

## Environmental Management

**9803-001.** Chaturvedi MK, Srivastava AK (Natl Environ Engng Res Inst, Zonal Lab, 6/33, Civil Lines, Kanpur-208002). **Environmental impact assessment of an industrial complex.** *Indian J Environ Prot*, **17**(9)(1997), 662-668 [11 Ref].

The industrial area under study is situated about 10 km from Delhi in district Ghaziabad. Paper discusses on the likely impact arising from various industrial activities as sustained by major environmental attributes. The direct and indirect impact exerted by individual industry is evaluated and the net impact value is determined. Further, the net impact values due to entire industrial activity as sustained by individual environmental attribute is determined. An environmental management plan is discussed to ensure the sustainable development of the industrial complex.

**9803-002.** Das PK, Pal A, Ray MK (Environ Engrs Consortium, 48/60 Swiss Park, Calcutta -700033). **Are Indian hazardous wastes really hazardous?** *Indian J Environ Prot*, **17**(8)(1997), 567-571.

The definition of hazardous waste in Indian Act has not considered the short term and long term probable impacts of the waste. The chemical properties have not been considered in India to define a hazardous waste. The emphasis has been laid on the quantity of the specific chemicals in the waste but not on the quality of the waste. It is also found unreasonable to allow a chemical to pass into a system in a huge amount in the form of liquid wastes as non-hazardous but in the form of solid wastes as hazardous. The paper suggests a review of the definition of hazardous waste in Indian Act is urgently necessary.

**9803-003.** Deshmukh AM (PG Dept Microbio, YC Coll Sci, Karad, Dt. Satara, Maharashtra-415114). **Biofertilizers: an overview.** *Eco Env Conserv*, **4**(1-2)(1998), 73-78[18 Ref].

Biofertilizers are now indispensable in agriculture. The extensive use of chemical fertilizers have wasted thousands of hectares of land in India. The advantages of biofertilizers, types of biofertilizers including nitrogen fixers, phosphate suppliers, sulphur suppliers, organic matter decomposers and microbial cell mass, their use scope and limitations are described.

**9803-004.** Deviprasad KV, Gnanam A (Salim Ali Sch Eco Environ Sci, Pondicherry). **Post Graduate ecology education: the Pondicherry experience.** *Bull Natl Inst Eco*, **9**(1&2)(1997), 39-43.

Pondicherry University became the first University in India to effect a degree programme in Ecology in 1987 when it started its Salim Ali School of Ecology. This course was conceived to be different from the Environmental Science Programme that were started in several Universities. This programme sought to cater to the need felt by several individuals that a more focused programme with a strong interdisciplinary faculty should be launched. Paper discusses the strengths as well as weaknesses of the programme during the last nine years.

**9803-005.** Fulekar MH, Pal SL (Centl Labour Inst, DG FASLI, Sion, Mumbai-400022). **Safety in handling of hazardous wastes in ports.** *Indian J Environ Prot*, **17**(8)(1997), 580-584.

The present system of handling various commodities including dangerous goods/hazardous chemicals in the major ports of India has been discussed. The relevant statutory provisions on safety, health and welfare measures for handling of dangerous goods/hazardous chemicals correlating with Hazardous Wastes (Management and Handling) Rules, 1989 have been dealt in details. Further guidelines needed to be developed for safety measures as well as environmental aspects for handling, storage and transportation aspects in the ports have been cited in the paper.

**9803-006.** Kenkre Vibhavari, D souza Joe (Goa Univ, Microbio Dept. Taleigao Plateau, Goa-403206). **Environmental impact assessment of shrimp farming in Goan estuaries.** *India J Environ Prot.* **17**(10)(1997), 721-723 [10 Ref]

Shrimp farming promised quick and high returns with little investment. Therefore many shrimp farms mushroomed haphazardly all along the coast of India. Organically rich feed used in shrimp growth was the cause of deterioration of the water quality in the water bodies, surrounding the aquaculture ponds.

**9803-007.** Kumar Mukesh, Rane SVS (Dept Zoo, Ch CS Univ, Meerut-250005). **Environmental monitoring of iodine showing endemic goitre at Nanpur village of Meerut district.** *J Exptl Zoo India,* **1**(1)(1998), 51- 53 [5 Ref].

3.19% of the total population suffers from goitre. Iodine content of water is more than iodine content of the soil. The main reason of goitre was found to be iodine deficiency. Paper suggests for suitable rehabilitating measures which should be undertaken immediately.

**9803-008.** Reddi Lakshmana(Principal Dist Sessions Court, Visakhapatnam). **Environmental laws and the people.** *Wastelands News,* **13**(1)(1997), 23-26.

Despite India's manifested concern about the increasing environmental deterioration the country's administrative executive appears to be indifferent to its task of enforcing the laws on our state books. The citizens concerned about the ecological damage must come together to plan a strategy to impress upon the government the need for good environmental governance. Paper suggests that though there are sufficient laws to deal with environmental problems, there is no proper recourse to them on account of insufficient publicity. Paper explains some of the salient provisions contained in the environment protection laws.

**9803-009.** Mani JS (Ocean Engng Cent, Indian Inst Techno, Madras). **Report: Coastal zone management plans and policies in India.** *Coastal Manag,* **25**(1)(1997), 93-108 [9 Ref]

Article highlights various coastal zone processes and activities along the east coast of India, especially along the coast of Tamil Nadu. Policies of both the central and state government with regard to coastal zone management are provided, and additional aspects to be considered while preparing the management plan are discussed.

**9803-010.** Mehta RM, Sharma VK (Nuchem Ltd, Env Manag Div, Faridabad-121006). **Environment audit- an overview.** *Indian J Environ Prot*, **17**(3)(1997), 212-214 [2 Ref] (Late Recd)

Air and water effluent emission in the environment and their accumulation has created alarming situation for all the concerned. The paper has emphasised the need to adopt environmental audit as a self assessment and monitoring tool with focus on environment and sustainable development. Different phases of the audit activity, highlighting the advantages have been discussed.

**9803-011.** Ram Daya, Singh Digambar (Natl Inst Hydro, Jal Vigyan Bhawan, Roorkee-247667). **Environmental impact assessing methods: quantitative approach.** *Indian J Environ Prot*, **17**(10)(1997), 770-777 [9 Ref]

An important activity is the water resources development, which involves collection, diversion and distribution of water, which create number of ecological problems. Environmental impact studies for such projects should be planned and conducted in a scientifically defensible manner. These studies should be conducted in a manner so as to yield project, which are more compatible with the environment.

**9803-012.** Shannigrahi AS. Agrawal KM (GB Pant InstHimalayan Env Dev, Himachal UnitShamsi Kullu,- 175126). An overview on optional greenbelt development around industrial project. *Indian J Environ Prot*, **17**(4)(1997), 253-261 [16 Ref] (Late Recd)

The effectiveness of greenbelt around industrial project has been assessed and sensitivity analysis of different parameter, namely tree height, width of greenbelt, distance of source from the source, pollution attenuation coefficient and different atmospheric stability categories is expressed in terms of pollution attenuation factor. The detailed techniques for evolving greenbelt around industrial project have been described.

**9803-013.** Sharma Ramesh C (Dept Environ Stds, HNB Garhwal Univ, Srinagar-Garhwal-246174, Uttar Pradesh). **Teaching of environmental sciences at the HNB Garhwal University.** *Bull Natl Inst Eco*, **9**(1&2) (1997), 51-53.

Environmentalism in the 1980s was characterized by a conscious shift from enthusiastic rhetoric to development of alternate ways to solve environmental problems associated with local, regional and global issues. A study of the environment in the 1990s is an exciting endeavour to move from confrontation to co-operative problem solving and place the study of the environment on a sound scientific basis.

**9803-014.** Sharma SC. Roy RK (Natl Botl Res Inst. Botanic Garden, Rana Pratap Marg, Lucknow-226001). **Green belt - an effective means of mitigating industrial pollution.** *Indian J Environ Prot*, **17**(10)(1997), 724-727 [25 Ref]

Greenbelt, the massive systematic plantation of tolerant trees and shrubs, is an effective means for mitigating industrial pollution. Designing of greenbelt is a highly specialised job which needs careful consideration of source and type of pollutants. Selection of right type of plant species considering their morphological characters and APTI are important factors for the effectiveness of the green belt.

**9803-015.** Sikarwar RLS (Inst Ethnobiology, Natl Botl Res Inst, Lucknow-226001). **Upliftment of the tribals of Sheopur forest division of Madhya Pradesh-ways and means.** *Vasundhara*, **2**(1997), 17-20[9 Ref]

An ethnobotanical study was carried out in Shoepur forest division of Madhya Pradesh. Study attempts, to highlight all such plants used by the local people as food, fodder, fibre, medicine, etc. It is also suggested that the area is quite rich in raw materials for establishing different cottage industries for upliftment of these people.

**9803-016.** Singh BP. (Mahatma Gandhi Gramoday Vishwavidyalaya, Inst Environ Sci, Chitrakoot-485331, Satna). **Environment and development: a study on the impact of natural resources (from the Bundelkhand region).** *Indian J Environ Prot*, **17**(9)(1997), 694-696.

Paper explains the impact of environment and leakage of resources on the development of Bundelkhand. Environment sets conditions within which development can take place and leakage of resources create conditions for the deterioration in the process of development. The manner in which a region grows or evolves is invariably reflected in the various attributes of development discussed in the paper.

**9803-017.** Sinha S, Sridharan PV (Tata Energy Res Inst, Darbari Seth Block, India Habitat Cent. Lodi Rd, New Delhi-110 003). **Ground level vibration in surface mines- an environmental concern.** *Indian J Environ Prot*, **17**(3)(1997), 171-174 [6 Ref] (Late Recd).

A study has been conducted in two mines of Neyveli Lignite Corporation, Tamil Nadu, as a part of preparing a regional environmental management plan, to observe the present status of ground level vibration due to existing blasting practices. The peak particle velocity was monitored at different distances from the location of blast site in both the mines. The study also provides suggestions and recommendations to keep the vibration level within the safe limit.

**9803-018.** Vaddoria MA, Dhamelia HR, Pandya RB, Poshia VK (Dept Agril Bot, Coll Agril, Gujarat Agril Univ, Junagadh-362001, Gujarat). **Creation of**

**awareness against pollution damage to agricultural ecology in agricultural universities.** *Bull Natl Inst Eco*, **9**(1-2)(1997), 45-49.

In the Gujarat Agricultural University (GAU), presently a two credit course in Agricultural Ecology and a three credit course in Environmental Physiology are being offered at the under-graduate (UG) and Post-graduate (PG) level respectively. The important topic of ecological hazards in relation to plant growth, development and yield, inclusive of different types of pollution, forms a small part of the entire syllabus. Paper suggest that the syllabus on Agricultural Ecology and Environment Physiology be revised to lay more stress on pollution damage to agriculture so as to create awareness among the new generation against such losses.

**9803-019.** harma DK, Kalia SB, Kumar S (Dept Chem, Himachal Pradesh Univ, Summer Hill, Shimla- 171005). **A rapid spectrophotometric method for the determination of zineb and marcozeb in commercial formulations and residues on grains.** *Polln Res*, **16**(1997), 19-21[3 Ref].

A simple and rapid method has been attempted for the determination of zineb and mancozeb based on the observation that bis-dithiocarbamate moiety of these fungicides reacts with colbalt (II) smoothly and quantiatively in 1: 1 molar ratio in dimethyl sulphoxide methanol media to form soluble yellow colbalt (III) bis-dithiocarbamate complexes. This has been made use of in developing a spectrophotometric method.

## **Air Pollution**

**9803-020.** Aggarwal AL, Sivacoumar R, Goyal SK (Natl Environ Energy Res Inst, Nehru Marg, Nagpur- 440020). **Air quality prediction: influence of model parameters and sensitivity analysis.** *Indian J Environ Prot*, **17**(9) (1997), 650-655 [7 Ref. ]

The Gaussian dispersion model configuration is briefed with model assumptions. Further, the parameters affecting the air pollution prediction exercise from an elevated point source are discussed, and then effect of certain pertinent parameters has been evaluated through sensitivity analysis which shows that maximum ground level concentration and distance of occurrence from the source are significantly sensitive to dispersion coefficients, plume rise and wind velocity, whereas mixing height becomes insensitive beyond certain level.

**9803-021.** Bindu G. Babu CA, Anilkumar KG (Cochin Univ, Sci Techno, Dept Atmos Sci, Sch Marine Sci, Cochin-682016). **Estimation of sulphur dioxide concentration using Gaussian Plume model over an industrial city.** *Indian J Environ Prot*, **17**(11)(1997), 801-805 [11 Ref]

The ground level long term concentration of SO<sub>2</sub>(µg/m<sup>3</sup>) in and around a fast growing industrial city of South India, namely Cochin have been computed using steady state Gaussian diffusion model, for different seasons. High values of concentrations were observed within a few kilometers of the major sources. However, concentrations decrease with increasing distance from the sources.

**9803-022.** Chandrewanshi CK, Patel VK, Patel KS (Pt. Ravishanker, Shimla Univ. , Sch Std. Chem, Raipur 492 010). **Acid rain in Korba city of India.** *India J Environ Prot*, **17**(11) (1997), 656-661 [24 Ref].

Acid rain in Korba city of India mainly originated due to presence of a high amount of sulphuric acid. The concentration of ions, in 2 x 49 rain water samples collected at two sites on the event basis during hydrological year, 1995 were analysed. The volume weighted average pH of rain water was 4.8. The concentration of H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, and HCl+ HF acids in the rain water were found to be 82.6, 9.7 and 7.6%, respectively.

**9803-023.** Chandrasekaran GE, Ravichandran C, Shetty Neetha (Bishop Heber Coll, Res Dept. Environ Sci, Tiruchirapalli 620017). **Ambient air quality at**

**selected sites in Bangalore city.** *Indian J Environ Prot*, **17**(3) 1997), 184-188 [12 Ref] (Late Recd).

This study was undertaken to investigate the quality of air in Bangalore city at selected sites. It was noticed that except for lead levels at Bapuji Nagar, no other pollutants exceeded that ambient air quality standards. It was due to the presence of large number of trees and other vegetation and existing pucca roads in Bangalore.

**9803-024.** Das DB, Bhargava A, Gupta AB, Gupta K (Malaviya Regd. Engg. Coll, Dept Civil Engg, Jaipur 302017). **Sulphur dioxide, nitrogen dioxide and carbon monoxide concentrations during evening peak traffic hours in Jaipur city.** *Indian J Emsion Prot*, **17**(11) (1997), 833-840.

A rapid assessment of air quality in Jaipur city was carried out to identify critical zones for evolving a proper environmental management strategy. Repeat measurements of SO<sub>2</sub> were made on a Sunday at 5 locations to enunciate the difference between the concentration levels on week days and Sunday due to lesser number of traffic and any other unknown sources. The concentration of gaseous pollutants, that is SO<sub>2</sub>, NO<sub>2</sub>, CO have been presented and analysed in this paper. The measurements were made only during the peak traffic hours (3. 30 PM to 5. 30 PM) which gave the maximum concentration observed in a day. The values may therefore be considered conservative estimates for management purpose

**9803-025.** Debaje SB, Jadhar DB, Vernekar KG (Indian Inst Trop Meterors, Pune 411008). **Photo chemical production of ozone over industrialized urban region; Mumbai.** *India J Environ Prot*, **17**(9) (1997), 669-674 [26 Ref].

Ambient air quality is studied using photostationary state condition. The photochemical ozone level is theoretically calculated using chemical data published by research institutes in industrialised region of Mumbai. The result indicates that ozone's levels are increased by about 1 order during the 14 years

of period. The monthly maximum levels were calculated during the winter season and minimum in the monsoon season.

**9803-026.** Debaje SB, Jadhav DB, Vernekar KG, Gadgil A (Indian Inst. Trop Metro, Pune 411008). **Theoretical investigations of ground level ozone by photo chemical oxidation of VOCs and NO<sub>x</sub> in urban air pollution.** *Indian J Environ Prot*, **17**(11) (1997), 846-849 [9 Ref].

The air pollution has impacts on scales ranging from local to global. The implications of the complex Volatile organic compounds (VOC) No<sub>x</sub> chemistry of control are discussed using NO<sub>x</sub> data recorded by University of Pune during the period 1988-92 in the month of December (winter) at 11 different locations in the city of Pune. The Maximum incremental reactivity (MIR) shows that VOCs are forming 15-20% of ozone to the total urban air pollution of Pune. The result reveals that high traffic junction's exert a strong influence on ambient air pollution concentration.

**9803-027.** Gupta AK, Banerji RK, Saxena RC (Shriram Inst. Indl Res, 19 Univ Rd. Delhi 110007). **Method development for benzene, methyl acrylate and methyl methacrylate using high performance liquid chromatography.** *Indian J Environ Prot*, **17**(8) (1997), 585-588.

Methyl acrylate interferes with benzene in chromatographic (GLC) estimation in air. A high performance liquid chromatography (HPLC) has been developed to overcome this interference and to estimate benzene and methyl acrylate simultaneously in air in true sense. The relative standard deviation for benzene + 6% and for methyl acrylate +6.6 with a detection limit of 0.0 mg for benzene and 0.2 mg for methyl acrylate.

**9803-028.** Joshi Gunwant, Mishra Achjut (MP Polln Cntl Bd, 26 A, Telephone Nagar, Kanadia Rd. , Indore 452001). **The ambient air quality at Indore, Madhya Pradesh.** *Polln Res*, **17**(1) (1998), 21-24 [2 Ref].

Paper deals with the ambient air quality with reference to suspended particulate matter. Sulphur dioxide and oxides of Nitrogen at Indore, Madhya Pradesh. The change in concentration of these parameters for a period of five years from 1991 to 1995 is monitored and various causal factors are discussed. The values of suspended particulate matter exceed the prescribed standards for commercial and residential areas for most of the time, while they were mostly within limits in the Industrial areas.

**9803-029.** Joshi Gunwant (MP Polln Contl Bd, 26 A, Telephone Nagar, Kanadia Rd. Indore 452001). **Ambient air quality at roadside of an urban area with special reference to respirable dust and total suspended particulate matter.** *Polln Res*, **17**(1) (1998), 798 [4 Ref].

Respirable dust is an important air pollutant of concern on account of its ability to reach alveoli of human lungs during respiration. Present paper deals with a preliminary survey of respirable dust concentration at the roadsides of an urban area at the breathing level during peak traffic hours. Data for total SPM and equated 24 hour, average PM is also presented and discussed.

**9803-030.** Mahalenge Gowda RM, Khare Mukesh, Chaudhry (Indian Inst. Techno, Dept Civil Engg. Hauz Khas, New Delhi 110016). **Experimental seminlation of atmospheric dispersion conditions in environmental wind tunnel and similarly consideration.** *Indian J Environ Prot*, **17**(5) (1997), 321-327 [18 Ref].

A new environmental wind tunnel (EWT) facility has been designed and developed at IIT, Delhi for physical simulation studies of air pollutant dispersion phenomena. In addition, simulation of artificially thickened atmospheric boundary layers (ABLs) in terms of mean velocity and turbulence profiles has also been done in the new EWT. A typical model stack tracer dispersion experiment was carried out in the new EWT for urban roughness category to assess its suitability.

Brief review of the similarity considerations to be satisfied for dispersion studies has also been discussed.

**9803-031.** Mandel R, Sen BK, Sen S C (Univ Cal, Analyt Chem Lab, Dept Chem, Univ Call Sci Techno, 92 APC Rd. Calcutta 700009). **Impact of fireworks on our environment.** *India J Environ Prot*, **17**(11) (1997), 850-853 [9 Ref].

Ambient air quality was monitored during Diwali Festival for two consecutive years at a congested residential area of Calcutta. The concentration of sulphur dioxide, nitrogen dioxide, total sulphur and particulate matter abruptly increases on the festival night which comes down afterwards. Analysis of street dust collected during this period also show increased concentration of some metal like barium, iron, aluminium, potassium, magnesium, etc. Some of these settles down quickly while others takes more time.

**9803-032.** Naik Shrikanta, Purohit DM (Dept Chem, Regl Engg Coll, Roorkee 769008). **Status of ambient air quality at Bondimunda of Rourkela industrial campus.** *Polln Res*, **17**(1) (1998), 47-49 [6 Ref].

Ambient air quality at Bondamunda were monitored monthly at three sampling stations during June, 1995 to May 1996 for sulphur dioxide (SO<sub>2</sub>), oxide of nitrogen (Nox) and suspended particular matter (SPM). Air quality index (AGI) was calculated and found to be 30. 9, 50. 71 and 73. 22.

**9803-033.** Panwar TS, Bhujange Ras DD, Sreakesh S (Tata Energy Res Inst, Darbari Seth Block, Habitat Place, Lodhi Rd, New Delhi 110003). **Ambient air quality states of various cities in India.** *Indian J Environ Prot*, **17**(11) (1997) 841-845 [6 Ref].

The annual average ambient air quality data for three pollutants, namely suspended particulate matter (SPM), sulphur dioxide (SO<sub>2</sub>) and oxides of nitrogen, (Nox) is analysed for 62 cities/towns in India and the same is represented on the map of India using GIS tools. The air quality levels are

compared against the prescribed standards to draw inferences regarding the pollutant (s) of concern and the severity of the problem at various cities/towns in the country. Analysis of the data reveals the prevalence of high SPM pollution levels in most of the cities, while only a few of them have high SO<sub>2</sub> or Nox problem.

**9803-034.** Pathak K, Sinha IN, Murkute ME (Indore Sch Mines, Cent Mining Env. Dhanba 826004). **A new approach to study the generation of dusts over surface mining haul roads.** *Indian J Environ Prot*, **17**(10) (1997), 761-769 [24 Ref].

Haul roads of surface mines are the largest contributors of air - borne dusts to the atmosphere. The article summarises the present state of the art of estimating dust particles in atmosphere and presents a new approach to study the problem of dust generation.

**9803-035.** Prasad GV Patil SF, Rajwkar NS (Kirloskar Consultants Ltd. Env. Div. 917119 A, FC Rd. Shivajinagar, Pune 411004). **Ambient air quality status in Ramagundam industrial campus.** *Indian J Environ Prot*, **17**(11) (1997), 820-825 [13 Ref].

The ambient air quality data for Ramagundam region been analysed using statistical techniques to define the variation of baseline air quality of the region over the years, for primary pollutants, like SPM, SO<sub>2</sub>, and Nox. The analysis of the data clearly indicates that there is a significant increase in air quality levels. Though the levels are below the stipulated ambient air quality standards, there is an increasing trend and was found to be significant at 5% level of significance.

**9803-036.** Sahu DK, Mohapatra A (Tata Refractories Ltd, Belpaher 768218 Jharsiguda). **Assessment of ambient air quality of open cast coal mines of 1 B valley area, Brajrajnagar.** *Indian J Environ Prot*, **17**(5) (1997), 373-375 [1 Ref].

Communication is an in depth study concerning pollution of air quality (SPM) in some of open cast coal mining areas (SOC and Lajkura of MCL Sambalpur) in eastern India. Fine dust particles as a result of mining operations appear to be the probable cause for the occurrence of a variety of diseases in the surrounding areas, here the SPM value exceeds the limiting value. After a proper evaluation, measures have been taken by selecting plant specimens known to be efficient dust control species.

**9803-037.** Sarangi PK Mishra PC (Dept Environ Sci, Sambalpur Univ, Jyotivihar 768019, Orissa). **Ambient air quality of Jyotivihar, Orissa, India.** *Polln Res*, **16**(1) (1997), 33-35 [4 Ref].

Ambient air quality monitoring in terms of suspended particulate. Sulphurdioxide and oxides of nitrogen, was carried out at Jyotivihar for a period of one year. The minimum values were 82. 995g/M<sup>3</sup> and 182. 7g/M<sup>3</sup> (X=126. 82g/M<sup>3</sup>) for SPM , 4. 62g/M<sup>3</sup> and 25. 74g/M<sup>3</sup> X=12. 76/M<sup>3</sup>) for SO<sub>2</sub> and 4. 39g/M<sup>3</sup> and 16. 89 g/M<sup>3</sup> and 16. 89/M<sup>3</sup> (X=9. 7g/M<sup>3</sup>) for oxides of nitrogen. All these values were within the permissible limit prescribed by Central Pollution Control, Board.

**9803-038.** Srivinvasa Pai P (Nmam Inst Techno, Dept Indl Production Engg, Nittle 574120). **Carbon dioxide emission control ways and means.** *Indian J Environ Prot*, **17**(11) (1997), 815-819

Paper tries to present a brief overview of the problem of air pollution, particularly the emission of carbon dioxide (CO<sub>2</sub>) from various sources, mainly from automobiles. The major problem associated with this CO<sub>2</sub> emission is the global warming phenomenon. The effect of this grave problem facing this world is highlighted and some measures are suggested through various case studies, which try to reduce the intensity of this problem.

**9803-039.** Sunil Kumar CS, Mahajar AU, Sharma N Deshpande VP. Bandrinath SD (EIRA Div. Natt Environ. Engg. Res Inst. Nagpur 440020). **A comparative**

**study on the formation of heat islands in industrial and urban centres.** *Polln Res*, **16**(1) (1997), 15-18 [11 Ref].

A study on the formation of heat island has been carried out in the coastal city of Visakhapatnam during winter season (January 91). The temporal and spatial variation of the intensity of heat island are established through mobile surveys. The study area was divided into three regions namely industrial, urban residential and rural. An average of 1.00 C temperature disparity between urban and rural and 0.60 C between industrial and rural was observed. The heat island effect was more predominantly observed in the urban residential zone, which may be attributed to the cluster of building and low wind speeds.

**9803-040.** Sunita M, Madhava Rao KVC (Dept Bot, Andhra Univ, Visakhapatnam 530003). **Air pollution tolerance: Capacities of selected plant species.** *J India Botl Soc*, **76**(102) (1997), 95-98 [24 reg]

Different parameters such as epidermal features, chlorophyll content, ascorbic acid content were determined to find out the air pollution tolerance capacities of some important tree species. Among the twelve tree species studied *Albizia lebbek* was considered as relatively resistant and *Pongamia pinnata* as relatively sensitive to air pollution.

**9803-041.** Verma KS, Soni S (Dept Biosci, RDVV, Jabalpur 482001). **Allergenicity of certain airborne fungal spores.** *Vasundhara*, **2** (1997), 13-16 [14 reg].

The lower atmosphere of different environments of Jabalpur city was sampled fortnightly by Rotorod air sampler and culture plate method for a period of 2 years. Altogether 89 spore types were identified in which dominant spores were of *Aspergillus*, *Ahernaria*, *Curvularia*, *Cladosporium* and *Nigrospora*. Basidiospores, smut spores and rust spores were also recorded.

## Water Pollution

**9803-042.** Anitha Kumari S, Shree Ram Kumar N (Cell Molecular BioLab, Dept Zeo, Nizam coll, Baseerbagh, Hyderabad 500001, Andhra pradesh). **Effect of water pollution on histology of intestine of two fresh water fishes from Hussainsagar Lake (A. P. ).** *Indian J Env Toxicol*, **7**(2) (1997), 68-70 [7 Ref].

Histopathological alteration induced by impact of pollutants in the intestine of *Channa striatus* and *Heteropneustes fossilis* from Hussainagar lake were investigated. Histology of intestine from both the polluted water fish revealed degenerative changes in the serosa, mucosa and submucosal layers.

**9803-043.** Arun Prasath R, Nanjudan S, Subbrarao K, Kothandaraman V, Jothi Kumar N, Narasimhan S (Anna Uni Dept Chem, Chennai 600025). **Water quality evaluation of swimming pools of Madras city.** *Indian J Environ Prot*, **17**(10) (1997), 739-744 [6Ref].

Recreational water quality of the three swimming pools, namely two of public utility and one exclusively of private located within the educational institution campus were studied. At each pool water quality was monitored at locations in the pool for physico-chemical and bacteriological indicator systems with due emphasis when the pool is in use by bathers to assess the water quality with respect to guidelines.

**9803-044.** Barnah BK, D, Das M (Eco Lab, Dept Zoo, Cotton Coll, Guwahati 781001). **Study on the water quality of Elenga Beel at Jagiroad in central Assam.** *J Nature Conserv*, **9**(1) (1997), 129-134 [12 Ref].

An analysis of the water quality of Elengla Beel located at Jagiroad in central Assam in response to seasonal variation was carried out. The result of the analysis with reference to various parameter were found within the prescribed limit of Indian Standard and the water is suitable for growth and propagation of

aquatic life. Study also revealed depletion of beel water quality as manifested due to release of effluent from nearby Nagaon Paper Mill.

**9803-045.** Bath KS, Jerath N, Syal J (Dept Zeo, Punjabi Univ, Ropar 145002). **Water quality under of river satling at upstream and downstream of paper reservoirs, Punjab.** *Env Eco*, **16**(1) (1998), 147-150 [4 Ref].

River Satluj is a major river of Punjab, which getting polluted due to inflow of industrial and domestic effluents. The water quality index (WQI) of river Satluj near Ropar (upstream and downstream of the barrage) was calculated at three sites, the WQI values confirm that water is highly polluted at the two downstream sites, which receive industrial discharges from two paper mills, whereas the water quality is good at the upstream site due to absence of a direct pollution source.

**9803-046.** Chandrasekaran GE, Muthu Kumar M (Bishop Heber Coll, PG Res Dept Environ Sci, Trichirapalli 620017). **Statistical analysis of parameters of river waters of Tikara and P. Brahmani near the proposed super Thermal power plant site at Talcher.** *Indian J Environ Prot*, **17**(4) (1997), 262-267 [9 Ref]. (Late Recd).

A detailed study on water quality was conducted on rivers Tikara and Brahmani one of which Brahmani is the source of water for super thermal power plant in Talcher, Orissa. It has been concluded that the result will help in the calculation of some of the parameters without experimental determination. The analysis, show that there is no appreciable pollution in these rivers. However, flyash and pollutants from thermal plant might pollute these rivers. Suggestions have been given to abate pollution.

**9803-047.** Chadhari Madhurima, Shankar Karuna, Satia Seema, Prakash Satya, Srivastava MM (Dept Chem, Dayalbagh Edu Inst, Dayalbagh, Agra 282005). **Studies on preconcentration of trace levels chromium by chelex 100 using radio tracer.** *Indian J Environ Hlth*, **39**(3) (1997), 207-210 [11 Ref].

Communication is a report on batch method of preconcentration of chromium in aqueous samples by chelex -100 resin using radiotracer. Attempts have also been made to apply this method for preconcentration for Chromium in well water samples near tanneries of Agra city.

**9803-48.** Chetana Suvarna A, Somasekhar RK (Dept Bot, Bangalore Univ, Joana Bharathi, Bangalore 560056). **Ecological study on the riverine ecosystem of Karnataka. I. Physico- chemical Characteristics of river Cauvery.** *J Env Polln*, 4(1) (1997), 57-63 [12 Ref].

The physico-chemicals characteristics of the river water at three stations stretched over a distance of 20 km were studied at monthly intervals. The dissolved constituents fluctuated temporally and decreased with high flow. Turbidity and pH along with phosphates showed an increase during periods of high flow. The interrelationships between various physico- chemical characteristics are elucidated which assist in understanding the nature of intricate interactions occurring in this ecosystem.

**9803-049.** Chetana Suvarna A, Somasekhar RK (Dept Bot Bangalore Univ, Jnana Bharathi, Bangalore 560056). **Ecological study on the riverine ecosystem of Karnataka II. Physics- chemical characteristics of river Arkavathi.** *J Env Polln*, 4(1) (1997), 65-70 [8 Ref].

The physico-chemical characteristics of River Arkavathi showed both spatial and temporal variations. The dissolved oxygen content fluctuated greatly. The alkaline waters contained relatively higher concentrations of dissolved components than river Cauvery while the trend of ionic dominance remained the same.

**9803-050.** Chetana Suvarna A, Somasekhar RK (Dept Bot, Bangalore Univ, Jnana Bharathi, Bangalore 560056). **Ecological study on the riverine ecosystem of Karnataka. III. physico chemical characterisation of river Vrisabhavathi.** *J Env. Polln*, 4(1) (1997), 71-77 [11 Ref].

The study was carried out to comprehend the physico-chemical characteristics of river volume Vrishabhavathi. Large of urban wastes discharged into his river influenced its physico-chemical make-up considerably. Most of the chemical components estimatede were in higher concentration with the pH of water being alkaline.

**9803-051.** Chitra KY Sree Ram Kumar N (Cell Molecular Bio. Lab. Dept Zoo, Nizam Coll, Basheerbagh, Hyderabad 500001, Andhra Pradesh). **Effect of water pollution on peroxidase activity in Chenna striatus.** *Indian J Env Toxico*, **7**(1) (1997), 30-31 [9 Ref].

The effect of water pollution on peroxidase activity of various tissues form Channa striatus inhabiting the Hussainagar lake is reported. Kidney in teleosts plays an important role in the biosynthesis on the thyroid hormone in which peroxids catalyzes the oxidation of inorganic iodide to active iodine. Both electrophoretic and spectrophotometric studies on the enzyme from different regions of kidney of polluted water fish showed a significant change when compared with the control fish.

**9803-052.** Dhembare AJ, Pondhle GM, Singh CR (PVP Coll, Pravaranagar, Maharashtra). **Ground water characteristics and their significance with special reference to public health in Pravara area, Maharastra.** *Polln Res*, **17**(1) (1998). 87-90 [9 Ref].

Paper presents results of a study of 24 drinking water samples from dug well in order to find out the magnitude of health problem in Pravara area, Maharashtra. The finding revealed that the contents in majority of sampling sites were below the WHO and ISI permissible limits for drinking water. Besides, sulphates in some well samples were high. The Cl, PO<sub>4</sub> and NO<sub>3</sub> were found to be within the permissible limits

**9803-053.** Dhembare AJ, Pondhe GM (PVP Coll, Pravarenagar, Ahmednagar, MS). **Correlation of ground water quality parameters of sonai area (Maharashtra).** *Polln Res*, **16**(3) (1997), 189-190 [5 Ref].

Paper attempts to understand the quality of ground water around the sugar mill in Sonai area, Maharashtra. The correlation coefficient of water quality parameters from the given area. High correlation coefficient was observed in between EC-TDS, TDS-HCO<sub>3</sub>, Mg Cl and HCO<sub>3</sub>, - RSC.

**9803-054.** Dhembare AJ, Pondhe GM (PVP Coll, Pravaranagar, Maharashtra). **Correlation of ground water parameters of Pravara area, Maharashtra India.** *J Aquatic Bio*, **12**(12) (1997), 32-33 [5 Ref].

Present investigation attempts to study correlation coefficient of water quality parameters viz- Ph, EC, TA, Na, Ca, Mg, TH, SO<sub>4</sub>, SAR, RSC, KR and SSP from the given area. High correlation coefficient was observed in between TA-TH, Cl -SO<sub>4</sub> and Mg -Cl.

**9803-055.** Doctor PV, Ranjani CV, Verma Yogendra, Desai NM, Kulkarni PK, Ruparalia SG, Ghosh SK. **Physico-chemical and microbial analysis of dye-contaminated river water.** *Indian J Environ Hlth*, **40**(1) (1998), 7-14 [8 Ref].

Magnitudee and degree of pollution in river Bhadar caused by azo dye containing effluents discharge from printing cotton textile industries has been studied, both by micorbial and physco-chemical analysis. Nitrate concentrations were above the permissible level. BOD and COD values correlated well with MPN and heterotrophic plate count. Among all the isolates E. coli found to be site specific dominant microflora.

**9803-056.** Dwivedi Smriti, Tewari IC (Banaras Hindu Univ, Dept Preventive Socl Med, Inst Medl Sci, Varanasi 221005). **Seasonal variation in lheavy metal congent of river Ganga at Varnasi.** *Indian J Environ Prot*, **17**(4) (1997), 281-286 [8 Ref] (Late Recd).

The concentrations of five heavy metals namely Cu, Cd, Cr, Fe and Pb were studied in the river Ganga at Varanasi from the University ghat (the most upstream point) to Rajghat (the most downstream point). The data has been discussed with reference to flow characteristics and other hydrological aspects and the values observed have been compared with standards prescribed by various river authorities. Levels of all the heavy metals were highest during the summer season and lowest during the rainy season.

**9803-057.** Garg VK, Dahuya Sudhir, Chhaudhary Aarti, Shikha Deep (Dept Env Sci, Guru Jambheshwar Univ Hissar 125001, Haryana). **Fluoride distribution in ground waters of Jind district, Haryana, India.** *Eco Env Conserv*, **4**(1-2) (1998), 19-23 [9 Ref].

A total of 75 groundwater samples were collected from 25 different villages of Jind district of Haryana state and analyzed for the evidence of fluoride content. Results showed that fluoride content in the groundwater of the studied area is heterogeneously distributed which varied even well to well in the same village. Some samples have fluoride content as high as 14 ppm. Attempt has been made to correlate pH, EC, total hardness with fluoride content.

**9803-058.** Garode AM, Nanoty VD, Kulkarni KM (Dept Microbio, Shivaji Sci Coll, Chikhali Dis, Buldhana MS 442201). **Som observation on bacteriaaological pollution of ground water.** *Polln Res*, **16**(1) (1997), [6 Ref].

A study was carried out to record faecal indicator bacteria from several groundwater samples collected from different regions of Chikhali town and Akola city. Water samples were subject to the MPN, IMViC and other tests. Higher MPN Counts were recorded from some samples.

**9803-059.** Gupta AK, Saxena GC (Dept Chem, RBS Coll (Agra Univ) Agra 282002 UP). **Nitrate contamination in ground waters of Agra and its correlation will various water quality parameters including heavy metals.** *Polln Res*, **16**(3) (1997), 155-157 [22 Ref].

A systematic study was carried out to determine the nitrate contamination in the ground waters of Agra (U. P.) On an average 66.60% samples were found to contain nitrate more than the limit prescribed by World Health Organization. A systematic calculation of the correlation coefficients,  $r$ , has also been carried out between nitrate and various other physico-chemical parameters including trace metals. The study showed positive and significant correlation of nitrate with TDS (0.651), EC (0.72) T. H. (0.646), sodium (0.506), chloride (0.584), chromium (0.718) and lead (0.50).

**9803-60.** Gupta AK, Saxena GC (RBS Coll, PG Dept Chem, Agra 282002). **Correlation studies among various water quality parameters in ground waters of different urban industrial zones of Agra.** *Indian J Environ Poet*, **17**(6) (1997), 434-441 [15 Ref].

The technique of measuring a few important parameters and then predicting other parameters using correlations ( $r$ ) has been successfully worked out on the ground waters of various urban industrial zones of Agra. The linear regression equations of the type  $Y=A +BX$  have also been being computed for different urban - industrial zones of Agra.

**9803-61.** Jain CK, Bhatia KKS, Vijay T (Natl Inst Hydro, Roorkee, 247667, UP). **Groundwater quality in a coastal region of Andhra Pradesh.** *Indian J Environ Helth*, **39**(3) (1997), 182-192 [15 Ref].

The quality of ground water in Kakinada town in the East Godavai District of Andhra Pradesh has been studied. Various parameters have been determined to evaluate its suitability for irrigation and domestic applications. The higher values of certain parameters at various locations indicate the influence of sea water and make the water unsuitable for domestic applications.

**9803-062.** Jain CK, Bhatia KKS, Seth SM (Natl Inst Hydro, Jal Vigyan Bhawan, Roorkee247667). **Characterization of waste disposals and their impact on**

**the water quality of river Kali.** *Indian J Environ Prot*, **17**(4) (1997), 287-295 [12 Ref] (Late Recd).

The physico-chemical characterization of municipal waste of Muzaffarnagar city and composite industrial waste have been carried out with a view to assess the likely impact of these effluents on the quality of water of river Kali. High values of BOD and COD in the waste effluents is an indication of high degree of organic contamination in these wastes. The important characteristics associated with pollution of the river due to the discharge of these wastes is the heavy depletion of oxygen over a small stretch of the river.

**9803-063.** Jain Pradeep K (Dept Geo, Govt Maharaja Coll, Chhatarpur, MP). **Hydrogeology and quality of ground water around Hirapur, district sagar (M. P. )(a case study of proterozoic rocks).** *Polln Res*, **17**(1) (1998), 91-94 [5 Ref].

Chemical analysis was carried out on ground water samples from 22 dug wells situated in different rock formations, analysis indicate that the water is slightly alkaline and hard. A comparison of water quality data with drinking water standards revealed that the water is suitable for domestic purposes. Determination of residual sodium carbonate, Sodium percentage, sodium adsorption ration and Permeability Index indicates that the water is suitable for irrigation purpose.

**9803-064.** Jain Praveen, Telang Sanjay, Khan Jawed Ahamed (Dept Chem, Govt MLB PG Autonomous Coll, Bhopal). **Pollution status of Parbati river, Sehore.** *Eco Env Conerv*, **4**(1-2) (1998), 71-72 [10 Ref].

Attempt has been made to evaluate water quality of Parbati river flowing through Sehore for a period of 4 months to assess the suitability of dam water for irrigation use. The parameters observed for this study were electric conductance, per cent sodium and sodium absorption ratio. These observations confirm that the dam water is suitable for irrigation.

**9803-065.** Joseph Thresiamma, Balachandran KK, Nair Maheswari, Sankaranarayanan (Natl Inst Oceano, Ragl Cent, PB No 1913, Cochin 682018). **Hydrochemical studies along the coastal waters off Mangalore.** *Eco Env Conser*, **4**(1-2) (1998), 9-12 [7 Ref].

Environmental parameter such as temperature, salinity dissolved oxygen BOD, pH nutrients, suspended load and chlorophyll were estimated in the coastal waters of Mangalore low bottom values of dissolved oxygen with corresponding high inorganic phosphate were indicative of monsoonal upwelling along the Mangalore coast during September. This period was characterised by a drop in pH values, though not very significant. Low BOD values encountered indicated the absence of any organic pollution in the area.

**9803-066.** Kataria HC (PG Dept Chem, Govt PG Coll, Piariya (Hosanghabad) 461775). **Some analysed parameters of ground water of Bhopal.** *Oriental J Chem*, **13**(2) (1997), 126 [7 Ref].

The proper analysis of water reflects the light on degree of water pollution by deviation from standards values of parameters either prescribed by ISI or APHA, Physico-chemical parameters of hand pumps of Bhopal have been analysed seasonally. Total alkalinity, T-H, Ca-H, Mg-H ranged from 28-420, 116-482, 114-412 and 21-334 ppm in winter, summer and monsoon.

**9803-067.** Khare Pua, Satsangi GS, Kumar N, Maharaj Kumari K, Srivastava SS (Dept Chem, Fac Sci, Dayalbagh Ednl Inst, Agra 282005). **HCHO, HCOOH and CH<sub>3</sub>COOH in air and rain water at a rural tropical site in north central India.** *Atmos Env*, **31**(23) (1997), 3867-3875 [69 Ref].

HCHO, HCOOH and CH<sub>3</sub>COOH were measured in vapour phase and rain water during monsoon period at Gopalpura, Agra a rural site of north central semi-arid tract of India. Mean concentrations of formaldehyde, formic and acetic acid were 1.4, 1.7 and 1.6 ppbv in the vapour phase and were 4.4, 5.4 and 4.8 mol t<sup>-1</sup> (volume weighted) in rain water, respectively. The strong correlation

between formate and acetate ( $r= 0.96$ ) and formate and formaldehyde ( $r=0.95$ ) in rain water suggests that their sources are common, if not identical.

**9803-068.** Khare Rajesh, Shrivastava RM, Jain Praveen (Cheml Lab, Govt Motilal Vigyani Adarsh Mahavidyalaya, Bhopal 462001). **Physico-chemical analysis of surface and ground water of major slum areas of New Bhopal 462002 (India).** *Oriental J Chem*, **13**(2) (1997), 191-192 [6 Ref].

Drinking water is the major problem faced in the slum areas of Bhopal city. The conditions prevailing in the slum area make the water polluted causing different types of diseases and thus making the life short. Paper investigates different water samples of the area by different means of chemical analysis.

**9803-069.** Khurshid S, Basheer Abdul, Zaheeruddin, Shabeer Mohd Usman (Dept Geo, Aligarh Muslim Univ, Aligarh). **Effect of waste disposal on water quality in parts of cochin, Kerala.** *Indian J Environ Hlth*, **40**(1) (1998), 45-50 [11 Ref].

Study has been made to evaluate the water pollution caused by existing industries in parts of Cochin. A systematic study of the chemical nature of the slurface water bodies from Eloor to Cochin harbour has been made with a view to assess the extent of pollution of various trace elements. The study revealed that the concentration of trace elements around Eloor industrial belt is higher than the Vembanad lake, which may be attributed to steady discharge of effluents in Eloor region. In most of the samples, concentrations of trace elements exceed the maximum permissible limit prescribed by W. H. O.

**9803-070.** Khurshid Shadab, Zaheeruddin, Usman Shabeer Mohd (Dept of Geo, Aligarh Muslim University, Aligarh). **Degradation of water quality due to heavy metal pollution in Faridabad district, Haryana, India.** *Polln Res*, **16**(1) (1997), 41-43 [ 4 Ref].

Solid waste from industrial belt of Faridabad is dumped near the factories which is subjected to reaction with percolating rain water and reaches the ground level. Chemical analysis of water samples has revealed that the heavy metals are present in high concentration level in industrial effluents. Since the effluents very often overflow and spread around water bodies and enter adjacent crop fields thereby causing considerable damage to crops. The observations further revealed that the concentration of heavy metals in groundwater is generally high and at places exceeds the maximum permissible limit for drinking purpose.

**9807-071.** Kumar V, Pal AK Saxena NC (Indian Sch Mines, Cent Mining Env, Dhandbad 826 004). **Pollution status of aquatic system of central part of Jharia coalfield with special reference to heavy metal.** *Indian J Environ Prot*, **17**(4) (1997), 248-252 [10 Ref] (Late Recd).

Heavy metal content in water, sediments and aquatic plants in natural water of central part of Jharia coalfield was studied. The results indicated the presence of Cd, Pb, Fe, As and Se in levels higher than the limits prescribed by Bureau of Indian Standard (BIS) for drinking water (IS: 10500). Run-off from mining areas, overburden dumps, mine fires, domestic effluents, industrial effluents, etc., are probably the sources of this heavy metal content.

**9803-072.** Manna NK, Banerjee S, Bhowmik ML (Regl Res Cent, Centl Inst Freshwater Aquacult, Kalyani 741235). **Seasonal diversity of some physico-chemical complexes in running water waste treatment ponds.** *Env Eco*, **15**(4) (1997), 917-923 [32 Ref].

Physico-chemical nature of water of a serially arranged four ponds meant for natural treatment of wastewater were studied for a period of one year. There was a considerable variation in water quality throughout the study period. Increasing trend of transparency, pH, dissolved oxygen were observed from pond 1 to pond 4, whereas decreasing trend of dissolved organic matter, free

carbon dioxide, total alkalinity, chloride, nitrate, ammonia, BOD and phosphate were found.

**9803-073.** Mitra A, Gupta SK (Cent Std Man Env, CK -11 Sector 2, Salt Lake City, Calcutta 700091). **Assessment of groundwater quality from sewage fed farming area of east Calcutta.** *Indian J Environ Prot*, **17**(6) (1997), 447-447 [17 Ref].

Groundwater of shallow and deep tube wells were collected from raw sewage irrigated farm areas of eastern fringe of the Calcutta city. At all the locations groundwater have been contaminated due to presence of high amounts of calcium, magnesium, sodium, chloride and phenolic compound. Heavy metals, like iron and manganese were also present at toxic level. Groundwater from shallow aquifer contained total and faecal coliform. Irrespective of depth the groundwater from all the locations are unsafe for drinking purpose.

**9803-074.** Mittal SK, Verma Neha (Thapar Inst Engng Techno, Sctn Basie Appl Sci, Patiala 147001). **Critical analysis of ground water parameters.** *Indian J Environ Peot*, **17**(6) (1997), 426-429 [3 Ref].

In every area of township, a supply of water is provided for domestic, public and industrial uses, which meets certain specific requirements. The transmission of viruses and protozoas has proved to be difficult to be controlled. The pollution of water is mainly caused by carelessness, uncontrolled disposal of wastewater low living standards and the violations of Government legislations. etc. Chemical parameters, which influence the quality of drinking water are analysed.

**9803-075.** Mohammed Ali, Mohamad Najar PA (Dept Appl Chem ZH Coll Engng Techno, Aligarh Muslim Univ, Aligarh 202002). **Treatment methods for the removal of heavy metal pollutants from water and wastewaters.** *J Indl Polln Contl*, **13**(2) (1997), 85-106 [87 Ref].

Attempt has been made to present a compilation of some effective treatment techniques for the minimization of heavy metals in water and wastewaters. Care has been taken to provide maximum information collected from chemical abstracts, research journals and other reliable sources regarding certain treatment techniques (except adsorption techniques) and mode of treatment. Precipitation and ion-exchange have been found more useful compared to other treatment techniques.

**9803-076.** Murthi Krishna, Bharati S G (Dept Appl Bot, Kuvempu Univ, BR Proj, 577115). **A study on concentration of chloride of the river Kali near Dandeli, Karnataka (India).** *J Env. Polln*, **4**(1) (1997), 9-15 [23 Ref].

Study reveals that chloride increased with the pollution load due to domestic and industrial wastes. The increase in chloride is accompanied by an increase in ammonical nitrogen and organic matter at all the sampling stations. The values of chloride were low during winter and high during monsoon. Further, the relationship of chloride with pH, major cations and anions are also discussed.

**9803-077.** Murty BSN, Ravi V, Reddy PJ Reddy RC (Computer Cent Indian Inst Cheml Techno, Uppal Rd. Hyderabad 500007, Andhra Pradesh). **Artificial neural networks applied to defluoridation.** *Polln Res*, **16**(3) (1997), 177-182 [21 Ref].

Paper attempts to predict the dosage of alum to be added by treating it as dependent variable and the alkalinity and fluoride levels as explanatory variables via the technique of artificial neural networks (ANN). The efficacy of the model generated by the ANN, was tested and compared with the results obtained from an established second order polynomial multiple regression model. Further, these two models were used to predict the dosages of alum for a new test data.

**9803-078.** Nair Jayachandran, Ganapathi S (Dept Zoo, Fac Sci, MS Univ Baroda, Vaddara 390007). **Water quality of the Bhadar river basin.** *Indian J Environ Hlth*, **39**(3) (1997), 197-206 [19 Ref].

EC and SAR values were determined for the surface and subsurface water of the Bhader river basin, Gujarat during pre-monsoon and two, three postmonsoon seasons. The analytical results show erratic EC and SAR values from Atkot to Navibandar, the variation mainly due to tidal ingress. The point source effluents from the dyeing and printing units show higher values which decrease with river water dilution.

**9803-079.** Narmada PN, Shrivastava VS (North Maharashtra Univ, Oxygano-Environ Cheml Res Lab, Dept PG Std Res Chem, GTP Coll, Nandurbar 425412). **Nitrate (NO<sub>3</sub>-N) status of ground water in tribal belt of Satpura Valley.** *Indian J Environ Prot*, **17**(6) (1997), 430-433 [17 Ref].

Excess concentration of nitrate in drinking water has led to numerous cases of methaemoglobinemia in infants. Paper attempts for the analysis of nitrates (NO<sub>3</sub>-N) in some ground water samples collected from in and adjoining areas of tribal towns and villages of Satpura valley from the point of view of the suitability of it for human consumptions. The NO<sub>3</sub>-N concentration in some sites have been found beyond the ISI and WHO standards and unit for human consumptions.

**9803-080.** Narasimah Rao SL, Murthy KS (Public Hlth Environ Engng Lab, Dept Civil Engng, Coll Engng Andhra Univ, Visakhapatnan 530003). **A new photometric estimation of dissolved oxygen.** *Polln Res*, **16**(1) (1997), 45-46 [7 Ref].

Copper (II) gives a stable bluish violet colour in sodium acetate medium and it is noticed that copper (I) and copper (III) not respond and the colour is specific for copper (II). The new method proposed is based on the oxidation of Cu (I) with DO and the resultant Cu (II) is treated with aqueous rhodamine -B. DO levels are determined accurately as the intensity of colour produced is proportional to copper (I) which in turn is equivalent to the amount of DO present in the sample.

**9803-081.** Patnaik A, Sinha BK, Sahoo HK (Sambalpur Univ, PG Dept Environ Sci, Jyoti Vihar 768019, Sambalpur). **Ground water quality and its relation to lithology of Sambalpur, Orissa.** *Indian J Environ Hlth*, **17**(6) (1997), 415-420 [10 Ref].

Groundwater samples collected from good number of borewells of Sambalpur town during premonsoon period of 1995 were analysed for different physico chemical parameters. The major exposed rock types of this area were demarcated and analysed. The water qualities have been correlated to the rock types of this area and suitability of these water sources for different uses have been examined.

**9803-082.** Prasad Vijay Kumar, Trivedi RN (Dept Bot, RLSY Coll, Anisabad, Patna 800026). **Water quality of the river basin.** *Int J Mendel*, **15**(1-2) (1998), 39-40 [19 Ref].

EC and SAR values were determined for the surface and subsurface water of the Ganga river basin, Bihar during three premonsoon and two postmonsoon season. The analytical results show erratic EC and SAR values from every stations. The point source effluents from the dyeing and printing units show higher values which decrease with river water dilution. However, when used for irrigation, it may affect the soil, crops, human life and the cattle. The utility of basin water for irrigation has been discussed.

**9803-083.** Prbha S, Selvapathy (Anna Univ, Cent Env Std, Coll Engng, Chennai 600025). **Heavy metal pollution in Indian rivers.** *Indian J Environ Prot*, **17**(9) (1998), 641-649 [64 Ref].

Paper reviews the status and trends of heavy metal pollution in the major Indian rivers. A brief review of the analytical procedures for the determination of heavy metals in water sediments is also included.

**9803-084.** Rajmohan N, Elango L, Elamporanam T (Anna Univ, Dept Geo, Chennai 600025). **Seasonal and spatial variation in magnesium and chloride concentration in groundwaters of Nagai Quaid Milleth district in Tamil Nadu.** *Indian J Environ Prot*, **17**(6) (1997), 448-453 [6 Ref].

Nagai Quaid a Milleth district is intensively cultivated region, where the groundwater is the major source for irrigation. About 23 groundwater samples were collected from this area and were analysed for major ion concentration. Based on these, the study area can be classified into three regions, namely wells located in coastal, agricultural and long rivers. Magnesium and chloride concentration has increased in coastal as well as agricultural region. In agricultural region, the over exploitation and irrigation return flow has resulted in the increase in the concentration of magnesium and chloride.

**9803-085.** Ram Daya, Chitranshi UB (Natl Inst Hydro, Jal Vigyan Bhawan, Roorkee 247667). **Defluoridation kinetics.** *Indian J Environ Prot*, **17**(8) (1997), 594 -600 [21 Ref].

Adsorption as well as the rate of adsorption on activated alumina and the effects of various parameters, such as grains size, pH and initial fluoride concentration have been evolved. It is found from the study that adsorption follows the modified first order kinetic reaction in which the current concentration is taken as the difference of actual fluoride concentration and equilibrium concentration.

**9803-086.** Sahota HS, Gill SK (Punjabi Univ, Dept Phys, Patiala 147002). **Effect of Mukerian Paper Mill effluent on Beas river water.** *Indian J Environ Prot*, **17**(10) (1997), 749-751 [7 Ref].

Physico- chemical analysis of Beas river water was done before mixing of Mukerian paper mill effluent with its water and other after mixing of this effluent. It was noticed that this effluent caused significant increase in levels of alkalinity bicarbonate, BOD, calcium, chloride, conductance, hardness, nitrate,

magnesium, pH, phosphate and TDS Statistical Z value also exceeded from 2.58 in these cases.

**9803-087.** SahuSK, Pati SS, Badapanda RK (Dept Environ Sci, Sambalpur Univ, Jyoti Vihar 768 019). **Fluoride content in ground water around an aluminium industry in Hirakund, Orissa.** *Env Eco*, **16**(1) (1998), 169-179 [17 Ref].

Assay of fluoride concentration in ground water samples around Indian aluminium company in Hirakund revealed that fluoride content is beyond the permissible limit in a limited residential areas. The reasons behind high level of fluoride content in these areas may be due to haphazard disposal of rejected pot linings, and seepage of waste water from the company drain connected to river Mahanandi. The company has however taken some control measures recently.

**9803-088.** Salaskar Pramod, Yeragi SG (Dept Zoo, Arts Sci Comm Coll, Deola, Tq. Kalwan, Dt Nasik, Maharashtra). **Studies on water quality characteristics of shenala lake, Kalayan, Maharashtra, India.** *J Aquatic Bio*, **12**(12) (1997), 28-31 [31 Ref].

The highly degraded water body represents a typical urban wet-land polluted by directly entering domestic sewage from the intensively urbanised catchment. The water quality in terms of different physico-chemical characteristics and their role in the environmental degradation are discussed.

**9803-089.** Sharma RK, Siddiqui RA (Durga Sewa Sadan, Vill-Dostpur, P. O. Dariyapur, Dt. Bulandshwar 203001, UP). **Bacterial disinfection studies of one constant release disinfectant in a drinking water filtration system.** *Polln Res*, **17**(1) (1998), 57-60 [22 Ref].

The efficacy of a natural zeolite stilbite with particle size 150-240µm on which metallic silver was immobilized, by a chemical process, for water disinfection was studied. Immobilized metallic silver on the molecular sieve was found to be effective in the removal/inactivation of faecal coliforms within 30

seconds contact time. This filter material may be useful for the disinfection of potable water in water filtration units.

**9803-090.** Sharma Sanjay, Mathur R (Sch Std Zoo, Jiwaji Univ, Gwalior 474011). **Self purification capacity of the Swarna Rekha river in Gwalior, India.** *J Env Polln*, **4**(1) (1997), 1-7 [19 Ref].

Swarna Rekha river, which once had potable waters, has now become a sewage channel owing to manifold increase in the population. Water quality deterioration is mainly due to influx of domestic wastes. Sewage input at station I was much higher in comparison to station IV. Self purification capacity of the river is low mainly due to input of sewage in the first stretch. The purity of river can be increased by treating the wastes between stations III and IV.

**9803-091.** Shinde RS, Thorat DG, Gunjal PS, Kuchekar SR (Dept Chem, PVP Coll, Pravaranagar, Maharashtra). **Studies on water quality of river Godavari at Nasik, Maharashtra state India.** *J Aquatit Bio*, **12**(12) (1997), 85-86 [6 Ref].

Water samples collected from sampling stations along the stretch of river passing through Nasik city, were analysed for a number of water quality parameters. The results reveal that most of the physico-chemical parameters were in permissible limits as recommended by ISI and in general the water is suitable for human consumption after disinfection.

**9803-092.** Shrivastava Rohit, Choudhary Bindu (Dept Chem, Dayalbagh Edn Inst Dayalbagh, Agra 282005). **Drinking water quality in an average Indian city - a case study of Agra, UP.** *Polln Res*, **16**(1) (1997), 63-65 [8 Ref].

The drinking water quality at Agra, was assessed by examining various physical, chemical and bacteriological water quality parameters at the consumer's end in twenty two selected residential areas. The study indicates that some modifications and remedial steps, in the existing water supply, are

urgently needed, as the water quality is unsatisfactory in most of the areas of city.

**9803-093.** Singh kaman, Verma RB, Agrawal DK (Univ Lucknow, Dept Chem, Lucknow 226007). **Parametric study of fluoride content in ground water by potentiometric method.** *Indian J Environ Prot*, **17**(6) (1997), 410-414 [10 Ref].

To evaluate the concentration of fluoride content in ground water potentiometrically, an electrochemical cell: LaF/test solution calomel electrode was fabricated. The concentration of fluoride present in different samples was obtained by converting the electrode potential into concentration using standard curve. The extent of fluoride content was found to be from minimum 0. 145 ppm to maximum 1. 93 ppm. It is further added that extent of fluoride content in water depends on the climatic conditions and increases in summer.

**9803-094.** Srinivasa Rao K, Sambasiva Rao T (Sri Venkateswara Univ, Dept Geo, Tirupati 517502). **Hydrogeochemical evaluation of Erpedu mandal aquifers Chitoor district.** *Indian J Environ Prot*, **17**(5) (1997), 344-348 [9 Ref].

The major constituents of the 48 groundwater samples collected from this mandal have been utilised to compute on hardness salinity- sodium hazard, index of base exchange, and corrosivity ratios. The values so obtained are used to classify the ground waters. The ground water chemistry related to the interaction of rock chemistry with percolating precipitated water from the surface. The ground waters are found suitable for domestic and agricultural purposes.

**9803-095.** Subbarao C, Subbarao NV, Priyadarsini JP, Nair Anila Vijay (Andhra Univ, Dept Geophys, Visakahapatnam 530003). **Temporal variation of groundwater conductivity in two industrial localities of Visakhapatnam.** *Indian J Environ Prot*, **17**(5) (1997), 406-409 [8 Ref].

Variation of electrical conductivity of groundwater studied in two industrial localities of Visakhapatnam for a year. The shallow well waters of aquifers close

to industrial effluent channels are contaminated and the wells away from the industrial premises are free of contamination. Contrastingly the distant wells in the uncontaminated regions are diluted by the recharge waters and low conductances are recorded with the rise of water levels.

**9803-096.** Sulochana N, Selvarani K, Stephen Inbaraj B (Regl Engng Coll, Dept Chem, Tiruchirappalli 620015). **Groundwater quality Valavanthankottai village Trichriappali district a case study.** *Indian J Environ Prot*, **17**(6) (1997), 421-425 [7 Ref].

A systematic study on the quality of well waters in Valavanthankottai village, Tiruchirappalli district was done. The study reveals that the cations, sodium calcium and magnesium are present in large amounts and the anions, fluoride and sulphate are predominant over chloride ions in this village. It is evident that the pollution may be due to the logging of effluents from a distillery present few kilometers away from this village and flow of waste from Tiruchirappalli town.

## **Noise Pollution**

**9803-097.** Joshi Gunewant (MP Polln ContIBd, 26-A, Telephone Nagar, Kanadia Rd, Indore 452001). **The ambient noise levels at Indore, Madhya Pradesh.** *Polln Res*, **17**(1) (1998), 75-77 [7 Ref].

Paper reports the ambient noise levels at twenty five locations of Indore, five each belonging to industrial, residential, commercial, silence zone and mixed categories areas using a battery operated sound level meter at A weighting network. Noise levels at most of the locations exceeded the corresponding standards during day time whereas the night time values were mostly within prescribed limits at most of the places. A few suggestions to contain noise levels within limits and some future requirements in the field are discussed.

**9803-098.** Pandya GH, Verma RR (Natl Environ Engng Res Inst, Nehru Marg, Nagpur 440020). **Noise scenario in relation to vehicular traffic in the city of Nagpur.** *Indian J Environ Prot*, **17**(4) (1997), 241-247 [17 Ref].

Paper examines the attributes of road transportation and the statistical analysis of vehicular population of Nagpur, which is amongst the fast developing cities of India. The resultant effect has been the increase in the community noise levels which at most of the times and places exceed the limits fixed by the Central Pollution Control Board. Recommendations for noise abatement are also discussed.

**9803-099.** Ravichandran C, Chandrasekaran GE, Madhu S (Bishop Heber Coll, Res Dept Environ Sci, Tiruchirapalli 620017). **The status of noise pollution in Tiruchirapally city.** *Indian J Environ Prot*, **17**(1) (1997), 806-808 [5 Ref].

Paper evaluates the existing noise levels in Tiruchirapalli city. It was found out that none of the area noise levels were less than 45 dB. Even in the silence zones noise levels exceeded the limit of 50dB. In some of the important commercial areas, the noise levels reached 109. dB during peak hours. These have deleterious affects on living beings. Some of the realistic approaches for the control of noise are also mentioned.

## **Ecology**

**9803-100.** Banerjee Gautam (Dept of Bot, Burdwan Univ, Burdwan 713104). **A survey of algae in habitats influenced by agro-chemical effluents and domestic sewage.** *Env Eco*, **16**(1) (1998), 132-136 [30 Ref].

From the survey of habitats influenced by the effluents of an agro-chemical factory at Rishra, West Bengal single species of algae (*Oscillatoria subbrevis*) was identified. But in domestic sewage altogether 18 species of algae were identified which included six species of Cyanophyceae dominated by

Oscillatoria (three species), eight species of Chlorophyceae dominated by Spirogyra, three species of Bacillariophyceae dominated by Navicula.

**9803-101.** Baruah BK, Das M (Eco Lab, Dept of Zoo, Cotton Coll, Guwahati 781001). **Effect of paper mill effluent on plankton population of wetland.** *Env Eco*, **15**(4) (1997). 770-777 [17 Ref].

The surface plankton population of Elenga beel was studied along the downstream water stretch from the confluence point covering four sectors in three seasons, for three consecutive years. The plankton density and diversity varied in different sectors that indicated the different intensity of pollution at the experimental sectors. The study emphasized the effective treatment of effluent before release in to Elenga beel ecosystem.

**9803-102.** Barukial J, Gogoi P (Bot Dept, DR College, Golaghat 785621). **An ecological assessment of moss vegetation of Nambor Reserve Forest, Assam, India.** *Adv. Plant Science*, **11**(1) (1998), 113-117 [19 Ref].

An ecological assessment of the mosses of Nambor Reserve Forest, Assam, India on the basis of substrate preference of different genera and species has been made. The various sites have been classified for convenience into habitats, sub-habitats and locations. The analysis is based on field observations mainly upon the physical characteristics of the habitat or microhabitat on which the community occurs.

**9803-103.** Chakrabarty D (Dept of Zoo, Krishnagar Govt Coll, Krishnagar 741101). **Limnological studies on lake Sinchal, a mountain lake in Darjeeling.** *Env Eco*, **16**(1) (1998), 31-31 [15 Ref].

Various features of physico-chemical and hydrological variations in the lake Sinchal, situated in the hills of Darjeeling district, were studied during premonsoon, monsoon and in post monsoon periods. Wide variations were found

in the physico-chemical parameters and also in the occurrence of biotic communities.

**9803-104.** Chezhtian A, Habib Mohamed TAM (PG Dept of Zoo, Khadir Mohindeen Coll, Adirampattinam 614701). **Seasonal variation in zooplankters in Pappankanar estuary**, *Indian Env Toxic*, **7**(2) (1997), 74-76 [14 Ref].

Variation in hydrographical features and zooplankter population during premonsoon and monsoon periods of Pappankanniar estuary were studied for a period of six months. The hydrographical features such as temperature and salinity were high during premonsoon period whereas dissolved oxygen and rainfall were maximum during monsoon period.

**9803-105.** Eswari YNK, Ramani Bai R (Univ Madras, Dept Zoo, Guindy Campus, Chennai - 600025). **Impacts of urbanisation on the distribution of zooplankton in the coastal zone of Madras** . *Indian Environ, Prot* **17**(5) (1997), 340-343 [16 Ref].

Study describes the distribution of zooplankton under four different coastal habitats nearshore waters, estuaries, backwaters and harbour waters of the city of Madras. The period of sampling falls under seasons, namely summer, premonsoon and monsoon. Zooplankton samples were also collected once from six locations in-side the harbour area of the Madras port.

**9803-106.** Kanhere ZD, Gunale VR (Sch Environ Sci, Univ of Poona, Ganeshkhadi, Pune 411007). **Phytoplankton as indication of ecosystem status: a case study of an urban waterbody**. *Bombay Natural Hist Soc.* **94**(2) (1997), 273-275 [10 Ref].

The influence of urbanisation on an aquatic ecosystem was investigated using changes in the phytoplankton species composition over the years. There was a definite shift in the algal species, as also increase in the nutrient levels. The appearance of a few new species indicates the changing quality of water.

These findings when compared with the earlier work signify the changes in the ecosystem.

**9803-107.** Mishra Krishnanand (Dept Bot, PC Coll, Buxar, Bihar). **Study of the phytoplanktons in Ganga at Patna.** *IntMendel*, **15**(12) (1997), 9-10 [12 Ref].

The planktonic form of algae which were collected from the river Ganges from all the sampling points both in premonsoon and postmonsoon were studied. The results show that out of the sixty six species included in this study ten show a conspicuous trend which bear positive or negative correlation with pollution, while the other show erratic behaviour.

**9803-108.** Mogal HF (Dept of Microbio, BP Baria Sci Ins, Navsari 396445). **Microbiological study of the Dandi sea coast (Gujarat), west coast of India.** *Polln Res*, **16**(3) (1997), 159-165 [53 Ref].

Qualitative and quantitative study of bacteria and fungi present in water of the Dandi seacoast, located in South Gujarat, was carried out. Bacterial and fungal species isolated from marine habitat were identified and examined for the extracellular enzyme production. The results indicated that the enzymes of bacterial origin were similar in their response to the three parameters under study. On the basis of study of faecal indicator bacteria, FC/FS ratio was derived to determine pollution and waters of two stations were indicative of faecal pollution of human origin.

**9803-109.** Okram ID, Sharma BM, Singh EJ (Dept of Bot, Waikhom Mari Girls Coll, Thoubal (Manipur), 795137). **Ecological study of Waithou Lake, Manipur; Morphometry and quantitative analysis of macrophytic Vegetation,** *Freshwater Biol*, **8**(4) (1996), 177-189 [21 Ref].

Waithou lake is an oval shaped natural lake in Manipur and the total surface area is recorded to be 0.992 km<sup>2</sup>. Of the thirty-five macrophytes in two consecutive years, only twelve macrophytic species are found growing

throughout the study period. However thirteen growth forms of macrophytic species are investigated in the present study site and maximum number of macrophytes are belonging to Helophytes. All these species are emergent macrophytes.

**9803-110.** Pandya SR, Kharat RB, Patil MR (Inst ofSci, Dept Chem, Nagpur 440001). **Open cast mine reclamation by application of lime sludge from pulp and paper mill.** *Indian Environmental Prot*, **17**(5), (1997), 355-358 [14 Ref].

With a view to improve the ecosystem of the mining areas, studies were carried out under field conditions relating to effective stabilization of overburden material for agricultural purposes. It is observed that lime sludge increased organic content by 2.34% and water holding capacity by 30 - 40%. The pH increased from 5.6 - 8.2 while nutrients like nitrogen, phosphorus and potassium showed substantial rise as compared to the overburden alone.

**9803 111.** :Shrivastava NP, Desai VR (Reservoir Fisheries Res Cent, CICFRI (ICAR), Kothi Bazar, Hosangabad 461001). **Studies on the bottom macro-fauna of Rihand reservoir (Uttar Pradesh),** *Environ Bio*, **18**(4) (1997), 325-331 [17 Ref].

Macro-benthos of Rihand reservoir (U. P. ) was studied quantitatively as well as qualitatively. The group was mainly represented by dipteran larvae and oligochaetes. High turbidity of water and silt deposition in reservoir were the causative factors for poor population of benthic community. It is recommended not to stock benthophagic fishes in the reservoir because they may not get adequate food in the ecosystem.

## Nature and Natural Resources Conservation

**9803-112.** Brahman M, Acharya BC, Mohanty JK, Sahou RK (Regl Res Lab, Bhubaneswar 751013). **Floristic studies and vegetational assessment in graphite mining areas of Temermal, Baragarh district, Orissa, India.** *Adv. Plant. Sci*, **11**(1) (1998), 241-248 [15Ref].

Floristic surveys and vegetational studies carried out along the line transect in the core and buffer zones of Temermal graphite mines at different distances for identifying tolerant species showed that with increase in distance from the mine site, there was an increasing trend of diversity index and decreasing trend of dominance index. Although species composition differs from site to site, only few species have been found to participate in community formation as dominants and co-dominants.

**9803-113.** Farnsworth Elizabeth J, Ellison Aaron M. **The global conservation status of mangroves.** *Ambio*, **26**(6) (1997), 328-334 [64 Ref].

Paper report and rank current, primary conservation issues threatening mangrove forests at 38 sites in 16 nations and island states, based on discussion with local professional land managers, university scientists, villagers and village leaders and regional government officials. Stand-structure data, analysis of rates and causes of deforestation, techniques for reforestation and socioeconomic evaluations of benefits and costs to local communities of mangrove conservation must be developed and shared.

**9803-114.** Gupta PC, Kumar Rajesh (Dept Bot, PR Coll, Sonapur 841 101). **Medicinal plants in saran district (Bihar): a case study.** *Int Mendal*, **14**(3&4) (1997), 95-96 [3 Ref].

Saran is a district of Bihar having its headquarter at Chapra. The present communication gives a survey of the medicinal plants from different sources. A list of medicinal plants needs to be conserve has been presented.

**9803-115.** Katewa SS, Guria BD (Dept Bot, Coll Sci, ML Sukhadia Univ, Udaipur 313001). **Ethnomedicinal observations on certain wild plants from southern Aravlli hills of Rajasthan.** *Vasudhara*, **2**, (1997), 85-88 [9 Ref].

Present study has been made in several villages of Udaipur, Chittogarh, Dungarpur and Banswara districts. Ethnobotanical information was collected by interviewing residents in remote hilly areas and the information was verified by cross checking with tribals of different localities of Southan Rajasthan. Literature scanning was also done to collect information if the genera is used by other tribals from other areas of India.

**9803-116.** Kumar Arvind (Environ Bio Res Lab, PG Dept of Zoo, SK Univ, Dumka 814101). **A review of legislations and agreements on the conservation of threatened river dolphins.** *Nature Conserv*, **9(2)** (1997), 223-233 [7 Ref].

The river dolphins are threatened throughout the world due to the various factors, viz. , hunting, trade, habitat degradation and environmental destruction. To conserve the river dolphins, the various legislations in different countries where dolphins are indigenous is still inadequate. River dolphin protection may be increased by passing new and more practical legislations or by modifying the existing laws and ratifying the continued international treaties.

**9803-117.** Kumara Arvind, Pande Rajendra (Env Bio Res Lab, PG Dept of Zoo, SK Univ, Dumka 814101, Bihar). **The tribals and the utility of the medicinal plants in their day-to- day lives in Santal Pargava, Bihar, India.** *Ecology Environmental Conservation*, **4(1-2)** (1998), 65-70 [7 Ref].

Most of the tribals are well acquainted with the know-how of the age-old treatment by medicinal plants. They developed the tribal medicines from different local medicinal plants which have become a part of their culture. The medico-ethnobotanical data obtained from the survey of five districts of Santal Pargana, revealed the medicinal usage of different parts of species of the plants.

**9803-118.** Kumar Kaushal, Upadhyay OP, Tiwari RK (Div Phamaco, Dept Dravya-guna, Inst Med Sci, Banaras Hindu Univ, Varanasi 220 005). **Studies on weeds used as ethnomedicinal plants by some tribal people.** *Vasundhara*, 2, (1997), 48-51 [1 Ref].

Weeds play a key role in maintenance of successive vegetaion for environment. Communication reports ethnomedical value of some weeds used as plant-medicine among different tribal communities like Santhal, Paharia, Oraon, Nunda, Kol and Kharwar, etc. Paper records their botanical name, family, tribal name, parts used and the ailments where it is used.

**9803-119.** Kundu NK, Ghose MK (Cent Mining Env, Indian Sch Mines, Dhanbad 826 004), **Shelf life of stock-piled topsoil of an opencast coal mine.** *Environ Conserv*, **24**(1) (1997), 24-30 [24 Ref].

A large opencast coal mine was studied to evaluate the effect of stock-piling topsoil. Soil characteristics of soil dumps of six different ages were compared with those of surrounding unmined sites. Soil profiles were found to change greatly with age. It was observed that, as the age of soil dumps increased from one to 10 years, the concentration of suitable plant growth nutrients in soil gradually decreased and, after six years, the soils were found to be stagnant. This may be considered to be the shelf life of topsoil.

**9803-120.** Mondal Nityananda, Bhattacharya Ashoka, Mandal Sudhendu (Biosyst lab, Dept of Bot, Vishwa Bharati, Shantiniketan - 731235). **Ethnobotanical studies on some aquatic plants of the lateritic belt of West Bengal.** *Int. Journal of Mendal*, **14**(3&4) (1997), 79-80 [7 Ref].

In India, the work on ethnobotany has showed a new way about folk-medicine. Present paper deals with a preliminary contribution to the use of aquatic medicinal plants by the local inhabitants of the lateritic belt of West Bengal.

**9803-121.** Prasad AN, Singh Binay Kr, Dangi MK (Dept of Bot, Vinoba Bhava Univ, Hazaribagh - 825301). **Ethnomedicinal plants of Hazaribag forest mines region (series I).** *Int Journal of Mendal*, **15**(1-2) (1998), 47-48 [7 Ref].

Charhi and Ramgarh forest mines areas were selected for the collection of medicinal plants and the local people were consulted for the medicinal uses. The 40 different ethnomedicinal plants have been described. Paper suggests detail studies based on modern medical science to establish their medicinal uses and to preserve the plant species.

**9803-122.** Rajendran A, Daniel P (Natl Botl Res Inst. Lucknow - 226001). **Rare and threatened verbenaceous species of India.** *Vasundhara*, **2** (1997), 80-82 [10 Ref].

The biodiversity of the world over is getting eroded due to a number of reasons. Paper emphasises that though is necessary to continue inventories of biological diversity, it is also important to carry out revisionary monographic studies. Paper gives detailed information about the family Verbenaceae after revision.

**9803-123.** Ramesh Ramachandran, Purvaja GR, Parashar Danesh Chand, Gupta Prabhat Kumar, Mitra Ashs Prasad (Centre for Water Resources, Anna University, Chennai 600025). **Anthropogeni forcing on methane effluence from polluted wetlands (Adyar river) of Madras city, India.** *Ambio*. **26**(6) (1997), 369-374 [27 Ref].

Wetlands are the largest natural source of methane to the atmosphere. Methane emission from a polluted tropical coastal wetland in Madras City was measured throughout the year adopting the closed-chamber technique. Distinct spatial and temporal variations in methane emission were observed in the wetlands, based on the degree of pollution, at each of these locations. The inhibiting influences of sulfate and salinity on methanogenesis were also obvious features in the present study.

**9803-124.** Sharma KP, Kushwaha SPS, Chaturvedi Neenu, Sharma Subhasini (Bot Dept, Univ of Rajasthan, Jaipur 302004). **Sustainable development in the natural and man made wetlands of India : Some considerations**, *J. Environ Polln*, **4**(1) (1997), 39-44 [35 Ref].

Alteration in plant species composition of natural wetlands presently not declared as sanctuary. National Park and Rasar site is recommended based on extensive field as well as experimental studies, because these species are highly palatable to both domestic as well as wild animals including waterfowl population. These plant species may also be cultivated in the man made wetland areas together with other edible and medicinally important wetland species wherever possible.

**9803-125.** Singh Shailendra Kumar (Forest Survey of India, Dehra Dun). **Mangroves of Tamil Nadu**. *Cheetal*, **35**(1-2), (1996), 28-34 [13 Ref], (Late Recd).

The distribution of mangrove vegetation in the coastal tract of Tamil Nadu has been dealt with. The main species of mangrove vegetation found in Muthupet and Pichavaram have been described. The factors which may lead to the improvement of these bizarre plants have also been indicated.

**9803-126.** Talukdar Bibhav Kumar (Anim Ecol Wildlife Biol Cab Gauhati, Dept of Zoo, Univ, Guwahati - 781014). **Waterbirds of Dibru-saikhowa wildlife sanctuary, Assam**. *Journal of Nature Conservation*, **9**(2) (1997), 243-250 [11 Ref].

The Dibru-saikhowa Wildlife Sanctuary, situated in the eastern part of Assam, is the largest sanctuary in Assam, covering an area of 650 sq km. The area was declared as a Wildlife Sanctuary in the year 1986 with the primary aim of conserving the few remaining endangered White-winged Wood Duck *Cairina scutulata* in their natural habitat. Study reveals the potentiality of the sanctuary in

harbouring the diverse groups of waterbird including the threatened and endangered species.

**9803-127.** Tetali P, Tetali Sujata, Kulkarni DK, Kumbhojkar MS (Naoroji Godrej Cent. Plant Research, Gate No. 431, Shindewadi. P. O. Shirwal, Taluka Khandala, Dt Satara, Maharashtra - 412801). ***Studies on the status and conservation of Frerea Indica Datz, J of Bombay Nat Hist Soc, 94(1) (1997), 115-121 [8 Ref].***

Frerea indica Dalz, has been identified as one of the twelve most endangered plant species by International Union for Conservation of Nature and Natural Resources (IUCN). Paper gives details of research studies carried out in order to understand and save the plant in the wild and under nursery conditions. During the study pollinators were identified. Various forms of threats including pests have also been discussed.

## Health and Toxicology

**9803-128.** Amalan Staneley V, Ramesh N, Pillai KS,II Murthy PBK Kumar TC (Fredrick Inst Plant, Padappai 601301, TN). ***A survey on dental fluorosis among Children at Ennore Chennai. Polln. Res, 16(3) (1997), 143-144 [13 Ref].***

A survey on dental fluorosis among the children residing in Ennore, 14 km away from north of Chennai was carried out. A total number of 1883 children were screened for dental lesions out of which 928 were males and 955 were females. Among the population surveyed, 13. 5% had lesions and males and females had lesions almost in equal proportion.

**9803-129.** Amudha P, Nagendran R, Mahalingan, S (Dept. Zoo, Madras Univ, PG Extension Cent, Officers Line, Vellore 632001). ***Studies on the effects of dairy effluent on the behaviour of Cyprin carpio (Cyprinidae). J. Environ Bio, 18(4) (1997), 415-418 [13 Ref]***

Fish were exposed to various concentrations of dairy effluent. Behavioural changes in *Cyprinus carpio* in relation to immediate stress on exposure to different concentrations of dairy effluent have been determined. Surfacing activity and the opercular beating have been used as indicators of this stress. Both these activities registered notable increases under stress conditions.

**9803-130.** Anand Kumar V, Reddy SLN (Dept Zoo, Osmania Univ. Hyderabad 500007, Andhra Pradesh). **Acetylcholinesterase inhibition in freshwater fish, *Clarias batrachus* (Linne) as a diagnosis of environmental pollution by endosulf and cypermethrin.** *J Aquatic Bio*, **12**(122) (1997), 42-46 [16 Ref].

Acetylcholinesterase (AChE) was determined in the gill and brain tissue of an airbreathing fresh water fish, *Clarias batrachus* (Linne) exposed to two sublethal concentrations (1/10 of LC50; 1/4 of LC50) of endosulfan and cypermethrin for 1,7,15 and 30 days duration. AChE activity decrease in both the tissues was indicative of disruption in the nerve impulse conduction.

**9803-131.** Anand Kumar V, Reddy SLN (Dept Zoo, Osmania Univ. Hyderabad 500007, Andhra Pradesh). **Haematological assessment of & freshwater fish *Clarias batrachus* (Linne) exposed to endosulfan and cypermethrin.** *J Aquatic Bio*, **12**(122) (1997), 53-58 [36 Ref].

A profound increase in Mean Corpuscular Volume (MCV) was observed in endosulfan exposed fish when compared to cypermethrin intoxicated ones. A decrease in MCHC was recorded in endosulfan exposed fish, while the values of same parameter were inconsistent in the case of cypermethrin treated fishes.

**9803-132.** Anitha Kumari S, Sree Ram Kumar N (Cell Molecular Bio Lab, Dept Zoo, Nizam Coll, Hyderabad 500001). **Effect of water pollution on the histology of skin of *Channa punctatus* from Hussain Sagar lake (A. P).** *Env Eco*, **15**(4) (1997), 917-972 [5 Ref. ]

Histopathological alteration induced by the impact of pollutants in the skin of *Channa punctatus* from Hussain Sagar lake was investigated. Histology of skin of polluted-water fish revealed thickening of skin together with degeneration, necrosis, oedems of epidermis and dermis with infiltration of leucocytes when compared with the control fish.

**9803-133.** Anitha Kumari S, Shree Ramkumar N (Cell Molecular Bio Lab, Dept Zoo, Nizam Cell, Basheerbagh, Hyderabad - 500001, Andhra Pradesh). **Effect of polluted water on histochemical localization of carbohydrates in a fresh water, *Channa punctatus* (Bloch) from Hussain Sagar Lake, Hyderabad, Andhra Pradesh.** *Polln Res*, **16**(3) (1997), 197-200 [4 Ref. ].

Effect of pollutants has been localized on the distribution of carbohydrates in heart, muscle, kidney liver, brain, gills and ovary of the fish, *Channa punctatus* inhabiting the polluted waters of Hussain Sagar Lake. The studies revealed that there was a significant decrease in the carbohydrate content suggesting the possibility of increased glycogenolysis in fish under pollutant stress as compared to the control fish.

**9803-134.** Anubha, Gopal Krishna, Daelela RC (Dept Zoo, DAV Coll Muzaffarnagar 251001). **Pathological act of endosulfan and lindan on *Chironomus Larvae* (Chironomidae).** *J Environ Bio*, **18**(4) (1997), 429-434 [22 Ref. ].

Attempt has been made to establish morphological and pathological deformities in fourth instar larvae of *Chironomus* exposed to sublethal dose of two organochlorinated pesticides i. e. , endosulfan and lindane. Shrinkage in the coordination of general body surface has been observed in the exposed larvae. At few places, cuticle as well as epithelium layers were found to be ruptured specially around the interior region. The brush border membrane of the gut wall found damage, the epithelium ruptured to an extent and appeared in the lumen of the gut.

**9803-135.** Awasthi MOC (Lab, Indian Inst Hort Res, Hesaraghatla, Bangalore 560089). **Degradation and persistence of synthetic pyrethroids in the tropical soil and aquatic environment.** *Indian J Env Toxicol*, **7**(1) (1997), 3638 [12 Ref. ].

The degradation, persistence and movement of four pyrethroids: permethrin, cypermethrin, fenvalerate and deltamethrin were studied in sandy loam dry and moist soil, standing water in trenches and fine sediment below standing water in open field experiment. Pyrethroids in general, degraded faster in soil under the influence of moist conditions resulting in over 45% disappearance in 30 days while their adsorption on soil colloids increased the persistence upto 45 days.

**9803-136.** Banerjee V (Hemato Lab, PG Dept Zoo, Patna Univ, Patna 800005). **Influence of zinc and mercury on blood parameters of the fish *Heteropneustes fossilis*,** *Env Ecs.* **16**(1) (1998), 79-84 [11 Ref].

The changes in blood parameters due to lethal and sublethal exposures of mercury and zinc on *Heteropneustes fossilis* were reported. There was no change in erythrocyte shape, size and surface areas of erythrocyte and its nucleus. Erythropenia associated with hypochromasia, increase in ESR, leucocytosis increase in large lymphocytes, thrombocytosis and hypercoagulability of blood were observed.

**9803-137.** Bhawara HS, Kang Naveen, Sharma JD (Dept Criminology, Forensic Sci, HS Gour Univ. Sagar, MP 470003). **Biochemical studies of T-2 toxin on lung and liver tissues of albino rat.** *Indian J Env Toxicol*, **7**(2) (1997), 65-67 [16 Ref].

The effect of T-2 toxin produced by *Fusarium sporotrichoides* on lipid peroxidation and antioxidant enzyme system in the liver and lung tissues of rat have been investigated. Enzymological studies show increased activity of glutamate oxalacetate transaminase (GOT). Glutamate pyruvate transaminase

(GPT) and lactate dehydrogenase (LDH) in the test animals indicating liver damage.

**9803-138.** Bhide M. Modi S (Dept Zoo, Dr HS Gour Vishwavidyalaya, Sagar 470003). **Effect of methyl parathion on the behaviour and reproductive performance of albino rats.** *J Nature Conser* **9**(1) (1997), 61-70 [37 Ref].

Study deals with the administration of 0.20 ml/100g body wt/dose/rat of methyl parathion upto 10 dosage showed behavioural changes and dose dependent toxicity on the reproductive performance of albino rats. The long term treatment of methyl parathion showed severe damage and destruction of ovarian tissue resulted into decrease of ovulation hence hampering the development of Corpus luteum.

**9803-139.** Chandrasekaran GE, Ravichandran C, Sailan IA (Bishop Heber Coll. Res Dept Environ Sci, Tiruchirapalli 620017). **Presence of few heavy metals, lead zinc and iron in our soil and dust in Tiruchirapalli.** *Indian J Environ Prot*, **17**(10) (1997), 728-731 [8 Ref].

Samples of air, soil and dust were collected at three different sites in Tiruchirapalli city. The samples were analysed for the presence of lead, zinc and iron. Considerable amounts of lead and iron were found in air samples. The highest concentrations of the three heavy metals were found in dust samples followed by soil samples. By and large, the presence of these heavy metals in air, soil and dust in Tiruchirapalli may be attributed to the growing number of automobiles.

**9803-140.** Chandravathy V Mary, Sridevi B, Reddy SLN (Dept Zoo, Osmania Univ. Hyderabad 500007). **Age dependent haematological responses during lead nitrate toxicity in mice.** *J Environ Bio*, **18**(4) (1997), 419-423 [13 Ref].

Healthy male mice, aged one month, six months and one year were administered 3.33 mg/100g body weight of lead nitrate orally for 21 days. After

exposure, their bloods were collected to study various hematological parameters. There was an increase in hepatosomatic index indicating stress condition in the body. Though the pattern of toxic effects remained the same in almost all age groups except in case of one month old mice which were more affected. This could be attributed to a relatively more absorption and retention of lead in the body of the young mice.

**9803-141.** Chetia Pusp, Handique Ruma (Dept Life Sci, Dibrugarh Univ, Dibrugarh 786004). **Exposure to diesel exhaust fumes of untuned automobiles and age related variation in body weight and total protein titer in the Muga worm, *Antheraea assama* (Westwood).** *Polln Res*, **16**(1) (1997), 11-14 [27 Ref].

Experiments were conducted to study the impact of exhausts of untuned vehicles on the body weight and total protein of Muga silk worm, *Antheraea assama* along with ageing. The larvae were exposed to the fumes of 1 min. , 5 min. and 10 min. duration from late 2nd instar to late 5th instars. The body weight and total protein were found to increase reaching a maximum in the late 5th instar stadium. The percentage of protein in relation to the body weight was found to increase upto the late 5th instar in the control.

**9803-142.** Chinoy Niloufer J, Bhattacharya Shrobona (Reproductive Toxicology Endocrinology Unit, Dept Zoo, Sch Sci, Gujarat Univ, Ahmedabad 380009). **Effects of chronic administration of aluminium chloride on reproduction functions of testis and some accessory sex organs of male mice.** *Indian Env toxics*, **7**(1) (1997), 12-15 [27 Ref].

Male albino mice (*Mus musculus*) were administered aluminium chloride (orally) at a dose of 200 mg/kg body weight for 60 days. The treatment caused alterations in the metabolism of testis including its steroidogenesis. The data obtained therefore suggests significant metabolic alterations in the testis,

epididymis, vas deferens and seminal vesicles induced by aluminium chloride which could lead to poor fertility.

**9803 -143.** Chinoy Niloufer J, Joshi Harsha, Ghosh Shilpa (Reproductive Endocrinology Unit, Dept Zoo Sch Sci, Gujarat Univ, Ahmedabad 380009). **Toxicity related response of female albino rats treated with benzene and alcoholic papaya seed extracts.** *Indian J Env Toxicol*, **7**(2) (1997), 62-64 [21 Ref].

The effects of administration of benzene and alcoholic extracts of Carica papaya seed (var. Honey Dew) at a dose of 20 mg/kg body weight/day orally for 30 days were investigated to test the toxicity related response of female albino rats. The results revealed that the body weights as well as reproductive organ weights were not affected. No apparent changes were observed in histology of liver and kidney. Study confirms that the benzene and alcoholic extracts of papaya seed are safe.

**9803-144.** Detha MD, Kale VD, Rana SD (Pesticide Residue Res Prof, Mahatma Phule Agril Univ, Rahuri 413722). **Dissipation of endosulfan, fenvalerate and monocrotophos residues on cauliflower.** *J Nature Conserv*, **9**(2) (1997), 239-241 [2 Ref].

Studies on dissipation of endosulfan, fenvalerate and monocrotophos on cauliflower were carried out by GLC determination. Time required by initial residues to reach respective values of maximum residue limit was 4.38, 1.54 and 6.3 days after last spray of 500 g a. i. /ha endosulfan, 75 g a. i. /ha fenvalerate and 350 g a. i. /ha monocrotophos, respectively.

**9803-145.** Dhanapakiam, P Sampoorani V (PG Res Dept Zoo, Alamelu Angappan Coll Women, Koamarapalya 638 183). **Toxicity of diflubenzuron on adult emergence of Spodoptera litura F.** *J Environ Bio*, **18**(4) (1997), 391 -394 [12 Ref].

The diflubenzuron (50 ppm) showed differential effect on the age of pupae in adult emergence. The study revealed an inverse relationship of the degree of malformation and mortality with the age of pupae and this was statistically significant at  $p < 0.01$ .

**9803-146.** Dhembare AJ, Pondha GM (PVP Coll, Pravaranagar 413713 Maharashtra). **Residues of heavy metal mercury in toad and hen collected around Shirampur, Maharashtra.** *Polln Res*, **17**(1) (1998), 73-74 [3 Ref].

Bioaccumulation of mercury is analyzed during December -1995 in different organs as liver, kidney, brain, muscle, lung, intestine of toad and hen. Mercury was found to accumulate more in liver and least concentrated in muscles of both animals studied.

**9803-147.** Fatima SK, Ramana Devi Ch V, Aruna Prabhavati P, Reddy PP (Inst Genetics Hosp Genetic Dises, Osmani Univ. , Begumpet, Hyderabad 500016). **Blood serum protein and calcium levels in portland cement factory workers.** *Indian J Env Toxicol*, **7**(2) (1997), 56-57 [11 Ref].

Serum specimens from 78 workers exposed to cement dust were analysed for the level of total protein and compared with the levels of albumin and globulin. In addition the calcium levels were also monitored. There was a significant increase in total protein and calcium levels in the exposed subjects when compared to the controls. The data also revealed that the maximum changes in serum proteins and calcium occurred within an exposure time limit of total eight years.

**9803-148.** Flora SJB, Purohit RKC (Div Pharmacotoxicology, Defence Res Dev Estb, Jhansi Road, Gwalior). **Health hazards associated with gallium arsenide exposure.** *Cheml Environ Res*, **5**(1-4) (1996), 225-228 [19 Ref] [Late Pub].

Gallium arsenide (GaAs), a crystalline emitter currently finding extensive use in the development of super computers, telecommunication systems, light emitting diodes and semiconductor laser (I). All these uses of GaAs will inevitably lead to an increase in the exposure of workers manufacturing these products. Paper discusses about the problems and suggests some remedies.

**9803-149.** Ginesh KumarA (Human Eco Natl Hist, Sch Socl Sci, Mahatma Gandhi Univ, Malloosseri, P. O. Kottayam 686041, Kerala). **Mercurial fungicide induced changes in the erythrocyte morphometry of Rana hexadactyla (Lesson).** *Polln Res*, **16**(1) (1997), 9-10 [10 Ref].

Emisan-6 is a major mercurial fungicide widely used in Kerala and it contains methoxy ethyl mercury chloride (MeE HgCl) 6% w/w as the only toxic ingredient. Changes in the erythrocyte morphometry of Rana hexadactyla. (Lesson) exposed to 10 ppm of Emisan -6 for 24 hours were recorded and analysed. Significant reduction in the size of erythrocytes (microcytosis) was observed.

**9803-150.** Gopal V, Parvathy S, Balasubramanian PR (Dept Environ Sci, Bharathiar Univ, Coimbatore 641046, Tamil Nadu). **Effect of heavy metals on the blood protein biochemistry of the Cyprinus carpio and its use as a bioindicator of pollution fish stress.** *Environ Monit Assess*, **48**(2) (1997), 117-124 [15 Ref].

Cyprinus carpio were exposed to two non-essential (Hg and Pb) and two essential (Cu and Ni) heavy metal salts at lethal and sub-lethal concentrations. Blood serum total protein, serum globulin and serum albumin was analysed every 2 hr for 24 hrs and again at 48 and 72 hrs. Both lethal and sub-lethal concentrations of metal salts elicited a similar pattern of response varying only in magnitude. The use of fish blood serum protein, albumin and globulin measurements as general indicators of pollutant stress response is discussed.

**9803-151.** Gupta AK, Muni Anand, Kumar Ravindar, Rajana (Environ Res Lab, PG Dept Zoo, SSV Coll, 245101). **Enzymological study on the effects of aldrin on a freshwater teleost fish, *Notopterus notopterus*.** *J Nature Conserv*, **9**(1) (1997), 9-12 [13 Ref].

The freshwater teleost fish *Notopterus notopterus* were exposed to sublethal concentration 0.195 mg/l of organochlorine pesticide, aldrin. The activity levels of succinate dehydrogenase (SDH) and pyruvate dehydrogenase (PDH) were found to be inhibited and level of lactate dehydrogenase (LDH) was found to be stimulated and the changes were directly proportional to time of exposure.

**9803-152.** Gupta Sampa, Banerjee S (Aqua enet, Res Unit, Dept Zoo, Calcutta Univ, 35, Ballygunge Circular Rd, Calcutta 700019). **Bio accumulation of some heavy metals in edible molluscan species in two water areas of Calcutta and Howrah, West Bengal.** *Env Eco*, **16**(1) (1998), 138-141 [11 Ref].

Two water areas -one at Calcutta and another at Howrah were selected. Seasonal variation of different physico-chemical parameters were monitored in two ponds. The accumulation of the heavy metals, namely, copper and lead were studied in two chosen edible molluscan species *Bellamya bengalensis* and *Lamellidens marginalis*. The species *B. bengalensis* accumulated a high amount of copper in the monsoon period and lead in the post-monsoon period.

**9803-153.** Kallanagoudar YP, Patil HS (Dept Zoo, Karnatak Univ, Dharwad 580003). **Influence of water hardness on copper, zinc and nickel toxicity to *Gambusia affinis* (B&G).** *J Environ Bio*, **18**(4) (1997), 409 -413 [19 Ref].

The response of the fresh water fish *Gambusia affinis* to lethal toxicity of copper, nickel and zinc in the water of different hardness (50, 150, and 300 mg/l CaCO<sub>3</sub>) was investigated. Results revealed that copper was found to be more toxic to male, female and fries than nickel and zinc in all the water hardness. Toxicity of the metals was reduced with the increase in the hardness.

**9803 -154.** Kapoor K, Arora Leena (Dept Bot, MLS Univ, Udaipur 313001). **Aluminium induced toxicity and growth responses of cyanobacteria.** *Polln Res*, 17(1) (1998), 25-31 [20 Ref].

Toxic effect of Aluminium on cyanobacteria were studied using growth parameters as well as heterocyst frequency and sporulation under laboratory conditions. Activity of ascorbic acid oxidase, urease of the test organisms in control and metal containing medium were studied. The results indicate growth retarding effect of Al ion on cyanobacteria including cell morphogenesis, heterocyst frequency and sporulation, on two cyanobacteria *Anabaena doliolum* and *Nostoc muscorum*.

**9803-155.** Karunakar Reddy M (Natl Environ Engng Res Lab, HCT Campus, Hyderabad -7). **Studies on work zone environment of a typical coal mine area.** *Indian J Environ Hlth*, **40**(1) (1998), 37-44 [4 Ref].

Paper deals with the SPM levels at the work zone of a typical coal mining area including respirable fractionation and the assessment of dust emanation due to mining activities. Dust emissions from opencast mines are more than the under ground mines. Suitable Environmental management plan is suggested to minimise the dust emission from mining activities.

**9803-156.** Kotecha R, Agrawal GB (Environ Tech Pvt. Inst Ltd, A -271, Okhla Indl. Area Phase -1, New Delhi 110020). **A new hope for protection from adverse health effects of exposure to silica bearing dusts.** *Indian J Environ Prot*, **17**(5) (1997).

The distribution of silica in soil is almost similar to that of carbon in organic matter. Silicates and particularly free silica are insoluble or only sparingly soluble under natural conditions and have a tendency to set or form hard durable deposits. Once inhaled they start cumulating in the respiratory tract and even the lungs thus resulting in respiratory. Paper discusses about the protection from the adverse health effects of silica bearing dusts.

**9803-157.** Krishnamoorthy P, Subramanian P (Dept Arim Sci, Sch Life Sci, Bharathidasan Univ, Tiruchirapalli 620024). **Copper induced protein profile variation in a freshwater prawn, Macrobrachium Lamarrei Lamarrei (H. Milne Edwards).** *J Environ Bio*, **18**(4) (1997), 371-337 [24 Ref].

Present experiments with two different sublethal doses of copper on the commonly available freshwater prawn *Macrobrachium lamarrei lamarrei* help to understand the behaviour of proteins in response to varying copper concentrations. The experimental animal's hepatopancreas, muscle and gill tissue protein fractions were considered as a measure of metabolic changes. Slab gel electrophoretic technique was employed to observe and record the protein profile variation after accumulation and depuration periods.

**9803-158.** Kumar Hemant, Gupta AB (Dept Zoo, DAV (PG) Coll Muzaffarnagar 25 1001). **Toxicity of organophosphorus, carbonates and synthetic pyrethroid pesticides to the Indian catfish, Heteropneustes fossilis.** *J Nature Conserve*, **9**(1) (1997), 111-114 [16 Ref].

LC 50 values at 24, 48, 72 and 96 hr for the Indian catfish *Heteropneustes fossilis* ranged between 29.50 and 17.00 mg/l for Metasystox; 146.00 and 124.50, mg/l for Glyphosate; 1.110 and 0.740 mg/l for Karathane; and 0.034 and 0.026 mg/l for Decis.

**9803-159.** Kumar Ravindure, Arya MB (Dept Zoo, SSV (PG) Coll, Hapur 245101). **Effects of prolonged exposure to ammonia on hepatic transaminases activity of freshwater murrel Channa punctatus (Bloch).** *Indian J Env Toxico*, **7**(1) (1997), 27-29 [16 Ref].

Chronic exposure of *Channa punctatus*, to sublethal concentrations of ammonia, the activity of hepatic GOT and GPT was altered. The changes became significant with the increasing duration of exposure. The data were compared by student's t-test and found to be statistically significant.

**9803-160.** Kumar Ravindar, Gupta Ashok Kumar, Muni Anand, Ranjana (Dept Zoo, SSV (PG) Coll, Hapur 245101). **Physiological dysfunction in a few tissues of *Notopterus notopterus* after chronic exposure to malathion.** *Polln Res*, **16**(3) (1997), 145-147 [15 Ref].

Paper examines the effect of malathion on the activities of alkaline phosphatase (EC 3. 1. 3. 1) and acid phosphatase (EC 3. 1. 3. 2) in liver, kidney, muscle and gill a freshwater teleost *Notopterus notopterus*. The results of the findings has been compiled and presented.

**9803-161.** Kumar T, Anitha K, Muralimohan E, Pillai KS, Murthy PBK, Sekar Babu H (Dept Toxico, Fredrick Inst Plant Bot Toxicho, Padappai 601301). **Toxicity of combination of a neem based pesticide and an organophosphorous pesticide to wister rat.** *J Expt Zoo India*, **1**(1) (1998), 35-41 [21 Ref].

Wistar rats were given distilled water (control, Group 1) or 1/10 LD50 of Econeem (0. 3% azadirachtin) (Group 2) or 1/10 LD 50 of chlorpyrifos (48% EC) (Group 3) or combination of 1/10 LD50 of Econeem + 1/10 LD 50 of chlorpyrifos (Group 4), daily for 14 days by oral intubation. Body weight decreased markedly in group 4 compared to other groups. Feed consumption decreased in all the treated groups. Haematological parameters did not show any change. SGOT decreased significantly in all the treated group compared to control.

**9803 -162.** Mathew Rupa, Kanagaraj MK, Manavalaramanujam R (Unit Polln Bio, Dept Zoo, Bharathiar Univ, Coimbatore 641046). **Lead nitrate toxicity on ventilation frequency, oxyzen consumption and haemoglobin content in fish, *Cyprinis carpio*.** *Polln Res*, **16**(1) (1997), 51-53 [25 Ref].

Fish, *Cyprinus carpio*, treated with sublethal concentration (2. 833 ppm) of lead nitrate showed changes in the ventilation frequency, oxygen consumption and haemoglobin content. Lead nitrate was found to be toxic to fish and the possible reasons for the changes in the above parameters are discussed.

**9803-163.** Murali Mohan E, Banupriye CAY, Anitha K, Ramamoorthy S, Pillai KS, Balakrishnamurthy P (Dept Toxicology, Fredrick Inst Plant Prot Toxicology, Chengai MGR, Dt Padappai 601301). **Effect of sublethal dose of chlorpyrifos 48% EC and cypermethrin 25% EC in wistar rats.** *Polln Res*, **17**(1) (1998), 13-16 [14 Ref].

A group of Wistar rats was given 1/2 LD 50 of chlorpyrifos 48% EC, cypermethrin 25% EC/ or combination of 1/4 LD 50 chlorpyrifos + 1/4 LD 50 cypermethrin for two days by oral incubation and the animals were observed for ten days for toxic signs and mortality. In rats given 1/2 LD 50 chlorpyrifos one died one day after second day of dosing. No mortality occurred in other groups of animals. In all the groups, animals showed paralysis and tremor which persisted for seven days. Blood samples were analysed for haematology and blood chemistry.

**9803-164.** Nigam U, Hans RK, Prakash S, Seth TD, Siddiqui MKJ (Indl Toxicology Res Cent, PB No 80, MG Marg, Lucknow 220001). **Biomagnification of organochlorine pesticides and metals in biota of an Indian lake.** *Polln Res*, **17**(1) (1998), 83-86 [18 Ref].

Organochlorine pesticides and various metals were determined in mussels, snails and crabs from a lake to assess the local pollution by these chemicals and their biomagnification in these organisms from the surrounding water. Mussels mainly accumulated lead and nickel while snails concentrated zinc and copper substantially. Results demonstrate that these organisms may be used to monitor pollution of the environment.

**9803-165.** Pansdit CG, Jha SK, Tripathi RM, Krishnamurthy TM (Environ Assess Div, Bhabha Atom Res Cont, Bombay 400085). **In take of methyl mercury by the population of Mumbai, India.** *Sci Total Env*, **205**(2&3) (1997), 267-270[7 Ref].

Reversed phase high performance liquid chromatography (HPLC) with ultra violet detection (UV) was optimised for separation and quantification of methyl mercury in coastal sediment and fish samples. The extraction efficiency of methyl mercury from sediment and biological samples was found to be 56% a detection limit of 0.5 ng for a 200l sample volume. The daily intake of methyl mercury by the Mumbai population through marine food is about 0.5 g forming 62% of the total mercury intake from this route.

**9803-166.** Patel Dhruva, Chinoy Niloufer J (Reproductive Toxicology Endocrinology Unit, Dept Zoo, Sch Sci, Gujarat Univ, Ahmedabad 38 0009). **Synergistic action of ascorbic acid and calcium in mitigation of fluoride induced toxicity in uterus of mice.** *Indian J Env Toxicol*, **7**(1) (1997), 16-19 [23 Ref].

Effects of oral administration of sodium fluoride (NaF) at a dose of 5 mg/kg body weight for 45 days were investigated in uterus of mice. The reversibility of the induced effects by withdrawal of NaF and by administering ascorbic acid (AA) and/or calcium (Ca<sup>++</sup>) were also studied. NaF treatment resulted in a significant decline in body weight, uterine weight and the levels of DNA and RNA. This probably indicates an alteration in their metabolism related to reduced protein levels in the uterus.

**9803-167.** Patil SS, Mane UH (Dept Environ Sci, Dr Babasaheb Ambedkar Marathwade Univ, Aurangabad 431004, Maharashtra). **Tissue biochemical levels in different body parts of the bivalve mollusc, *Lamellidens marginalis* (L) exposed to mercury in winter season.** *J Aquatic Bio*, **12**(1&2) (1997), 47-52 [34 Ref].

Freshwater bivalve mollusc, *Lamellidens marginalis* (shell length 65 - 70 mm) were exposed for 96 hrs (static bioassay) to mercury in winter season. The LC 0 and LC 50 for this toxicant were 3 and 12 ppm respectively. Under mercury toxicity, there was significant change in biochemical levels in both the experimental groups.

**9803-168.** Pazhoor Bindu K, Chandy Susan, Hari Kumaran Nair R, Shashidhar S (Physio Chem Res Lab, Sch Biosci, Mahatma Gandhi Univ, Priyadarshini Hills PP, Kottayam Kerala 686 560). **Effect of domestic cooking fuel on lung functions in women.** *Polln Res*, **16**(3) (1997), 149-154 [23 Ref].

A study was carried out to assess the effects of domestic cooking fuels on lung functions in south Indian women. The study reveals that domestic cooking fuels have an adverse effect on lung function. The absolute values of VC, FVC, FEV, were lowest in chulla group who used biomass fuel. Further more, this study reports obstructive, restrictive and combined ventilatory defects in women who were exposed to different type of cooking fuels.

**9803-169.** Ponmani R, Dhanakkodi B, Logaswamy S (Dept Zoo, Kongunadu Arts Sci Coll, Coimbatore 641 029). **Sublethal effect of monocrotophos on food utilisation of *Cyprinus carpio*.** *J Environ Bio*, **18**(4) (1997), 321-324 [11 Ref].

A study of the effects of monocrotophos on food utilisation parameters of *Cyprinus carpio* showed a considerable decline in the rates of feeding, consumption, absorption, metabolism and growth as well as conversion efficiencies of the fish exposed to several sublethal concentrations of the pesticide.

**9803-170.** Prabakar K, Saravanan TS, Dawood Sharief S (PG Dept Zoo, The New Coll, Chennai 600014). **Salinity induced variations in the bio chemical constituents of blood and tissues of *Anabas testudineus* (Bloch).** *Eco Env Conserv*, **4**(1-2) (1998), 29-32 [25 Ref].

The freshwater teleost *Anabas testudineus* was subjected to salinity stress (2%). Levels of total free sugar (TFS), free amino acids (FAA) and protein were estimated in the blood, liver and muscle. Exposure to salinity (2%) for 20 days resulted in hypoglycemia, depletion of sugar and protein levels in the liver. All the three organic constituents showed significant decrease in the muscles of stressed fishes.

**9803-171.** Premalatha D, Srinivasan D, Lakshman Perumalsamy P (Bharathiar Univ, Dept Environ Sci, Coimbatore 641 046). **Incidence of multiple antibiotic and metal resistant Salmonella strains in fish and crustaceans.** *Indian J Environ Prot*, **17**(5) (1997), 368-372 [20 Ref].

A total of 78 Salmonella strains (63 from fish and 15 from prawn samples) were tested for their resistance to 10 antibiotics and 5 different metals. Multiple antibiotic resistant indexing of the strains showed that more than 95% originated from high risk source of contamination. It was found that 15.4% of strains were resistant to all the five metals tested. A high percentage (97.4%) of strains exhibited resistance against nickel and less resistance was noticed against cobalt and mercury.

**9803-172.** Quraishi Yasmeen F, Pandey GS (Sch Std Chem. Pt. Ravishankar Shukla Univ, Raipur 492010). **Mercury occurrence in human respiratory tracks in areas of coal-fired industries in India.** *J Environ Bio*, **18**(4) (1997), 395-400 [17 Ref].

Mercury in samples of bronchial wash-outs of chronic patients related to the coal-fired industries was determined. The mercury determinations in similar samples collected from non-coal fired industries was also made. Mercury was also found to be present in samples related to non workers category, but the levels of the occurrence was much smaller compared to that of the plant workers category. The mercury occurrence in bronchial tract in all cases was found to be increasing with increase in the age of the respective subjects.

**9803-173.** Rai Seema, Kumar Sunil, Nath Akhileshwari (PG Dept Zoo, Patna Univ, Patna 800005). **Organophosphorous insecticides and blood urea level in mice.** *Int J Mendel*, **14**(3&4) (1997), 57-58 [10 Ref].

The toxic effect of malathion are attributed to the acetylcholinesterase inactivations that occurs after sufficient parent compound is oxidised to malaoxon. Present investigation incorporate the summary of changes in the

blood ureas level (mg/dl) upon different sublethal oral doses of malathion and parathion in mice.

**9803-174.** Raja N, Venkatesan P (Aquatic Entomo Biocontl Res Lab, DeptZoo, Loyola Coll, Madras 600034). **Impact of pesticides on freshwater body with the water bug- *Diplonychus indicus*.** *Polln Res*, **16**(1) (1997), 47-49 [17 Ref].

Attempt is made on the physico-chemical characteristics of the untreated water as well as the water treated with the pesticide Baytex, Dimillin and K-othrine that are world wide in practice in pest management. Lethal concentration of 50% bug mortality was chosen for this experiment. Results on physico-chemical characteristics of the water samples treated with pesticide in which bugs were exposed show distinct variation in the water quality.

**9803-175.** Ramola RC, Ramachandran TV (HNB Garhwal Univ, Dept Phys, Tehri Garhwal 249001). **Measurement of radon exhalation rate from paper.** *Indian J Environ Prot*, **17**(3) (1997), 166-170 [14 Ref].

Uptake of uranium and radium by plants from radioactive enriched areas may result in the higher concentration of Rn 222 found in paper produced from these areas. Preliminary results have shown that the contribution of Rn 222 from books in the indoor atmosphere cannot be totally ignored particularly in libraries where a large number of books are stacked.

**9803-176.** Ranjit Singh AJA, Haniffa MA (Sri Paramkalyani Coll, Dept Bio, Alwarkurichy 627412). **Tissue enhydration in aquatic snails -an index of organophosphate pesticide contamination in water.** *Indian J Environ Prot*, **17**(4) (1997), 272-274 [7 Ref].

Experimental trials with organophosphate and organochlorine pesticides, revealed that the snails exposed to organophosphate medium alone developed tissue enhydration and edema. In the enhydrated snails, cell swelling, edematous

morphological features, alterations in histo - somatic index, development of behavioural disruptions and loss of sensations were observed.

**9803-177.** Rao Mandava V (Reproductive Endocrino Toxicology Div, Zoo Dept, Sch Sci, Gujarat Univ, Ahmedabad 380009). **Mercury and its effect on mammalian systems a critical review.** *Indian J Env Toxic*, **7**(1) (1997), 3-11 [107 Ref].

Review describes general features, occurrence and biotransformation of mercury. It also elaborates up-to-date research work on the effects of mercury in various mammalian systems. A special emphasis is given on role of antidotes against mercury poisoning in animals and human being through environmental exposure.

**9803-178.** Rastogi SK, Behari V, Mathur N, Pangtay BS (Indl Toxicology Res Cent, Epidemio Sci, Mahatma Gandhi Marg, Lucknow 226001). **Effect of air pollution on the respiratory morbidity and pulmonary function impairment in the Delhi based population.** *Indian J Environ Proto*, **17**(11) (1997), 826-832 [20 Ref].

Under the multimodal pollution monitoring and public awareness programme Industrial Toxicology Research Centre, Lucknow conducted health survey in Delhi based population so as to assess the respiratory status of the residents residing in different localities of Delhi city. The study population (n = 329) in the age group of 16 to 57 year was investigated for the prevalence for respiratory symptoms and type of pulmonary abnormalities.

**9803-179.** Ravi krishnan R, Murugan SS, Pillai KS, Murthy PBK (Dept Toxicology, Fredrick Inst. Plant Prot Toxicology (FIPPAT), Padappai 601301, TN). **Effect of a sublethal concentration of combination of two pyrethroids on acetylcholinesterase in brain of a freshwater fish, *Tilapia mossambica*.** *J Aquatic Bio*, **12**(122) (1997), 39-41 [13 Ref].

The study was conducted on combined toxicity of two pyrethroids, Deltamethrin and Esbiothrin, on the fish *Tilapia mossambica*. The 96 h LC50 value for 2.5% Deltamethrin and 2% Esbiothrin was 0.0224 mg/L. The results of long term exposure to sub-lethal concentration clearly established that there was a significant inhibition in the enzyme activity.

**9803-180.** Ray D, Banerjee SK (Natl Environ Engng Res Inst, Nagpur 440020). **Hepatic toxicity of nickel to *Clarias batrachus* exposed to nickel sulfate solutions.** *Env Eco*, **16**(1) (1998), 147-146 [15 Ref].

Study was made to evaluate the hepatic toxicity of nickel in the fish *Clarias batrachus* exposed to 5, 10, 15 and 20 mg/liter of nickel sulfate solution for 30 days. Nickel accumulation increased with increase of concentration and exposure time. The accumulation of nickel was highest in the liver tissue at exposure of 0 mg/liter. The concentrations of malondialdehyde significantly increased in liver, kidney and testes.

**9803-181.** Sadhukhan Provast Chandra, Ghosh S, Chandhuri J, Ghosh DK, Mandat A\* (\* Dept Biochem, Univ Coll Sci, Calcutta Univ, 35, Ballygunge Circular Rd, Calcutta 700019). **Mercury and organomercurial resistance in bacteria isolated from freshwater fish of wetland fisheries around Calcutta.** *Environ Polln*, **97**(1&2) (1997), 71-78 [33 Ref].

Mercury-resistant bacteria were isolated from gills and guts of fresh water fish collected from wetland fisheries around Calcutta, India, contaminated with mercury compounds. The total number of bacteria, as well as Hg-resistant bacteria, were always higher in guts than gills.

**9803-182.** Sarkar SK (Dept Zoo, Netaji Nagar Day Coll, Calcutta 700040). **Role of temperature and pH on the toxicity of copper sulphate to *Viviparus bengalensis*.** *Polln Res*, **17**(1) (1998), 43-45 [14 Ref].

Acute toxicity (96 h LC<sub>50</sub>) of copper sulphate was determined in the laboratory using the snail *Viviparus bengalensis* at pH 6.0, 7.5 and 8.5 during summer (35.8°C) seasons. Copper sulphate was most toxic in monsoon and least in winter seasons. The snail was most toxic at pH 7.5 and least at pH 6.0.

**9803-183.** Sarkar SK (Dept Zoo, Netaji Nagar Day Coll, Rejent Park, Calcutta 700040). **Temperature influence on the toxicity of oil cakes to fish.** *Polln Res*, **17**(1) (1998), 69-72 [6 Ref].

Toxicity of different species of fish at 20.0, 26.0 and 32.5°C exposed to groundnut cake (GNC), mahua oil cake (MOC) and neem cake (NC) were determined in 96h static tests. Toxicity of MOC and NC to fish was increased along with the increase in temperature. In order of toxicity of oil cake (lower to higher), different groups of fish can be arranged as: catfishes > carps > tilapia. At sublethal levels of MOC and NC at 32.5°C, fish exhibited abnormal behaviour.

**9803-184.** Sarvana Bhavan P, Zayapragassarazan Z, Geraldina P (Dept Anim Sci, Sch Life Sci, Bharathidasan Univ, Tirchirapally 620024). **Acute toxicity tests of endosulfan and carbaryl on the freshwater prawn *Macrobrachium malcolmsonii* H. Milne Edwards.** *Polln Res*, **16**(1) (1997), 5-7 [21 Ref].

Static renewal toxicity tests were performed on the juveniles of the commercially important freshwater prawn, *Macrobrachium malcolmsonii* to determine the 96 hr median lethal concentrations of two insecticides, endosulfan and carbaryl. This was found to be 0.16g/L for endosulfan and 77.37g/L for carbaryl for *Macrobrachium malcolmsonii*. During toxicity tests several behavioural abnormalities were observed in the prawn that had been exposed to various lethal concentrations of endosulfan and carbaryl.

**9803-185.** Saxena Prabhu N Saxena Padma (Toxico Lab, Dept Zoo, Inst Basic Sci, Dr. BR Ambedkar Univ. Agra 282002). **Haemogrammic studies in albino rat after cybil intoxication.** *J Environ Bio*, **18**(4) (1997), 425-428 [8 Ref].

Study was undertaken to evaluate the effect of cybil (AI = Cypermethrin) administered orally to albino rat at dose levels (ml/kg b. w. ) 0 for control, 0. 4 for acute and 0. 02 for subchronic (7, 14 & 21 days) treatments. At the end of the stipulated period the blood was analyzed for pesticidal toxicity. The study indicates that the compound has a dose dependent toxicity.

**9803-186.** Shettaly R, Prasad R, Walia DS (Indian Inst Techno, Dept Cheml Engg. , Hauz Khas, New Delhi 110016). **Effect of chemical pesticides on the environment.** *Indian J Environ Prot*, **17**(4) (1997), 275-280 [24 Ref] (Late Recd).

High residues of DDT and BHC, the most widely used organochlorine have been reported in soil, water, air, food grains, vegetables, fish, eggs, milk and even, in human tissues. The breast milk may also be contaminated with high concentrations of DDT and BHC, more than the permissible limits. This indicates that the wider use of pesticides may be carcinogenic, teratogenic or metagenic in man.

**9803-187.** Shrivastava Sharad, Rao KS (Sch Std Zoo, Vikram Univ, Uijain, MP). **Accumulation of mercury in food fishes of Gandhissagar reservoir (MP).** *J Nature conserv*, **9**(2) (1997), 157-160 [13 Ref].

Studies were undertaken to assess the accumulation of mercury in food fishes of Gandhisagar reservoir. The maximum concentration of mercury in the food fish was found to be 0. 3 mg/kg in 10 kg, Catla catla, 0. 19 mg/kg in 6 Kg. Cirrihinus mrigala and 0. 5 mg/kg in Mystus seenghala. The bioaccumulation pattern indicates that rate of mercury increase is proportional to increasing body weight of fish. The present study establishes the bioamplification of mercury in fish is due to its feeding habits.

**9803-188.** Singh Sudhi, Agarwal Asha\* (\*Dept Zoo, Inst Basic Sci, Dr. BR Ambedkar Univ, Agra 282002). **Alterations in serum protein contents of Psittacula Krameri manilensis (Bechstein) induced by sulphur dioxide.** *Polln Res*, **17**(1) (1998), 39-41 [12 Ref].

The serum total protein, albumin and A/G ratio decrease, with an increase in serum globulin in parakeets after 10, 20 and 30 days exposure to 75 and 150 ppm SO<sub>2</sub>. Initially, there was no major change in the protein contents, while the serum total protein and serum albumin decreased significantly after prolonged exposure to sulphur dioxide. The increase in the serum globulin was non-significant.

**9803-189.** Sontakke, Jadhav Sunita (Dr. Ramazini Res Inst of OHS, 577, Shukrawar Peth, Pune 411002). **Changes in the acid alkaline phosphatase activity in the tissues of Thiara tuberculata after exposure to heavy metals.** *Indian J Env Toxicol*, **7**(1) (1997), 32-35 [19 Ref].

The effect of different types of heavy metal pollutants on the lysosomal enzyme activity of *Thiara tuberculata* was investigated. The lysosomal enzymes showed varied activity after acute and chronic treatment of heavy metal pollutants. The acid phosphatase activity was found to be elevated while alkaline phosphatase activity decreased.

**9803-190.** Sultana Masarrat, Lomte VS (Dept Environ Sci, Babasahb Ambedkar Marathwada Univ, Aurangabad 431004). **Effect of heavy metals (copper, mercury and zinc) on the digestive enzymes of freshwater bivalve *Lamellidens marginalis*.** *Env Eco*, **15**(4) (1997), 803-809 [30 Ref].

The effect of different heavy metals on the enzymatic activity of the bivalve, *Lamellidens marginalis* was observed. The activity of digestive enzymes such as amylase, invertase, protease and lipase after acute treatment showed continuous depletion in all the tested heavy metals. The decrease in the enzymatic activity may be due to the damage caused by the heavy metals to the cells of the alimentary canal.

**9803-191.** Vaidehi J, Rao AP, Sinha N, Dave HB, Sood PP (Lab Neurobis, Dept Biosci, Saurashtra Univ, Rajkot). **Elimination of methyl mercury from fish**

**tissue during glutathione and vitamin B complex therapy.** *Polln Res*, **16**(C3) (1997), 183-188 [28 Ref].

The objective of this study was to eliminate mercury from nervous and non-nervous tissues of fish accumulated during methylmercury intoxication. For this purpose Young fishes (*Rasbora buchanani*) were toxicated with methylemercury chloride (0.1 ppm) for 5 days and thereafter, detoxicated either with glutathione (20 ppm) and vitamin B complex (88.4 ppm) or their combination. The study showed a significant elimination of mercury both from nervous and non-nervous tissues during all the treatments, but the best results were obtained in combination therapy.

**9803-192.** Verma RJ, Chaudhari SB (Dept Zoo, Univ Sch Sci, Gujarat Univ, Ahmedabad 380009). **Detection of aflatoxin in human urine.** *Indian J Env Toxicol*, **7**(1) (1997), 47-48 [15 Ref].

Urine samples collected from healthy adult male donors were analysed for the presence of aflatoxins by standard method. Results revealed the presence of aflatoxins in 24 out of 40 samples analysed Aflatoxin B1 and B2 were detected in 20% and 17.5% samples respectively. The mean concentrations of aflatoxin also varied. Aflatoxin content in urine could be due to consumption of aflatoxin-contaminated food stuffs.

**9803-193.** Verma RJ, Mathew Shalini, Highland HN, Zofair SM (Dept Zoo, Univ Sch Sci, Gujarat Univ, Ahmedabad 380009). **Histopathological alterations in the liver and kidney of rabbits during experimental ochratoxicosis.** *Indian J Env Toxicol*, **7**(1) (1997), 20-23 [16 Ref].

Young inbred strain of female rabbits (*Oryctolagus cuniculus*) weighing approximately 650-750 g were fed with ochratoxin contaminated feed (10 mg/kg) for 90 days and the related morphological and histopathological changes were recorded. Results revealed that consumption of ochratoxin contaminated diet induced reduction in feed intake, lethargy and respiratory troubles.

**9803-194.** Verma RJ, Raval PJ (Dept Zoo, Univ Sch Sci, Gujarat Univ, Ahmedabad 380009). **Effect of aflatoxin on serum enzymes.** *Indian J Env Toxicol*, **7**(1) (1997), 24-26 [21 Ref]

Young inbred New Zealand strain rabbits were treated with aflatoxin-contaminated (15 mg/kg) or control diet for 60 days and serum samples were assayed for various enzymatic activities. Results revealed significant increase in activities of acid phosphatase, aspartate aminotransferase, alanine aminotransferase and lactate dehydrogenase in the serum of aflatoxin fed rabbits.

**9803-195.** Yeragi SS, Yeragi S (KJ Samaiya Coll Sci Comm, Mumbai 400077). **Effects of salinity as the environmental factor on the survival of *Gelasimus* species of Mithbav creek, Maharashtra.** *Indian J Aquatic Bio*, **12**(1&2) (1997), 21-23 [4 Ref].

Present investigation revealed that the tolerance range for variation in salinity varies in different species. There is also seasonal variation in the range of salinity tolerance. The LC50 values were not the same for all the three species during summer and monsoon. The variation was in the range of 7 to 12% in summer and 2 to 5% in winter.