Water Pollution

Vol. 20	Nos. 3-4	2003

0303-054. Ahmad A, Alam M* (*Environ Sci Lab, Dept Appl Sci Humanities, Fac Engng Techno, Jamia Millia Islamia, New Delhi 110025). **Physico-chemical and toxicological studies of industrial effluents in and around Delhi and ground water quality of some areas in Delhi city**. *Cheml Environ Res*, **12**(1&2)(2003), 5-13 [25 Ref].

The analyses and monitoring were conducted to evaluate the impact of different types of chemical, electroplating, textile and dyeing industry waste water on the river and ground water. Water samples from the localities located on the side of Yamuna river and other areas in Delhi and industrial effluents of different types of industries were collected and analysed. Water quality parameters were very poor, except the samples collected from upstream.

0303-055. Amathussalam A, Abubacker MN, Jayabal N (PG Res Dev Chem, Natl Coll, Tiruchirapalli 620001, TN). **Impact of sugar mill effluent on ground water - a case study**. *J Indl Polln Contl*, **18**(2)(2002), 119-124 [12 Ref].

Physico-chemical and micro-biological studies of sugar mill effluent polluted ground water in Eraiyur area of Permbalur District, Tamil Nadu indicated that EC, TDS, total hardness interms of $CaCO_3$, BOD, COD ions level values are on the higher side of permissible limits of WHO standards. Microbiological studies revealed the presence of specific fungal species which are capable of growing in higher concentrations of bicarbonate and nitrates which in turn serve as indicator organism of such pollutants.

0303-056. Ao Meren, Bordoloi Sabitry (Kohima Sci Coll, Kohima 797002, Nagaland). **Amphibian distribution with respect to water chemistry in the wetlands of Kohima district, Nagaland, India**. *Aquacult*, **4**(2)(2003), 259-263 [21 Ref].

The chemical characteristics of the breeding habitat of amphibia in Nagaland were analysed to see the possible role of water chemistry in the distribution pattern of amphibian fauna. Early life history stages of amphibian are vulnerable to various contaminants that accumulate in the water body. Samples of 100 potential amphibian habitats were analysed and distribution pattern of 24 species of amphibian has been discussed.

0303-057. Basu Arindam, Kumar Sunil, Mukherjee Somnath (Dept Civil Engng, Jadavpur Univ, Kolkata 700032). **Arsenic reduction from aqueous environment by water lettuce (*Pistia stratiotes* L.)**. *Indian J Environ Hlth*, **45**(2)(2003), 143-150 [17 Ref].

Arsenate uptake of aquatic plant water lettuce (*Pistia stratiotes* L.) was studied in the laboratory condition to investigate a low cost natural aquatic treatment system for pollutant removal. Bioaccumulation was noticed to be both concentration and duration dependent. The results show that the plant could effectively absorb arsenic between a range of 0.25 to 5.0 mg/l to the extent of 82.0 to 22.8% for a biomass of 20g/l at pH 7.0 after 144 hours. The effect of biomass quantity has also been investigated along with some metabolic parameters.

0303-058. Chandrasekhar JS, Lenin Babu K, Somasekhar RK (Dept Environ Sci, Bangalore Univ, Jnanabharati, Bangalore 560056). **Impact of urbanization on Bellandur Lake, Bangalore – a case study**. *J Environ Bio*, **24**(3)(2003), 223-227 [8 Ref].

The addition of effluents from urbanized Bangalore city has changed the characteristics of the Bellandur Lake from being a natural ecologically healthy lake to an artificial reservoir of domestic sewage and industrial effluents. The DO of the Bellandur Lake water ranged from 3.8-6.3 mg/l. The Bellandur Lake water BOD ranged from 89-99 mg/l due to absorption of pollutants by aquatic flora in lake system.

0303-059. Chatterjee Pinaki Ranjan, Raziuddin M (Dept Zoo, Kabi Nazrul Coll, Murarai, Birbhum 731219, West Bengal). **Analysis of physico-chemical parameters of Loco tank, a reservoir in Asansol town, West Bengal**. *Nature Env Polln Techno*, **2**(2)(2003), 171-172 [5 Ref].

Paper deals with the analysis of physico-chemical parameters of a reservoir, called Loco tank in Asansol. The sewage from the surrounding areas continuously mixes with the waterbody. The effluents from various small-scale industries are also dumped into this reservoir. A significant level of variation was found in respect to these parameters. The results clearly indicate that the water of the reservoir is severely degraded.

0303-060. De AK (Raja Peary Mohan Coll, Uttarpara 712258, West Bengal). **Removal of lead and cadmium from water by adsorption on coal fly ash**. *Cheml Env Res*, **12**(1&2)(2003), 31-36 [10 Ref].

Adsorption of Pb and Cd individually as well as from mixture of metal ions in aqueous medium on coal fly ash has been investigated. Column studies were

conducted and the effect of various parameters affecting the adsorption has been determined. The maximum adsorption took place at pH 4.5-5.0 for Pb and at pH 3.1 for Cd. Among Pb and Cd, coal fly ash has higher affinity to adsorb Pb.

0303-061. Desai Anil, Mehta Mukesh K, Dwivedi VR (Dept Chem, Univ Coll Sci, ML Sukhadia Univ, Udaipur, Rajasthan). **Photocatalytic reduction of lead (II) over semiconducting powder**. *Polln Res*, **22**(3)(2003), 397-401 [22 Ref].

Photocatalytic reduction of Pb(II) over semiconducting manganese dioxide was carried out. The progress of reaction was observed spectrophotometrically. The effect of variation of different parameters like pH, concentration of Pb(II), amount of photocatalyst, particle size, light intensity, etc. on the rate of photocatalytic reduction was observed. A tentative mechanism for this reaction has been proposed.

0303-062. Dixit RC, Verma SR, Nitnaware V, Thacker NP (Natl Environ Engng Res Inst, Nehru Marg, Nagpur 440020). **Heavy metals contamination in surface and groundwater supply of an urban city**. *Indian J Environ Hlth*, **45**(2)(2003), 107-112 [4 Ref].

To ensure that the intake water derived from surface and ground water is clear and suitable for drinking the final water quality at Delhi have been evaluated. The final water supply of four treatment plants and 80 tubewells at Delhi were surveyed for heavy metals. The levels of manganese, copper, selenium and cadmium were found marginally above the Indian Standards (IS) specification regulated for drinking water. The data was used to assess the final water quality supplied at Delhi.

0303-063. Dwivedi BK, Pandey GC (Dept Environ Sci, Dr. RML Avadh Univ, Faizabad, 224001, UP). **An approach to improve water quality through photosynthetic bacteria**. *Nature Env Polln Techno*, **2**(2)(2003), 145-152 [28 Ref].

The photosynthetic bacteria and cyanobacteria (*Pseudomonas*, *Oscillatoria rubescens*) were utilized for water quality improvement and detoxication of cyanotoxin, microcystin (MC) level for eutrophicated Maqubara pond under laboratory conditions. The mixed cultured bacteria were found to be more efficient in reducing MC level, pH, DO, BOD, free-CO_2 and sulphate than single cultured bacteria. *Oscillatoria rubescens* was found better in reducing the level of N, P and N/P ratio as compared to *Pseudomonas* singly and also in combination with *Pseudomonas*.

0303-064. Fokmare Anil K, Musadiq Mohammad (PG Dept Microbio, Shri Shivaji Coll, Akola 444001, MS). **Physiological responses of some bacteria to chromium from water bodies**. *Eco Env Conserv*, **9**(1)(2003), 85-89 [19 Ref].

Physiological responses of some bacteria to chromium from water bodies has been worked out by using various parameters by micrometry, putrefaction and total viable count. Response of few bacteria to selected concentration of chromium varied. High concentration of chromium inhibited growth rate bio-chemical characteristics, enzyme activity and total viable count.

0303-065. Gandhirajan M, Selvi A (Tech Sharp Enviro Systems Pvt Ltd, C-39, II Avenue, Anna Nagar, Chennai 600040). **Characterization and treatment of lead acid storage battery industry wastewater – a case study**. *J Indl Polln Contl*, **18**(2)(2002), 183-190 [7 Ref].

A study on precipitation of lead acid storage battery industry wastewater was conducted. Results show that precipitation of lead as carbonate is more effective as compared to sulphide and hydroxide precipitations.

0303-066. Gangal Rajesh Kumar (Dept Chem, MLV Govt Coll, Bhilwara 311001, Rajasthan). **Phenomenal changes in ground water pollution caused by copper smelter at Khetri Zone (India) Part II**. *Int J Cheml Sci*, **1**(2)(2003), 83-92 [9 Ref].

Comparative study of various ground water samples taken from Khetri copper smelter zone show an increasing and very conclusive postulate in regards to the increase in conductivity, chloride, and sulphate. Total hardness and decrease in pH causing pollution, due to seepage of effluent or other relevant causes. Even recycling process is unable to check the increasing trends of above parameters.

0303-067. Garg Jaya, Garg HK (HIG-50, A-Sec, Sonagiri, Bhopal 462021). **Bioassay response to additions of urea in simulated lake environments**. *Polln Res*, **22**(3)(2003), 423-426 [21 Ref].

Three lentic water resources of Bhopal viz. Upper lake, Lower lake and Shahpura lake were studied for their limnochemical and biological characteristics. By adding different concentrations of urea, in microcosms developed from these reservoirs, an effort has been made to evaluate the effect of nitrogen on hydrobiological parameters. On treatment with urea, microcosmal waters exhibited erratic fluctuations in the amount of total kjeldahl nitrogen. Concentration of nitrate was more in treated microcosms than the controlled ones.

0303-068. Garode AM, Bodhankar MG (Dept Microbio, Shri Shivaji Sci Coll, Chikhli 443201, Maharashtra). **Water pollution, health-hygiene and sanitation : rural awareness for improved environmental status of life**. *Nature Env Polln Techno*, **2**(2)(2003), 167-169 [2 Ref].

The modern approach to improved water supply is to offer drinking water facilities together with sanitation facilities like latrines, drainage and hygiene education. Even simple messages of hand washing, disinfection of water, proper storage and withdrawal from container of drinking water and maintenance of water source and latrines and good street sanitation communicated with proper spirit have positive impact on health status.

0303-069. Guru Prasad B (Environ Engng Lab, Dept Civil Engng, KL Coll Engng, Guntur 522502, Andhra Pradesh). **Evaluation of water quality in Tadepalli mandal of Guntur district, AP**. *Nature Env Polln Techno*, **2**(3)(2003), 273-276 [3 Ref].

Investigation is aimed to calculate Water Quality Index (WQI) of ground water and to assess the impact of pollutants due to agriculture and human activities on its quality. Ten physico-chemical parameters were monitored for calculation of WQI. The results varied from 35.338-224.358 mg/L indicating level of nutrient load and pollution in the hand pumps. The existing results revealed that waters of the study area was not safe for human use.

0303-070. Halder S, Dasgupta M, Ghosh UC (Dept Chem, Presidency Coll, Kolkata 700073). **Studies on management of arsenic contaminated waste Part-I : application of leaching and precipitation**. *J Indl Polln Contl*, **18**(2)(2002), 213-221 [4 Ref].

Arsenic-rich waste is forming constantly due to decontamination of arsenic from the contaminated groundwater using coagulation-filtration and surface adsorption techniques. In order to manage the waste, an attempt has been taken on applying the chemical leaching followed by precipitation methods. It has been found that 0.5 (M) solution of either NaOH or KOH is sufficient to leach arsenic to the maximum extent from the wastes.

0303-071. Hemasundaram A, Dhanalakshmi K, Prasad B, Naidu NVS (Dept Chem, SV Univ, Tirupati 517002). **Assessment of water quality with regard to surfactants in pilgrim town – a case study of Tirupati**. *Ultra Scient Phyl Sci*, **15**(2)(2003), 189-194 [6 Ref].

Water pollution by surfactants in detergent formulation has become an environmental problem. Surfactant levels in waste water, surface water and subsurface water in and the surrounding areas of Tirupati, a famous pilgrim town in South India, has been studied. Results showed the presence of anionic alkylbenzene sulfonate (LAS) surfactants in appreciable amount in sub-surface water.

0303-072. Ingole NW, Bhole AG (Dept Civil Engng, Coll Engng, Badnera, Amravati 444701). **Study on nutrient removal potential of selected aquatic macrophyte**. *J Inst Engrs India (Environ Engng Div)*, **83**(Sept)(2002), 1-6 [11 Ref].

The treatment efficiency of four aquatic plants, namely, water hyacinth, cattail, hydrilla and algae, for treatment of domestic wastewater has been compared. A batch study was conducted to determine the nutrient removal capacity of aquatic plants and to elucidate the uptake rate constants for four aquatic plants. It is concluded that water hyacinth has the highest treatment efficiency of domestic wastewater and has nutrient removal efficiency greater than the other aquatic plants tested.

0303-073. Isaiah S, Raja Edison, Kavitha B, Sivaraj C, Suganthi M (PG Res Dept Chem, Bishop Heber Coll, Tiruchirapalli 620017, Tamil Nadu). **Study of fluoride content in ground water, survey of dental fluorosis in Salem district**. *Eco Env Conserv*, **9**(3)(2003), 297-300 [9 Ref].

Paper studies the level of fluoride in bore well, open well and in hand pump water of different places of Salem district and also to analyse other water quality parameters like alakalinity, electrical conductivity, hardness, pH, phosphate, solids, temperature and turbidity. The analysis shows a low fluoride level of 0.46 mg/l and high level of 1.52 mg/l in Salem district.

0303-074. Islam SR, Gyananath G (Sch Cheml Sci, Swami Ramanand Teerth Marathwada Univ, Vishnupuri, Nanded 431606). **Contamination of chemical fertilizers in groundwater**. *J Ecotoxico Environ Monit*, **12**(4)(2002), 285-290 [18 Ref].

Attempt is made to understand the implications of chemical fertilizers on ground water quality of Nanded. The mean sulphate, phosphate and nitrate concentration were studied. The mean recorded values of sulphate, phosphate and nitrate levels were found 10.26 – 34.83 mg/l, 0.052 – 0.194 mg/l and 3.43 – 11.37 mg/l, respectively. Sulphate and nitrate levels were within permissible limits but phosphate levels higher than the permissible limits.

0303-075. Jakher Ganga Ram, Rawat Mamta (Dept Zoo, Jai Narain Vyas Univ, Jodhpur 342005). **Correlation of nitrate and most probable number for a sewage fed pond, Gulab Sagar at Jodhpur city**. *Oikoassay*, **16**(1)(2003), 13-14 [11 Ref].

Gulab Sagar, a sewage polluted pond at the mid of Jodhpur city was studied for two parameters – nitrate and most probable number (MPN). The relationship between both the parameters was noted as highly significant. The correlation co-efficient for nitrate

and MPN was found to be 0.91 and the empirical parameters were determined to be a = 46.25 and b = 12.48.

0303-076. Jena B, Sudarshana R, Chaudhury SB, (Oceanogr Div, Natl Remote Sensing Agency, Hyderabad 500037, AP). **Studies on water quality parameters around Sagar Island, Sundarbans**. *Nature Env Polln Techno*, **2**(3)(2003), 329-332 [2 Ref].

A field survey was conducted to study the coastal water quality of the Sagar Island, which plays a decisive role in coastal resource management. Some physico-chemical parameters and nutrients of the coastal water during the postmonsoon season were studied. Coastal waters associated with mangroves represented salinity range of 4 to 7 $^{0}/_{00}$ More than average values of dissolved oxygen (5.84 mg/l) are observed in the mangrove patches. In the mangrove regions, high nitrate concentration is related to the decomposition of mangrove leaf litter.

0303-077. Jothimani P, Bhaskaran A (Dept Environ Sci, Tamil Nadu Agricl Univ, Coimbatore 641003, Tamil Nadu). **Effects of dilution and dynamics of physical factors during factory effluent irrigation**. *J Ecotoxico Environ Monit*, **12**(4)2002), 255-261 [8 Ref].

A pot culture experiment was carried out to elucidate an appropriate dilution of dyeing factory effluent for irrigating agricultural crops and to assess the changes in soil pH, electrical conductivity and organic carbon during dyeing factory irrigation. Results showed that the effluent could be safely used for irrigation at proper dilutions (25 and 50%) in combination with NPK.

0303-078. Kalita J, Baruah BK, Choudhury M, Saikia S, Choudhury SK, Das M (Dept Sci, BK Coll Teacher Edn, Guwahati 781007, Assam). **Study on the effect of water pollutants on carbohydrate profile in fish *Heteropneustes fossilis* (Bloch)**. *Aquacult*, **4**(2)(2003), 237-240 [17 Ref].

Fishes (*Heteropneustes fossilis*) were exposed to water pollutants of municipal sewage of Guwahati city for a period of 165 days. The muscle carbohydrate content was analysed at every 15 days interval and compared that with control. Data revealed decline in carbohydrate concentration during the study period influenced by adverse environment.

0303-079. Kaushik A, Jain S, Dawra J, Sharma P (Dept Environ Sci Engng, Guru Jamsheshwar Univ, Hisar 125001). **Heavy metal pollution in various canals originating from river Yamuna in Haryana**. *J Environ Bio*, **24**(3)(2003), 331-337 [16 Ref].

Heavy metal pollution in the water of major canals originating from the river Yamuna in Haryana was studied. All these metals except Zn were found to be present in the Western Yamuna Canal (WYC) exceeding the maximum permissible limits. Concentrations of the metals were, however, relatively less in the highly eutrophicated waters of Agra canal and Gurgaon canal as compared to that in WYC but Fe concentration were much higher.

0303-080. Khedkar DD, Dixit AJ (PG Dept Bot, Govt Vidarbha Inst Sci Humanities, Amravati 444604, Maharashtra). **Physico-chemical analysis of domestic wastewater of Amravati (Maharashtra)**. *J Aquatic Bio*, **18**(1)(2003), 69-72 [16 Ref].

The physico-chemical characteristics of the wastewater generated by the vast population of Amravati has been analyzed. Though, the majority of the parameters were found within permissible limits, the sodium concentration in the wastewater exceeded the standards recommended by CPCB or WHO. Potassium concentration was found to be present in investigated water, can to some extent nullilfy the hazardous effects of sodium.

0303-081. Kulkarni JR, Shrivastava US (Dept PG Std Res Chem, GTP Coll, Nandurbar 425412). **Use of different adsorbents for the removal of chromium (VI)**. *Cheml Environ Res*, **11**(3&4)(2002), 233-238 [13 Ref].

Removal of hexavalent chromium by adsorption technique from aquous solution using neem bark (*Azadirachta indica*), subabhul charcoal (SC, *Leucina leucocephala*) has been studied and the results are compared with powdered activated charcoal (PAC). The adsorption efficiency of PAC and SC for Cr(VI) was maximum at pH 2.0 and for NB it was maximum at pH 6.0.

0303-082. Kulshrestha UC, Kulshrestha Monika J, Sekar R, Sastry GSR, Vairamani M (Analyt Environ Chem Div, Indian Inst Cheml Techno, Hyderabad 500007). **Chemical characteristics of rainwater at an urban site of south-central India**. *Atmos Env*, **37**(21)(2003), 3019-3026 [18 Ref].

The pH variation and the chemical characteristics of rainwater have been studied during monsoons at Hyderabad, a city in south-central India. The pH varied from 5.5 to 7.2 with an average of 6.4 which is in alkaline range considering 5.6 as the neutral pH of cloud water with atmospheric CO_2 equilibrium. Out of 28 rain events, only two events were observed in acidic range (<5.6) which occurred after continuous rains.

0303-083. Kumar R, Verma N, Rao ALJ* (*Dept Biotechno, Punjabi Univ, Patiala). **Characterisation and treatment of tannery effluent using batch or anaerobic baffled reactor**. *Cheml Environ Res*, **11**(3&4)(2002), 255-260 [12 Ref].

The reduction of the level of chromium and chemical oxygen demand (COD) in waste chrome liquor from tannery industry has been investigated. The chromium reduction achieved by groundnut shell powder (GNSP) treatment is 63-66% at pH 7.70. The total chromium and COD of the effluent after treatment with GNSP using batch reactor and anaerobic baffled reactor has been reduced to 99.9% and 93% respectively.

0303-084. Malik DS, Bhanot M, Negi KS (Dept Zoo Environ Sci, Gurukul Kangri Univ, Hardwar 249404, Uttaranchal). **Impact of distillery effluent on the water quality and phytoplankton in river Saung**. *Indian J Environ Sci*, **7**(2)(2003), 163-167 [23 Ref].

Distillery effluent contains a large amount of dissolved organic matter and causes a severe damage to the aquatic life. The abundance of phytoplankton has been affected by highly polluted condition of river water, as indicated by decreasing trends in phytoplankton population in the study area. Multiple regression analysis has been made to establish the inter-relationships between the physico-chemical and biological conditions in river waters.

0303-085. Manimozhi V, Saravanathamizhan R (Chennai Petroleum Corp Ltd, Manali, Chennai 600068). **Design of an adsorber for phenol in the refinery wastewater using granular activated carbon by BDST method**. *J Indl Polln Contl*, **18**(2)(2003), 191-199 [18 Ref].

Adsorbing of phenol on granulated activated carbon, based on Bed depth and Service time as principle methods has been investigated. In pilot column studies, granular activated carbon beds are fixed in the columns and used for trickling (in trickle bed reactor) flows continuously under defined conditions. The exhausation of granulated activated carbon is measured as a function of treated phenolic wastewater.

0303-086. Manjapa S, Basavarajappa BE, Desai GP, Hotanahalli SS, Aravinda HB (Environ Sci Techno Std Cent, Bapuji Inst Engng Techno, Davanagere 577004, Karnataka). **Nitrate and fluoride levels in ground waters of Davanagere taluka in Karnataka**. *Indian J Environ Hlth*, **45**(2)(2003), 155-160 [8 Ref].

Out of the 61 different borewell samples analysed, selected from different areas of Davanagere taluk, 26% of the samples are found to contain fluorides less than 0.50 PPM (lower safe limit prescribed by BIS) and 11.5% of the samples are found to contain more than 1.5 PM of fluorides (higher safe limit prescribed by BIS). Further, 16.00% of the borewell samples analyzed were found to contain more than 100.00 PPM of nitrates (measured as NO_3 mg/L, safe limit prescribed by BIS). The values of fluorides and nitrates observed in different samples were in the range of 0.19-2.06 PPM and 0.08-308 PPM, respectively.

0303-087. Matkar LS, Gangotri MS (Dept Zoo, Fergusson Coll, Pune, MS). **Physico-chemical analysis of sugar industrial effluents**. *J Indl Polln Contl*, **18**(2)(2002), 139-144 [12 Ref].

Paper studies the sugar industrial effluents toxicity to aquatic fauna and human health. The pH of the effluent is 4.00 and the observed concentration is 43000 mg/l for B.O.D. and 89760 mg/l for C.O.D. These are beyond the tolerance limit of the water causing shifting of the algal forms towards more tolerant zone leading to decrease in biodiversity. Total solids, total dissolved solids and suspended solids were also considerably high.

0303-088. Matkar LS, Gangotri MS* (*Dept Zoo, New Arts Comm Sci Coll, Ahmednagar 414001, M.S.). **Acute toxicity tests of sugar industrial effluents on the freshwater crabs, *Barytelphusa guerini* (H. Milne Edwards) (Decapoda, Potamidea)**. *Polln Res*, **22**(2)(2003), 269-276 [12 Ref].

It was observed that the test individuals died more rapidly at 45% and 50% of the effluent solution. The sugar industrial effluents was found to be highly toxic to the freshwater crabs, as the Lc 50 values for 24, 48, 72 and 96 hours are 6.784%, 5.709%, 5.257% and 4.845% respectively. The direct co-relation of toxicity to the concentration of the effluent was observed. It was also found that more than 0.5% of the effluents concentration is hazardous to the normal life and growth of these animals.

0303-089. Maya S (Trop Botanic Garden Res Inst, Pacha Palode, Thiruvananthapuram 695562, Kerala). **Pollution assessment of selected temple tanks of Kerala**. *Nature Env Polln Techno*, **2**(3)(2003), 289-294 [15 Ref].

A study on the bacterial quality of water along with seasonal analysis of certain important physico-chemical parameters of some temple tanks in Kerala were done. The overall analysis indicates poor quality of water of temple tanks with organic pollution of faecal contamination. The details of the findings are enumerated.

0303-090. Meenakumari HR, Hosmani SP (Dept Std Environ Sci, Univ Mysore, Mysore 570006). **Bacteriological examination of ground water samples in and around Mysore city, Karnataka, India**. *Nature Env Polln Techno*, **2**(2)(2003), 213-215 [8 Ref].

Study was aimed at assessing the coliform MPN/100 mL. and *E. coli* level of ground water (open wells, bore wells) in various parts of Mysore city. The values of MPN/100 mL were found to vary from 3 to = 2400/100 mL. The high values of *E. coli* were observed in north and east parts of city. The large amount of unplanned

release of sewage water into subsurface water is largely responsible for bacteriological pollution of ground water in area.

0303-091. Murali Krishna BC, Umashankar Shetty Y, Jayaprakash Narain KS (NMAM Inst Techno, Nitte, Karkala 574110). **Effect of contact time and stirring rate of fluoride removal by burnt brick clay powder**. *Polln Res,* **22**(3)(2003), 365-367.

Batch adsorption studies were conducted to determine the effects of contact time and stirring rate on fluoride removal by burn brick clay powder as an adsorbent. The fluoride removal by burnt brick clay powder was found to be function of contact time, stirring rate and dosage of adsorbent. The fluoride removal increased with increase in contact time, with increase in stirring rate and with increase in dosage of adsorbent.

0303-092. Muralidhar M, Gupta BP, Krishnani KK, Nagavel A (Centl Inst Brackishwater Aquacult, 75, Santhome High Rd, RA Puram, Chennai 600028). **Heavy metal and pesticide levels in shrimp culture areas of Nellore (Andhra Pradesh) and Tuticorin (Tamil Nadu)**. *Aquacult,* **4**(2)(2003), 153-159 [29 Ref].

In order to assess the levels of heavy metals and pesticides in shrimp farms, water samples were collected from commercial shrimp ponds and sea in Tuticorin area of Tamil Nadu. The concentration of heavy metals and pesticides in water were below detection level except for zinc, mercury and hexachloro cyclohexane (HCH). Low level of mercury concentration was noted in sea water at Tuticorin shrimp farm and Krishnapatnam creek water.

0303-093. Nath A (Cell Bio Toxico Lab, Dept Zoo, Patna Univ, Patna, Bihar). **Serum hormonal imbalance and altered reproductive physiology in fish due to aquatic ecotoxicity : a preventive approach**. *J Ecophysio Occupl Hlth,* **3**(1&2)(2003), 37-40 [26 Ref].

A number of selected wetlands of Patna, Vaishali and Muzaffarpur district of North Bihar were surveyed. Fishes, soil and water samples were collected from the various test zones for the assessment of pesticidal accumulation in water, soil and fish muscles respectively. A comparative analysis of the toxic status of different selected wetlands based on pesticidal accumulation were done. Various organochlorine group of pesticides incurred were aHCH, ßHCH, ?HCH, aldrin, endosulfan, DDE, DDT etc.

0303-094. Pandey Suwarna, Parvej Suhel, Sayeed Iqbal, Haque Rizwanul, Bin-Hafeez Bilal, Raisuddin Sheikh (Ecotoxico Lab, Dept Medl Elementology Toxico, Jamia Hamdard, New Delhi 110062). **Biomarkers of oxidative stress: a comparative**

study of river Yamuna fish *Wallago attu* (Bl. & Schn.). *Sci Total Env*, **309**(1-3)(2003), 105-115 [47 Ref].

Various oxidative stress biomarkers in gill, kidney and liver tissues in the Indian freshwater fish *Wallago attu* (Bl. & Schn.) were investigated. Fish were collected from two sites along the river Yamuna, which differ in their extent and type of pollution load. A comparison was made between the biomarker responses and general water chemistry at the two sites. The findings of the present investigation provide a rational use of oxidative stress biomarkers in aquatic ecosystem pollution biomonitoring.

0303-095. Pandit BR, Prajapati Sailesh (Dept Life Sci, Bhavnagar Univ, Bhavnagar 364002, Gujarat). **Physico-chemical property of chemical and dairy effluents near Bhavnagar, Gujarat**. *Nature Env Polln Techno*, **2**(3)(2003), 341-344 [16 Ref].

Paper deals with study of some physico-chemical parameters of chemical and dairy effluents, which were dumped near agriculture fields of Bhavnagar. These effluents contain number of elements, which were useful for crops. Chemical effluent contains high amount of metals like Fe, Cu, Zn, Mn, Bo, Cd, Cr and Se, while they were absent in dairy effluents. It is suggested that the dairy effluent is not hazardous for using in irrigation after proper dilution.

0303-096. Patel KP, Pandya RR, Maliwal GL, Patel KC, Ramani VP (Micronutrient Proj, ICAR), Gujarat Agricl Univ, Anand Campus, Anand 388110). **Suitability of industrial effluents for irrigation around Bharuch and Ankleshwar industrial zone in Gujarat**. *Polln Res*, **22**(2)(2003), 241-245 [6 Ref].

A survey was carried out around major industrial cities to study the level of contamination of different polluting elements in water-soil-plant system. The industrial effluents collected from different cities were found contaminated with all major polluting element. It contained TSS, COD, BOD above standard permissible limits for irrigation. The well water from Bharuch site was mainly contaminated with Cr and Mn whereas these from Ankleshwar site contained Fe above the standard limit for irrigation. The well water have shown salinity and alkalinity hazards.

0303-097. Pathade GR, Molleti VE, Deshmukh AM (PG Dept Microbio, YC Coll Sci, Vidyanagar, Karad 415124, Maharashtra). **Enteropathogenic bacterial studies on drinking water in Karad city with reference to drug sensitivity of the isolates**. *Nature Env Polln Techno*, **2**(2)(2003), 157-162 [9 Ref].

Studies were undertaken for microbiological analysis of drinking water samples from some hotels and schools in Karad, Maharashtra for ‘Most Probabale Number’ (MPN)

for coliforms and water borne enteropathogenic bacteria. Enteropathogenic bacteria like *Pseudomonas aeruginosa, Klebsiella pneumoniae, Staphylococcus aureus, Shigella* species and *E.coli* were commonly found in school and hotel drinking water samples. More than 40% samples showed MPN more than 240 coliforms/100 mL and pathogenic isolates showed resistance to many antibiotics of common use.

0303-098. Pejaver Madhuri, Somani Vaishali, Borker Mangala (Zoo Dept, BN Bandodkar Coll Sci, Thane 400601). **Physicochemical studies of lake Ambegosale, Thane, India**. *J Ecobio*, **14**(4)(2002), 277-281 [18 Ref].

Lake Ambegosale shows periodic infestation by *Pistia* sp. for last two-three years. The phosphates were always to be higher (0.0476 mg/l to 0.264 mg/l). Lower values of phosphates coincided with full growth of Pistia sp. while higher values coincided with decaying of *Pistia* sp. and its sinking with rainfall. Dissolved oxygen drops down to zero with full growth of *Pistia* sp. but calcium, silicates and hardness do not show any relation with growth of *Pistia* sp. in the lake.

0303-099. Prajapati R, Mathur R (Dept Zoo, Govt PG Coll, Mhow 453441, MP). **Statistical studies on the quality of ground water of Sheopurkalan town, M.P**. Nature *Env Polln Techno*, **2**(2)(2003), 201-204 [5 Ref].

The water quality of different water resources at Sheopurkalan was studied for the assessment of its suitability for drinking purpose. Water samples, collected in rainy, winter and summer seasons, were analysed for various water quality parameters. In urban areas, people mainly depend upon municipal water supply, which often gents contaminated with domestic sewage, resulting in the outbreak of serious waterborne diseases.

0303-100. Purandara BK, Varadarajan N, Jayashree K (Natl Inst Hydro, Belgaum 590001). **Impact of sewage on ground water quality – case study**. *Polln Res*, **22**(2)(2003), 189-197 [9 Ref].

Bellary nala which flows through Belgaum city carrying sewage and effluent water of Belgaum which was once a freshwater stream and now turned into a waste stream has been selected for detailed water quality analysis. The study revealed that the surface water flowing through the Bellary nala is completely deteriorated as indicated through dissolved oxygen concentration. It is observed that in industrial patches and adjoining areas of nala flows, there is an increase in salinity content that may turn into saline water in years to come if proper measures are not taken.

0303-101. Raghuraman V, Dawood Sharif S, Jamal Mohamed M, Dawood Nausheen*, Noojahan CM, Anbuganapathi G (*Dept Zoo, JVAS Coll, Chennai 600014). **Effects of tannery effluent on the oxygen consumption of larvivorous fish *Poecilia reticulata***. *Indian J Environ Toxico*, **12**(2)(2002), 87-89 [10 Ref].

The effects of chrome liquor from tannery effluents on the oxygen consumption of the larvivorous fish, *Poecilia reticulata* was studied. Results showed that maximum reduction of oxygen consumption was observed in 60% concentration of the tannery effluent. Further a decrease occurred in oxygen uptake as the concentration of tannery effluent increased.

0303-102. Ravichandran S (Cent Water Resources, Anna Univ, Chennai 600025). **Hydrological influences on the water quality trends in Tamiraparani basin, south India**. *Environ Monit Assess*, **87**(3)(2003), 293-309 [15 Ref].

Water quality variables were monitored at a downstream location in the Tamiraparani river. The presence of monotonic trend in all the water quality variables was confirmed, however, with independent direction of change. The changes induced in river flow by the addition of a stabilizing reservoir, the influence of seasonal and spatial pattern of monsoon rainfall across the river basin and the increased agriculture appear causative factors for the water quality trends seen in the Tamiraparani River system.

0303-103. Rawat Mamta (Dept Zoo, Jai Narayan Vyas Univ, Jodhpur 342005, Rajasthan). **Presumptive coliform count test for the assessment of faecal contamination of two water reservoir of Jodhpur region**. *Eco Env Conserv*, **9**(1)(2003), 51-53 [14 Ref].

Paper discusses the direct and indirect factors affecting microbial fauna of the two water bodies of Jodhpur region. On the basis of the results, interpretation was made that the waters were considered to be unsatisfactory for drinking and other purposes throughout the year. The coliform number was maximum in June and July at Gulab Sagar and Takhat Sagar respectively, Also a tend of the fall of coliform number in winters, rise in summers and again maximum in rains were observed at both the reservoirs.

0303-104. Reddy RC, Kelkar PS, Rao RR, Pande SP (Natl Environ Engng Res Inst, Hyderabd Zonal Lab, IICT Campus, Hyderabad 500007). **Eutrophic status of Hussainsagar Lake in Hyderabad**. *J Inst Engrs India (Environ Engng Div)*, **83**(Sept)(2002), 14-19 [12 Ref].

The studies conducted by NEERI revealed that the condition of the lake is hypereutrophic and the various human activities continue to pollute the lake. Paper describes the status of lake based on the water quality assessment carried out for a period of one year. The condition of the lake is observed to be hypereutropic and its restoration may take long time because of accumulated nutrients in bottom sediments and continued addition of pollution load.

0303-105. Revathi K, Sharmili R, Sangeetha Usha (Dept Zoo, Ethiraj Coll Women, Chennai 600108). **Biochemical studies on the effect of organophosphorous compound on *Sarotherodon mossambicus* (Trewas)**. *J Exptl Zoo India*, **6**(2)(2003), 365-368 [4 Ref].

The presence of acute and prolonged toxicity is inclusive of all the biochemical changes in *Sarotherodon mossambicus* conducted to assess the precise mechanism of mode and action of Temephos. The LC_{50} value of Temephos was determined and the biochemical parameters such as SGOT, SGPT, LDH and ACHE has been studied as diagnostic tools. Dose dependent increase in SGOT, SGPT and LDH was noticed in the results obtained. ACHE was inhibited by Temephos.

0303-106. Saigal Deepak, Saxena MM (Dept Zoo, Dungar Coll, Bikaner 334001). **Assessment of some hydrophytes in desalination of desert waters**. *Eco Env Conserv*, **9**(3)(2003), 327-330 [7 Ref].

The application of three hydrophytes, *Elchornia, Hydrilla* and *Vallisnaria*, is explored in desalination of desert water as a cheap biotechnological solution to improve the quality of the resource. *Hydrilla* is found to efficiently reduce the salinity (EC, TDS) by bringing down Na^+, K^+, Ca^+ and SO_4^-. *Vallisnaria* too was effective by bringing down Ca^+, Mg^+ and Cl^-. The role of *Eichornia* in reducing the salinity of water was very efficient through uptake of Na^+, K^+, Cl^- and SO_4^-.

0303-107. Saxena KK, Chauhan RRS (Dept Zoo, JMV Ajitmal, Etawah, UP). **Oxygen consumption in fish, *Labeo rohita* (Ham.) caused by distillery effluent**. *Eco Env, Conserv*, **9**(3)(2003), 357-360 [7 Ref].

The depletion of dissolved oxygen content in tap water and in effluent concentrations caused a stress and altered the normal oxygen consumption. The increase in the rate of oxygen consumption due to depletion of dissolved oxygen was statistically significant ($P<0.05$). With the increase in effluent concentration, a decrease in oxygen consumption by *Labeo rohita* was observed but this decrease was not statistically significant ($P>0.05$).

0303-108. Saxena VK, Singh VS, Mondal NC, Jain SC (Natl Geophysl Res Inst, Uppal Rd, Hyderabad 500007). **Use of hydrochemical parameters for the identification of fresh groundwater resources, Potharlanka Island, India**. *Environ Geo*, **44**(5)(2003), 516-521 [12 Ref].

A hydrochemical study has been carried out on the fresh groundwater resources of Potharlanka, Krishna Delta, India. Extremely low HCO_3/Cl and variable high Mg/Ca (molar ratios) indicated the transformation of the fresh groundwater aquifer systems to saline. A high percentage of the mixed water types indicates the possibility of simultaneous fresh groundwater dilution activity along with a seawater ingression/intrusion process. Low rainfall and excessive withdrawal of groundwater has caused the increase the saline water intrusion.

0303-109. Sharma Moti R, Bassin JK, Gupta AB (IPH Dept, M-26, HB Colony, Hamirpur 177001, HP). **A pollutional profile of Hathli stream in lower Himalayas**. *Polln Res*, **22**(2)(2003), 237-240 [2 Ref].

Water quality of Hathli stream in Hamirpur district of Himachal Pradesh in lower Himalayan region was monitored. The study reveals that the water in the stream is heavily polluted. The major water quality parameters that exceed the permissible limits are BOD, TDS, hardness and alkalinity. The presence of coliforms is in excessive numbers.

0303-110. Sharma Moti Ram, Verma PS (Irrigation Publ Hlth Dept, M-26, Housing Bd Colony, Hamirpur 177001, Himachal Pradesh). **Water quality of springs in Hamirpur area of outer Himalayas**. *Polln Res*, **22**(3)(2003), 369-372 [4 Ref].

From the analysis of water samples collected from natural springs in Hamirpur area of Himachal Pradesh, it is found that the physicochemical parameters are within the maximum permissible limits of drinking water standards. However, low fluoride and iron is observed in all the spring water samples. The study also reveals that water of the area is very hard and highly alkaline and is dominated by bicarbonate anion with calcium and magnesium cations.

0303-111. Shugi K, Singh Tony Sarvinder, Pant KK* (*Dept Cheml Engng, Indian Inst Techno, Hauz Khas, New Delhi 110016). **Equilibrium and kinetic studies on removal of arsenite by iron oxide coated activated alumina**. *Indian J Environ Hlth*, **45**(2)(2003), 151-154 [12 Ref].

Iron oxide coated activated alumina was tested for its effectiveness as an adsorbent for As(III). The As (III) adsorption was strongly dependent on pH and a maximum

removal of 98% was observed at a pH of 12. It was observed that time taken to attain equilibrium was independent of initial concentration but percentage removal decreased with increasing initial concentration.

0303-112. Sikdar PK, Banerjee S (Dept Env Manag, Indian Inst Socl Welfare Business Manag, Kolkata 700073). **Genesis of arsenic in groundwater of Ganga Delta – an anthropogenic model**. *ENVIS J Human Settlements*, April 2003, 10-24 [16 Ref].

In parts of seventy-three blocks and eleven municipalities of eight districts of West Bengal, arsenic has been found to occur in groundwater above permissible limit of 0.05 mg/l. The scientific community is of the opinion that the source of arsenic in groundwater is geological, being derived from various sources within the Bengal Basin both in the Himalayas and in the Peninsular India. But the hypothesis of geological source of arsenic has certain drawbacks, which have been highlighted and an alternative anthropogenic source of arsenic has been discussed.

0303-113. Singh Anil Pratap, Singh Jaswant (Global Sci Acad, Malviya Rd, Basti 272001). **Physico-chemical characteristics of river Ami in relation to discharge of paper mill effluent**. *Indian J Environ Hlth*, **45**(2)(2003), 93-96 [10 Ref].

Attempt has been made to ascertain the present water quality condition of river Ami in relation to paper mill effluent discharge. The samples were collected from the upstream and downstream of the flow-path of the river from point source of pollution by the mill. The high degree of water quality degradation is reflected by the changes in values of BOD, COD, DO, nitrogen contents and chlorides etc in downstream.

0303-114. Sivakumar AA, Arunadevi P, Aruchami M (PG Res Dept Zoo, Kongunadu Arts Sci Coll, Coimbatore 641029, Tamil Nadu). **Studies on water quality of the river Ambarampalayam, Coimbatore district, Tamil Nadu**. *Nature Env Polln Techno*, **2**(3)(2003), 305-308 [14 Ref].

Water quality of the river Ambarampalayam has been studied for physical qualities including suspended solids, dissolved solids and electrical conductivity and chemical qualities including the study of pH, carbonates, bicarbonates, alkalinity, etc. In addition, nutrient content of the river was also determined and correlated with the physico-chemical parameters.

0303-115. Somanath Viswaranjan (PG Dept Environ Manag, Chhatrapati Shahu Centl Inst Business Edn Res, Shivaji Univ Rd, Kothapur 416004, Maharashtra). **Toxicity of tannery effluent to some aquatic animals**. *J Ecotoxico Environ Monit*, **12**(4)(2002), 277-284 [21 Ref].

Toxicity of tannery effluent to aquatic animals was studied by the standard static biassay procedure. *Cyprinus carpio* (1 g) is the most sensitive and the hindlimb stage *Rana tigrina* is the most tolerant of all the tested animals. Eggs of *Mesogomphous lineatus* and *Culex pipiens quinquefasciatus* were equally sensitive to the effluent. The air-breathing fish *Channa striatus* was the least sensitive among the tested fishes. Sensitivity of the fish to effluent decreased with increasing body weight.

0303-116. Srinivas Tanuka, Kasim M Shaikh, Srinivasa Rao M (Dept Environ Std, Coll Engng GITAM, Visakhapatnam). **Study of water quality at solid waste dumping yards in Visakhapatnam**. *J Indl Polln Contl*, **18**(2)(2002), 253-265 [11 Ref].

Sanitary land filling, composting and incineration are few of the best-known disposal methods for solid waste. Various physico-chemical characteristics of water collected from in and around dumping yards in the Visakhapatnam city are analysed. The results obtained from the analysis show a significant increase in iron concentration.

0303-117. Srivastava AK (Dept Appl Chem, UNS Inst Engng Techno, VBS Purvanchal Univ, Jaunpur). **A study on effects of toxic elements in Gomti river at Jaunpur**. Eco *Env Conserv*, **9**(3)(2003), 375-377 [4 Ref].

The enormous quality of domestic sewage waste water are continuously being added into Gomti river causing changes in the composition of water and ultimately life form of water bodies. This has been indicated by various parameters discussed in this paper. The problem can be controlled by using various mechanical treatments and by product of this treatment can be used to manufacture fertilizer.

0303-118. Sudha Rani P, Manikya Reddy P (Dept Environ Sci, Osmania Univ, Hyderabad 500007). **Preliminary studies on metal concentration on Hussain Sagar Lake**. *Polln Res*, **22**(3)(2003), 377-380 [21 Ref].

Paper deals with the concentration of heavy metals in the highly polluted Hussainsagar Lake. Surface water samples from six spots were collected throughout the lake and heavy metals analysed were manganese, chromium, zinc, molybdenum, lead, cobalt, cadmium and iron. The results have shown that the concentration of iron, zinc, and cobalt is high as compared to WHO and ICMR. The values of other heavy metals are found within permissible limits.

0303-119. Sudha Rani P, Manikya Reddy P, Reddy RC (Div Environ Sci, Osmania Univ, Hyderabad 7). **Acute toxicity to lake waters to fishes**. *Indian J Environ Hlth*, **45**(2)(2003), 133-138 [7 Ref].

Experiments were conducted on three species of fishes using 5, 10 and 20% volume of Jeedimetla nallah wastewater and were observed for the signs of survival within the specified period of time. The TLm value for 96 hours test period was found to be 17%. Similarly toxicity studies were carried out on Hussainsagar lake water with dilution varying from 10-100%. Absence of mortality during 96 hours of test period indicates that there is no acute toxicity of Hussainsagar lake water to fishes.

0303-120. Sujatha D (Natl Geophysl Res Inst, Uppal Rd, Hyderabad 500007). **Fluoride levels in the groundwater of south-eastern part of Ranga Reddy district, Andhra Pradesh, India**. *Environ Geo*, **44**(5)(2003), 587-591 [9 Ref].

In the study area, situated in the Ranga Reddy district, Andhra Pradesh, the concentrations of fluoride in the groundwater vary from 0.7 to 4.80 mg/l and from 0.4 to 4.20 mg/l during the pre and post-monsoon seasons respectively. By contrast, the fluoride concentration in many places was relatively high during the post-monsoon period. This indicates contamination of groundwater from surface pollutants.

0303-121. Sujatha D, Rajeswara Reddy B (Dept Appl Geochem, Osmania Univ, Hyderabad 500007). **Quality characterization of groundwater in the south-eastern part of the Ranga Reddy district, Andhra Pradesh, India**. *Environ Geo*, **44**(5)(2003), 579-586 [19 Ref].

Hydrogeochemical investigation were carried out in the south-eastern part of the Ranga Reddy district, Hyderabad, India, to assess the quality of groundwater for its suitability for domestic and irrigation purposes. The results showed that the concentrations of these ions are above the permissible limits for drinking and irrigation purposes. The pollution with respect to NO_3^-, Cl^-, and F^- is mainly attributed to the extensive use of fertilizers and large-scale discharge of municipal wastes into the open drainage system of the area.

0303-122. Swami A, Ramteke DS*, Sarin R (*Natl Environ Engng Res Inst, Nehru Marg 440020). **Use of modified bark (*Artocarpus heterophyllus*) for the removal of cadmium from aqueous phase**. *Cheml Environ Res*, **11**(3&4)(2002), 339-343 [12 Ref].

Among the environmental pollutants, cadmium merits a special reference as a potentially toxic element. This leads to potential health hazard to men and animals. Several techniques are available for the removal of heavy metals from aqueous medium. Paper deals with the investigation on the use of *Artocarpus heterophyllus* (jack fruit) bark for the removal of heavy metals.

0303-123. Tharavaty NC, Hosetti BB, Krishnamoorthy M (PG Dept Bio Sci, Mangalore Univ, Mangalore 514199). **Model waste stabilization ponds for assessing copper toxicity to algae and protozoa**. *Int J Mendel*, **20**(1-2)(2003), 51-52 [11 Ref].

Municipal wastes and industrial effluents contribute number of heavy metals to the aquatic environment. Heavy metals and persistant chemicals and survival of aquatic organisms exposed to heavy metals depends upon their tolerance capacity. The work investigates the effects of copper sulphate on physico-chemical and biological parameters and also on the diversity of algae and protozoa of sewage stabilization ponds under laboratory conditions.

0303-124. Tripathy JK (Ocean Sci Techno Cell Marine Coastal Eco, Berhampur Univ, Bhanja Bihar, Berhampur 760007). **Groundwater hydrochemistry in and around Bhanja Bihar, Ganjam district, Orissa**. *Polln Res*, **22**(2)(2003), 185-188 [9 Ref].

Groundwater samples in and around Bhanja Bihar were analysed to determine their total dissolved solids as well as the concentration of major ions. Analysis results show that the groundwater is fit for human consumption as far as their major ions are concerned and the said ions are within the permissible limits, set by ISI, ICMR and WHO. The Cl^-/HCO_3^-, and Mg^{++} / Ca^{++} values clearly indicate that the aquifers are free from any salt water ingress from the sea as is the case with several localities along the coast.

0303-125. Umar R, Absar A (Dept Geo, Aligarh Muslim Univ, Aligarh 202002). **Chemical characteristics of groundwater in parts of the Gambhir River basin, Bharatpur District, Rajasthan, India**. *Environ Geo*, **44**(5)(2003), 533-545 [17 Ref].

Twenty-nine dug well samples have been collected from the Gambhir River basin in the Bharatpur District of Rajasthan State in India for hydrogeochemical study to understand the sources of dissolved ions and assess the chemical quality of the water. The groundwaters have a chemical composition within the permissible limits suggested for drinking water. Nitrate is higher than the acceptable limit in some samples, due to the use of fertilizers.

0303-126. Usha Madhuri T, Deepthi A (Dept Environ Std, Coll Engng, GITAM, Visakhapatnam 530045, AP). **A study of salinity intrusan in coastal aquifers of Visakhapatnam**. *Nature Env Polln Techno*, **2**(3)(2003), 315-316 [1 Ref].

Salinity is the most common pollutant in groundwaters near coastal areas. Intrusion of saline water occurs where it displaces or mixes with freshwater in an aquifer. The phenomenon can occur in deep aquifers with the upward advance of saline waters of

geologic origin. The possibility of encroachment of seawater in coastal areas of Visakhapatnam has been studied.

0303-127. Usha Madhurai T, Suseela SV (Dept Environ Std, Coll Engng GITAM, Visakhapatnam 530045, A.P.). **A study of groundwater pollution at Shivajipalem, a solid waste dumping station in Visakhapatnam**. *Nature Env Polln Techno*, **2**(2)(2003), 245-246 [1 Ref].

Water is a natural resource of fundamental importance. The quality of water depends upon the location of the source and the state of environmental protection in a given area. For water to be potable it should be of right quality, i.e. safe and wholesome. A ground water quality survey has been carried out in and around Shivajipalem, a solid waste dump yard to asses the extent of ground water pollution and the suitability of water of use.

0303-128. Varadarajan N, Purandara BK (Natl Inst Hydro, Regl Cent, Hanuman Nagar, Belgaum 590001, Karnataka). **Hydrochemical characteristics of groundwater : a case study**. *Eco Env Conserv*, **9**(3)(2003), 253-262 [8 Ref].

The chemical characteristics of groundwater in Malaprabha Sub-basin of Belgaum District, Karnataka have been studied during the pre-monsoon and post-monsoon seasons to evaluate the suitability of water for domestic and irrigation purpose. The quality of groundwater in the upstream region of the sub basin is quite acceptable for both the uses, whereas in the downstream region various parameters exceeds the acceptable limits due to excessive irrigation by excess application of fertilizers and pesticides. In addition to this fluoride is observed in excess along the downstream region of the sub basin.

0303-129. Vasanth Kumar K (Dept Environ Engng, Vellore Inst Techno, Vellore 632014, Tamil Nadu). **Treatment of dye bearing wastewater by adsorption technique using boiler bottom ash as an adsorbent**. *Nature Env Polln Techno*, **2**(2)(2003), 225-228 [7 Ref].

Experiments were carried out in a batch process for removing color of methylene blue, a basic dye, from its aqueous solution by adsorption technique using boiler bottom ash as an adsorbent. The operating variable studied were initial concentration and adsorbent dosage. Up to 100% color removal was obtained at lower initial concentration of less than 15 mg/l.

0303-130. Veera Bhadram K (Dept Environ Std, Coll Engng, GITAM, Visakhapatnam 530045). **Quality evaluation of ground water pollution through modelling technique**. *Ultra Scient Phyl Sci*, **15**(2)(2003), 285-288 [5 Ref].

Due to industrial belt in prominent pockets of the city Visakhapatnam the ground water quality is depleted. Finally the effluent are reaching the ground water table. The quality of the water can be modified, due to mixing of effluents, which can modify the water quality in the surrounding areas. Attempt has been done to identify the sources using modeling techniques.

0303-131. Verma HK, Tenguria RK, Saluja DS (Dept Bot, JH Govt PG Coll, Betul 460001, MP). **Characterization of effluent from a soybean processing oil mill at Kosmi industrial area of district Betul, M.P**. *Nature Env Polln Techno*, **2**(2)(2003), 221-223 [3 Ref].

Paper deals with pollution of water from an oil mill processing soybean seeds for production of refined soya oil. The effluent samples were analyzed for several physico-chemical characteristics to analyze the extent of water pollution. The results show that the effluent coming out of oil processing is heavily polluted and required proper treatment before it is discharged on land or utilized in horticulture and agriculture.

0303-132. Yadav Anil Kumar, Jain PK, Sharma Jyoti (Dept Chem, MLV Govt PH Coll, Bhilwara, Rajasthan). **Assessment of ground water quality of Behror tehsil of Alwar District (Rajasthan)**. *Aquacult*, **4**(2)(2003), 265-270 [10 Ref].

Physico-chemical studies regarding the water quality assessment of some villages of Behror Tehsil was conducted. The value of these parameters shows the water quality is totally unfit for drinking purpose because all the water bodies were found to contain high levels of inorganic salts, nitrate, fluoride and hardness which is harmful for the health of the consumer.