acetoclastic and total methanogenic activity tests provide a simple technique that may aid in evaluating the performance and stability of anaerobic bioreactors.

**0601–224.** Kanchanabhan TE, Arutchelvan V, Sekaran G, Mohaideen Abbas (Dept Civil Engng, Annamalai Univ, Annamalainagar 608002). **Removal of natural tannin from tannery wastewater using sequencing batch reactor.** *J Indl Polln Contl*, **21**(2) (2005), 389–393 [8 Ref].

A sequencing batch reactor (SBR) of five litre capacity was fabricated and used. The reactor treated high strength wastewater and the cumulative COD and tannin removal efficiency was 77 % and 88 % respectively. The removal efficiency of tannin and COD in wastewater were controlled by tannin concentration, hydraulic residence times, micro and macronutrients. The degradation of tannin was confirmed through the enzyme assay test.

**0601–225.** Karkhanis Madhura, Jadia Chotu, Fulakar MH,\* (\*Dept Life Sci, Univ Mumbai, Santacruz (E), Mumbai 400098). **Rhizofiltration of heavy metals from coal ash leachate.** *Asian J Water Env Polln*, **3**(1) (2006), 91–94 [9 Ref].

Rhizofiltration has shown that pistia has high potential capacity of uptake of the heavy metals Zn, Cr, and Cu, and duckweed has also shown good potential for uptake of Zn, Cr, Cu next to pistia. Rhizofiltration of Zn and Cu in case of water hyacinth was lower as

compared to pistia and duckweed. This study shows that pistia/duckweed/water hyacinth can be good accumulators of heavy metals in aquatic environment.

**0601–226.** Madhava Krishnan S, Radhika VK, Manickavasagam K (Dept Environ Sci, PSG Coll Arts Sci, Coimbatore 641014). **Removal of methylene blue from aqueous solution by adsorption onto sago waste carbon.** *Nature Env Polln Techno*, **5**(3) (2006), 329–336 [10 Ref].

Investigations were carried out on the adsorption potency of activated carbon prepared from sago industrial waste for the removal of methylene blue dye with different agitation times, dye concentrations, adsorbent dosage and pH. Adsorption followed both Langmuir and Freundlich isotherms. The adsorption capacity of activated carbon was found to be effective at acidic pH with decrease in particle size.

**0601–227.** Maleeka Begum SF, Uma C, Balamurugan S, Kalyani M (Dept Biochem, Karpagam Arts Sci Coll, Eachanari (Po), Pollachi Main Rd, Coimbatore, Tamila Nadu). **Adsorption kinetics of direct violet 47 (dye) on activated carbon obtained from low cost agricultural waste.** *Asian J Microbiol Biotechno Environ Sci*, **7**(4) (2005), 733–736 [10 Ref].

Batch sorption studies were performed with coconut shell. The amount of sorption exhibited a gradual decreasing trend with increase in pH from 2 to 12. The rate of sorption increases with increase in dose of activated coconut shell with an initial concentration of 250 mg/L. The kinetics of sorption process follows first order rate expression of Lagergren equation.

**0601–228.** Masih Amit, Lawrence Alfred J, Kulshrestha Prachi R, Taneja Ajay (Sch Cheml Sci, Dept Chem, St Johns Coll, Agra, UP). **Investigation of polycyclic hydrocarbons (PAHs) in soil at Agra, India a case study.** *J Environ Sci Engng*, **47**(3) (2005), 188–193 [19 Ref].

The concentration of PAHs in roadside soil in the center of Agra city and exposed to heavy traffic was measured. Total mean concentration of PAHs was found to be 15.29 mg g<sup>-1</sup> and it ranged from 6.72-25.91mg. g<sup>-1</sup>. Fluoranthene, chrysene, benzo (b) fluoranthene and benzo(ghi) perylene were found to be the most abundant PAHs at this location.

**0601–229.** Misra Anil Kumar, Mishra Ajai, Shukla Sanjeev (Dept Geo, Univ Lucknow, Lucknow). **Wastewater treatment in developing countries.** *J Ecophysio Occupl Hlth*, **5**(1&2) (2005) 55–59 [6 Ref].

Low-cost wastewater treatment technology will continue to be viable and economical option in the recovery, recycle and reuse of water. The wastewater treatment technologies more suitable for developing countries, which are cost effective, having low operation and maintenance requirements are discussed.

**0601–230.** Mohan S, Ramesh ST (Dept Civil Engng, Indian Inst Techno Madras, Chennai 36). **Assessment of recirculation ratio impacts on mixed liquor suspended solids in the activated sludge process.** *Asian J Water Env Polln*, **3**(2) (2006), 57–61 [7 Ref].

Paper presents a simulation study with the objective to study the effect of recirculation ratio on Mixed Liquor Suspended Solids (MLSS) in plant design and operation strategy of activated sludge process. The simulation results indicates that an optimal combination of recirculation ratio and operation strategy, the performance in terms of MLSS and efficiency improves significantly when compared to current operational practice.

**0601–231.** Moturi MCZ, Subramanian V (Kenya Indl Res Dev Inst, Po Box 30650, Nairobi 00100, Kenya). **Distribution and partitioning of phosphorus in solid waste and sediments from drainage cards in the industrial belt of Delhi, India.** *Chemosphere*, **60**(2) (2005), 237–244 [38 Ref].

Phosphorus in solid waste and sediments from drainage canals within the industrial belt of Delhi were fractionated into five operationally defined forms, that is, Exch-P (exchangeable or loosely sorbed phosphorus), Fe-P (Fe-bound phosphours), authigenic apatite, CaCo<sub>3</sub>-bound phosphours and biogenic apatite (Acet-P), Det-P (detrital apatite) and Org-P (organic-bound phosphorus), in order to assess the potential bio availability status in these systems.

**0601–232.** Namasivayam C, Sumithra S (Dept Environ Chem, Bharathiar Univ, Coimbatore 641046). **Adsorption of anionic dyes on to waste Fe (III)/Cr (III).** *J Environ Sci Engng*, **48**(1) (2006), 69–74 [22 Ref].

Waste Fe (III) / Cr (III) hydroxide was investigated for the removal of anionic dyes, namely acid brilliant blue (acidic dye) and procion red (reactive azo dye) from aqueous solution. Adsorption followed Langmuir isotherm with adsorption capacity of 10.37 and 3.28 mg/g for acid brilliant blue and procion red respectively. Adsorption Kinetic studies showed second order with respect to acid brilliant blue and first order with respect to procion red.

**0601–233.** Pal Arundhati, Paul AK (Microbio Lab, Dept Bot, Univ Calcutta, 35, Ballygunge Circular Rd, Kolkata 700019). **Biosorption of hexavalent chromium by *Streptomyces* biomass.** *Asian J Microbio Biotechno Environ Sci*, **7**(4) (2005), 883–886 [23 Ref].

Dried mycelial biomass of 22 *Streptomyces* isolates were screened for biosorption of hexavalent chromium [Cr (VI)] from aqueous solutions. The isolates were capable of removing 23-64% of chromium from a solution of 100 mg Cr (VI)/L in 24h. The optimum concentration of biomass and Cr (VI) for biosorption were 15g/L and 50mg/L respectively. Sorption of Cr (VI) was maximum at pH 2.0 and was affected adversely at neutral to alkaline pH, but increased gradually with increasing dehydration of the mycelial biomass.

**0601–234.** Pandey BV, Upadhyay RS (Dept Bot, Sri Agrasen Kanya Autonomous PG Coll, Bulanala, Varanasi 221001). **Effect of environmental conditions on bioremediation of textile dyes by micro-organisms.** *Nature Env Polln Techno*, **5**(1) (2006), 31–36 [12 Ref].

Effect of environmental conditions on decolorization of Procion Red Yellow, Acid Yellow-9, Direct Orange 102, and Crystal Violet by *Phanerochaete chrysosporium* and *Pseudomonas fluorescens* was studied. The conditions for dye degradation by these microorganisms were different, which have been optimized. The most suitable conditions for *Pseudomonas fluorescens* are pH 7.2, temperature 37°C, and carbon and nitrogen source from yeast extract.

**0601–235.** Patil GV, Pokhrel K (Inst Pharmacy, Bundelkhand Univ, Jhansi 284128). **Biomedical solid waste management in an India hospital : a case study.** *Waste Manag*, **25**(6) (2005), 592–599 [15 Ref].

Study assessed the waste handling and treatment system of hospital bio-medical solid waste and quantitatively estimate the amount of non-infectious and infectious waste

generated in different wards/sections of KLE Society's JN Hospital and medical Research Centre Belgaum, India. During the study, it was observed that the process of segregation, collection, transport, storage, and final disposal of infectious waste was done on compliance with the Standard Procedures, and the final disposal was by incineration in accordance to EPA Rules 1998.

**0601–236.** Patil Yogesh B (PG Dept Environ Manag, Chh Shahu Centl Inst Business Edn Res, Univ Rd, Kolhapur 416004). **Isolation of thiocyanate degrading chemo heterotrophic bacterial consortium.** *Nature Env Polln Techno*, **5**(1) (2006), 135–138 [6 Ref].

A chemoheterotrophic bacterial consortium, capable of degrading thiocyanate, was isolated from sewage slurry by the enrichment culture technique. The bacterial consortium was composed of three bacterial species. Preliminary characterization of microorganisms was carried out by microscopic examination and by studying colony characteristics. Investigations under laboratory conditions showed that the isolated bacterial consortium could degrade 50 mg/L of thiocyanate within a period of 40 hours with an efficiency of more than 99.9%.

**0601–237.** Paul B (Centl Mining Res Inst, Barwa Rd, Dhanbad 826001) **Utilisation of coal ash in bio reclamation of mining degraded lands/abandoned open cast mines.** *J Mines Metals Fuels*, **52**(11) (2004), 347–350.

The generation of coal-ash in India is around 100 MT from about 85 TPPs, of which 75–85 MT will be fly ash. Paper addresses a conceptual framework of utilizing the ash in reclamation of nearby mining degraded lands/ abandoned open case mines which will be the most beneficial exercise to bring the land back to use.

**0601–238.** Pratap Chandran PK, Saravanan R, Ranganarayanan S (Shri Andal Alagar Coll Engng, 6, GST Rd, Mamandur - 603111). **Effect of direct thermal pretreatment on anaerobic digestion of municipal solid wastes.** *Asian J Microbio Biotechno Environ Sci*, **7**(4) (2005), 779–783 [8 Ref].

Attempt has been made to optimize parameters for anaerobic digestion after subjecting the waste to steam digestion. This steam digestion was carried out at temperatures in the range 110°C to 150°C. The resultant slurry was cooled and filtered. The filtrate COD showed a reduction of 46% at the maximum temperature. The filtrate when subjected to anaerobic digestion showed a net increase in COD reduction 6.5%.

**0601–239.** Prathima G, Venkateswara Rao M, Venkateswarlu P (Dept Cheml Engng, Andhra Univ, Visakhapatnam, AP). **Effect of used tea powder on removal of chromium.** *Int Symposium Environ Manag Mining, Metallurgical Industries*, 11–14 Dec 2005, Bhubaneswar 46–59 [34 Ref].

Toxic chromium (VI) is removed from wastewater with used tea powder as an adsorbent. The equilibrium studies on adsorption of chromium are carried out in batch process systematically. The optimum contact time is obtained at 5 hrs. The percent removal of chromium increases with increase in adsorbent dosage and initial concentration of chromium. The percent removal is also increased with decreases in adsorbent size and volume of wastewater.

**0601–240.** Rajamohan N, Karthikeyan C (Environ Engng Lab, Dept Techno, Annamalai Univ, Annamalainagar 608002). **Kinetic characteristics of dye effluent degradation by *Galactomyces geotrichum*.** *India J Environ Sci*, **9**(2) (2005), 101–103 [10 Ref].

*Galactomyces geotrichum* was employed for the treatment of dyehouse effluent, which was tough to be degraded because of the presence of non-biodegradable dyes. The time courses of COD reduction and percentage COD removal were studied. A kinetic model was established giving the dependence of COD removal rate on effluent COD (half order) and biomass concentration (first order).

**0601–241.** Rajesh Bann J, Kaliappan S\*, Rajkumar M, Beck Dieter (\*Dept Civil Engng, Cent Env Stud, Anna Univ, Chennai 600025). **Treatment of spentwash in anaerobic mesophilic suspended growth reactor (AMSGR).** *J Environ Bio*, **27**(1) (2006), 111–117 [21 Ref].

The study was carried out in a 4 L laboratory scale anaerobic mesophilic suspended growth reactor. After the successful startup, the organic loading was increased stepwise to assess the performance of the reactor. During the study period, biogas generated was recorded and the maximum gas generated was found to be 16.9 L at an Organic Loading Rate (OLR) of 38 g COD/L. A 500% increase in the Volatile Fatty Acid (VFA) concentration (2150 mg/L) was observed, when the OLR was increased from 38 to 39 g COD/L.

**0601–242.** Reddy Babu G, Chandrasekhar B, Damodhara Reddy B, Ramana Reddy IV (Dept Civil Engng, SVU Coll Engng, Tirupati 517502). **Sorption of some reactive**

**chemical dyes using powdered activated carbon.** *Nature Env Polln Techno*, **5**(3) (2006), 375–380 [15 Ref].

Attempt has been made to investigate the feasibility of adsorption for removal of colour from simulated reactive textile dye effluents employing powdered activated carbon (PAC). Batch sorption experiments have been conducted with established procedures. The results indicate that sorption isotherms are favourable in the removal of colour bodies by PAC. Further, it is observed that PAC is effective in treating reactive dye effluents. The maximum colour removal efficiency is about 73% to 84% at a dose of 1 g/L to 1.5g/L of PAC.

**0601–243.** Sastry TP, Sehgal PK, Ramasami T (Centl Leather Res Inst, Adyar, Chennai 600020). **Value added ecofriendly products from tannery solid wastes.** *J Environ Sci Engng*, **47**(4) (2005), 250–255 [16 Ref].

Two processes have been developed to offer an alternative and better solution for the disposal of chrome shavings. The first process is preparation of parchment like membrane and the second process is related to development of leather like material. These products are analyzed for their mechanical behaviour and other physicochemical properties. The utilization of the chrome shavings in preparation of those two products not only reduces the environmental pollution but at the same time value added products can be obtained.

**0601–244.** Selukar NB, Hend GM, Rathod AL, Wagh SM, Bansod ND (Dept Cheml Techno, Amravati Univ, Amravati). **Comparative adsorption study of DCIC and F-200 GAC samples for phenolic waste.** *Ultra Sci*, **17**(2) (2005), 171–176 [18 Ref].

Activated carbon adsorption is one of the well established method for removal of trace organic compounds. This method is widely used due to its simplicity, effectiveness, low space requirement and nuisance free operation. Activated carbon can be produced from variety of materials such as wood, coal, peat, lignite, coconut shell etc. This paper is related with the comparison of two types of GAC manufacturer from different type of material for phenolic waste treatment.

**0601–245.** Senthil Nathan U, Issac Solomon, Jebamani M (Dept Environ Engng, Govt Coll Techno, Coimbatore 641013). **Adsorption batch studies on nickel (II) removal**

**using wood by hybrid *Eucalyptus* based activated carbon.** *Nature Env Polln Techno*, **4**(4) (2005), 533–536 [Ref].

Activated carbon has been prepared from the wood of hybrid *Eucalyptus*. Its adsorption ability in removing nickel (II) from aqueous solution has been analyzed through batch adsorption experiments. The adsorption kinetics of this carbon for different parameters like adsorbent dosage and contact time of the metal ion were studied. The optimum dose of this carbon to remove 80 ppm nickel from synthetic solution was 0.4g/150mL, and the optimum contact time was 10 minutes. The isotherms are in conformity with the Langmuir adsorption isotherm.

**0601–246.** Setha Rashi, Chandra R, Kumar Narendra, Tyagi AK (Dept Soil Sci, GB Part Univ Agricl Techno, Pantnagar 263145, US Nagar, Uttaranchal). **Utilization of composted sugar industry waste (Pressmud) to improve properties of sodic soil for rice cultivation.** *J Environ Sci Engng*, **47**(3) (2005), 212–217 [11 Ref].

Sulphitation pressmud (SPM) and its composts were prepared by heap, pit, NADEP and vermicomposting methods and their effects were compared with soil properties and growth, yield and nutrient uptake by rice in a sodic soil under pot conditions. Application of 15t ha<sup>-1</sup> SPM and its different composts significantly increased the plant height and dry matter accumulation at different intervals, grain and straw yields and N, P and K uptake by the crop over the control.

**0601–247.** Shanker Hari, Goyal Radha R, Khare Mukesh (Dept Civil Engng, Indian Inst Techno Delhi, Hauz Khas, New Delhi- 110016). **Tracer transport study in flyash being used as landfill material.** *Asian J Water Env Polln*, **3**(2) (2006), 23–28 [14 Ref].

The suitability of fly ash for its use as landfill material is investigated by examining the fluid transport process through fly ash beds in different compositions with sand. It is suggested that the fly ash use, as a landfill material, may be preferred in appropriate composition with sand or other soil material in comparison to the existing practice of using fly ash only as a fill material. It is observed that a 3:1 mixture of fly ash and sand with 5% lime as binding material shows appreciably faster rate of dispersion of the tracer solution.

**0601–248.** Shantha Kumar S, Akil K (Dept Civil Engng, Bannari Amman Inst Techno, Sathyamangalam 638401). **A novel eco-friendly approach for textile sludge.** *J Environ Sci Engng*, **48**(1)(2006), 9-14 [10 Ref].

Paper studies the suitability of utilizing textile sludge in the manufacture of bricks. The sludge was collected from the effluent treatment plant and it was analyzed to explore its characteristics. Then the bricks, made up of this sludge, were tested for water absorption, compressive strength, presence of soluble salts and drop test, and the results were compared with those of ordinary bricks.

**0601–249.** Sheth KN, Soni Viral M (PG Dept Environ Engng, Inst Sci Techno, Adv Std Res, Vallabh Vidyanagar 388120). **Comparative study of removal of Cr (VI) with PAC, GAC and adsorbent prepared from tobacco roots.** *J Environ Sci Engng*, **47**(3) (2005), 218–221 [10 Ref].

Tobacco roots activated carbon (TRAC) has been prepared from tobacco roots impregnated with 20% of  $ZnCl_2$  and carbonized at 600°C. Its adsorption capacity has been tested for the treatment of wastewater containing hexavalent chromium. Removal of chromium in the process has been found to increase with increase in adsorbent dosage and contact time. The adsorption isotherm data fitted the Langmuir adsorption isotherm model.

**0601–250.** Shivran Hari Singh, Kumar S, Kumar Dinesh, Singh RV (Dept Chem, Univ Rajasthan, Jaipur 302004). **The effect of carbon as an energy source for biological denitrification through *Pseudomonas stutzeri*.** *J Environ Sci Engng*, **47**(2) (2005), 115–118 [10 Ref],

Study was undertaken to observe the effect of quantity of carbon on biological denitrification with *Pseudomonas stutzeri* at different C/N ratios. The results obtained show that the pH and alkalinity of the effluent increased with increase in C/N ratio due to alkalinity generated during denitrification. The COD of the influent was increased with increase in C/N ratio.

**0601–251.** Suriyanarayanan S, Jayakumar D, Balasubramanian S (Dept Environ Sci Bharathiar Univ, Coimbatore 641046). **Physico-chemical characteristic of paper industry effluents – a case study.** *J Environ Sci Engng*, **47**(2) (2005), 155–160 [14 Ref].

After analysis it was found that the raw wastewater consisted of 202-294 mg/l and 2010-3200 mg/l of suspended and dissolved solids respectively while pH varied from 6.7–7.3. The BOD and COD values ranged from 210-310, 1680-2340 mg/l respectively. Due to the treatment of raw effluent, the SS and TDS of treated effluent were significantly decreased and the values ranged in between 118 mgL<sup>-1</sup> to 154 mgL<sup>-1</sup> and 645 mgL<sup>-1</sup> to 925 mgL<sup>-1</sup>, respectively. The pH values of the treated effluent were higher than the raw effluent.

**0601–252.** Tambekar DH, Kale SA (PG Dept Microbio, Amravati Univ, Amravati 444602, Maharashtra). **A study on physico chemical characteristics of municipal solid waste of Amravati city, Maharashtra.** *Nature Env Polln Techno*, **4**(3) (2005), 459–462 [15 Ref].

Studies indicated the variation in physical and chemical characteristics of MSW depending on localities. It was noted that high organic contents was present in MSW collected from vegetable market, residential areas, temple and cow yard, and this MSW can be used for good quality compost. The MSW collected from bus stand, railway station, school and college area was high in paper and plastic content, which could be recycle and reprocessed to make it reusable.

**0601–253.** Tewari A, Raghunathan C, Kotiwar OS, Trivedi RH, Sravan Kumar VG (Centl Salt Marine Cheml Res Inst, Bhavnagar 364002). **The effect of seawater desalination plant effluent on community structure of marine phytoplankton in culture and in *insitu* conditions.** *Nature Env Polln Techno*, **4**(4) (2005), 477–486 [25 Ref].

All the concentrations of seawater desalination plant effluent (100 to 10%) decrease the total count of phytoplankton as compared to control in culture. However, the 10<sup>-4</sup>% concentration of the effluent increased the count by 2.24 times during 32 days growth period. The 100 to 25% concentrations were inhibitory for the growth of phytoplankton during study period, whereas, 10 to 1% concentrations promoted the growth of phytoplankton community between 16 and 40 days growth period.

**0601–254.** Tripathi G, Bhardwaj P (Dept Zoo, JNV Univ, Jodhpur 342005). **Management of organic waste by earthworms *Eiseria fetida* and *Lampito mauritii* in arid environment.** *J Appl Biosci*, **31**(2) (2005), 150–159 [30 Ref].

Studies were made to evaluate the composting potential of earthworms, *Eisenia fetida* and *Lampito mauritii* using various combination of wheat straw cow dung, and leaf litter as bedding materials in an arid environment. By comparing the results on the basis of C/N ratio it was found that *E. fetida* prepared saw dust plus cowdung into a better vermicompost, whereas *L. mauritii* was better for conversion of wheat straw plus cowdung into a good quality of vermifertilizer. Therefore, these species of earth-worms may be utilized for management of organic waste resources in desert region.

**0601–255.** Tripathy AK (Inst Adv Techno Environ Stud, Bhubaneswar, Orissa). **Recycling of iron and steel industry solid waste materials by cold bonded briquetting.** *Int Symposium Environ Manag Mining Metallurgical Industries*, 11–14 Dec, 2005, Bhubaneswar, 116–124.

Steel industry consumes large quantity of raw materials, resources and energy for producing steel and in the process of conversion, generates substantial quantities of solid waste materials. Recycling these waste in the form of cold briquettes can help in overcoming the above problems. A newly suitable inorganic binder system has been developed to produce cold briquettes from these waste which is an efficient and established process of agglomeration and can be charged to blast furnace and also to achieve high hot strength to the briquettes.

**0601–256.** Upadhyay K, Srivastava JK (Cheml Engng Dept, Ujjain Engng Coll, Ujjain, MP). **Application of ozone in the treatment of industrial and municipal wastewater.** *J Indl Polln Contl*, **21**(2) (2005), 201–212.

Ozone can be effectively used for the treatment of municipal and industrial waste water. Extensive research in application of ozone investigating the stoichiometry of reaction, reaction kinetics, reaction regime, mechanism of reaction has made possible to apply ozone safely in different fields of wastewater treatment. The paper provides a detailed study on the use of ozone in different fields of wastewater and drinking water.

**0601–257.** Vasanthy M, Thamaraiselvi C, Managalasundari R (PG Res Dept Environ Sci, Govt Arts Coll, Ariyalur 621713). **Effective treatment of spentwash diluted with sugar effluent by using chemical agents.** *Nature Env Polln Techno*, **5**(3) (2006), 361–365 [6 Ref].

Paper deals with the removal of colour, odour, TDS and COD from the spent wash using chemical agent such as calcium oxide and hydrogen peroxide. Odour has been completely removed from the diluted 10% spent wash when treated with calcium oxide and hydrogen peroxide. Three different treatments were performed with calcium oxide, hydrogen peroxide and both these in combination. Treatment with combination of the two chemicals has shown highest removal of colour (95%), TDS (54.5%) and COD (63.7%) from the diluted spent wash.

**0601–258.** Vasanthi M, Thamaraiselvi C, Sangeetha M (PG Res Dept Environ Sci, Govt Arts Coll, Ariyalur 621713). **Effective treatment of distillery spent wash by using calcium oxide, hydrogen peroxide and commercial activated carbon.** *Nature Env Polln Techno*, **5**(1) (2006), 67–70 [9 Ref].

Paper deals with the removal of colour and odour from the spent wash using chemical agents such as CaO, H<sub>2</sub>O<sub>2</sub> and an adsorbent commercial activated carbon (CAC). Odour has been completely removed from the 5% diluted spent wash when treated with calcium oxide, hydrogen peroxide and commercial activated carbon. About 95% of colour, 85.2% TDS and 88% COD have been removed when the diluted spent wash was treated with 750 mg of CaO, 0.35 mL of H<sub>2</sub>O<sub>2</sub> and 500 mg of (CAC).

**0601–259.** Vengal Jiju Cherian, Bindu K, Mathews Annie (Dept Cheml Engng, Natl Inst Techno, Surat, Gujarat). **Utilisation of waste lignin to manufacture biopolymers.** *Nature Env Polln Techno*, **4**(4) (2005), 611–615 [3 Ref].

Paper explores the possibility of extracting lignin from waste wood chips of a paper industry and blending it with established biopolymers like starch and gelatin. The methodology of preparation and results of tensile and water absorption tests of different lignin-starch, lignin gelatin and starch-gelatin-lignin polymer films is reported. Complete methodology of preparation of each film and the results of the tests are discussed. Novelty of the work lies in using lignin extracted from paper industry waste.

**0601–260.** Vidya P, Padwal Desai SR, Ussuf KK (Fd Techno Div, Bhabha Atom Res Cent, Trombay, Mumbai 400085), **Decolourization of azo dyes by the white rot fungus, *Phanerochaete chrysosporium*.** *Indian J Environ Toxicol*, **14**(2) (2004), 59–64 [19 Ref].

During the incubation period, the dye has been found to be bound to the mycelial matt of the ligninolytic, nonligninolytic and dead cultures but extensive decolourization has been

observed only in ligninolytic cultures. The rate of decolourization has been two-times faster when cultures are grown on a natural medium using bagasse as sole source of nutrient than even the ligninolytic cultures. The azo dye decolourization has been mediated by both pre-grown mycelia as well as spores with equal efficiency.