SUMMARY
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STUDIES ON THE ENVIRONMENTAL POLLUTION IN THE VICINITY OF AURANGABAD CITY AND ITS IMPACT ON HUMAN HEALTH

Pollution has always been the disastrous issue in the third world countries like India and some other countries in the Asian continent. Number of reasons have been traced out by several workers while working in the field of environment pollution. Progress is always been a matter of pride and proud for human being. Man has not got the sheer satisfaction not mearly because of economic progress, but he got inspiration through several mechanical means which made his life more luxurious in every aspects. This mechanisation took birth due to the tremendous development in science and technology, governes certain parameters such as urbanisation and exploring industrialization to cultivate and produce the substaintial things required for the luxurious livelihood. This rapid industrialization simultaneously enhances pollution explosion leads the health of human being to hazardous and crucial stage of life.

Keeping in mind the severity of different kinds of pollution including water and soil, the present study has been setup to assimilate the experimental data of a different pollutants procured through the experimentation carried out in this regard.
To know the physico-chemical parameters of the samples collected at different samplings stations, following stations are selected.

**For water:**

1. Naregaon Nullah, MIDC Chikalthana,
2. Powerloom Nullah, MIDC, Chikalthana,
3. Chaudhari nagar Nullah, MIDC Chikalthana,
4. Chikalthana Bridge Near Chikalthana,
5. Babanrao Dhakne High School (Wel) near Chikalthana,
6. Tube well (Naregaon) MIDC, Chikalthana,
7. Salim Ali lake (Delhi gate talab),
8. T.B. Hospital pond (Aamkhas reservoir),
9. Municipal Nullah, near Bus Stand,
10. Slaughter House, Near Padegaon,
11. Paper and Pulp Mill (APM) MIDC, Paithan,

**For Soil:**

2. Powerloom Nullah, MIDC, Chikalthana.
3. Anil chemical, MIDC Chikalthana.
5. Sugar Factory, MIDC, Paithan.
7. Botanical Garden, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

Following parameters are taken into consideration to investigate the load of pollution in water and soil in and around Aurangabad city.

**Parameters for water:**

pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Hardness, Carbon dioxide, Chloride, Total Solids (TS), Total Dissolved solids (TDS), Nitrate, Planktonic study and Bacterial count.

**Parameters for soil:**


For the analyses samples of water and soils were collected every months for the period of two years, early in the morning from above listed sampling stations, in and around Aurangabad city.

During these two years, over all results of water and soil analyses, pH is noted in the range of 3 to 5 at the sampling station No. 10 and 8 to 12 at sampling station No. 11 during summer season. Dissolved oxygen was observed between 0.1 at sampling station No. 12 to 6.1
mg/l (sampling station No.5) during the summer season. The biochemical oxygen demand, between 1.3 mg/l (sampling station No.6) to 1371 mg/l (sampling station No. 10), here minimum BOD was observed in the summer season and was maximum in winter season. The chemical oxygen demand was recorded 116 mg/l (sampling station No. 8) to 19120 mg/l (sampling station No. 10). During the summer seasons the carbon dioxide observed in range 10.01 mg/l (sampling station No.5) summer seasons to 672 mg/l (sampling No.12) during the winter season. The hardness observed in the range 161 mg/l at the sample station No.1 in summer season to 989 mg/l in the sampling station No.2. During the winter season, chloride was found in the range of 23.96 mg/l in sampling station No.11 during the winter season to 469 mg/l in the sampling station No.2 in summer season. The total solids observed in the range of 762 mg/l in the sampling station No.7 in winter season to 8650 mg/l in sampling station No. 10 during summer season. The total dissolved solilds observed in the range between 285 mg/l in sampling station No.7 in the winter season to 5300 mg/l in the sampling station No. 10 during summer seasons. The total suspended solids are recorded in the range 117 mg/l in sampling station No. 8 during winter season to 396 mg/l in sampling station No. 12 in the summer season. The sulphate ($SO_4$) was observed in the range 0.21 mg/l in sampling station No. 8 in the winter season to 12.23 mg/l in sampling station No. 10 during summer season. The
phosphate recorded between 0.05 mg/l in sampling station No. 5 in summer season to 12.62 mg/l in the sampling station No. 12 in the summer season. The nitrate observed in the range 0.087 mg/l in sampling station No. 7 in summer season to 2.37 in sampling station No. 3 during winter seasons.

Similarly, seven sampling stations were also selected for the analyses of soil samples collected for analyses in every months for two years and the results are recorded as follows: pH was recorded minimum 7 in the sampling station No. 3 in the monsoon season and maximum 9.13 in sampling station No. 5 during summer seasons. The exchangeable calcium observed minimum 0.043% in sampling station No. 4 in summer season and maximum 1.06% in sampling station No. 2 in the monsoon seasons. The exchangeable magnesium recorded at 0.03% in sampling station No. 1 in summer season and maximum 0.1% in sampling station No. 5 in winter season. The organic carbon was recorded in the range 0.07% in sampling station No. 3 in summer season and 1.44% in sampling station No. 5 in monsoon season. The organic matter found minimum at 0.04% in the sampling station No. 2 in winter season and maximum 2.49% in the sampling station No. 5 in winter season. The free calcium carbonate observed in the range 10.04% in the sampling station No. 6 in summer season and 61.44% in sampling station No. 5 in winter season. The nitrate was observed in the range 0.03% in sampling station
No. 4 in monsoon season to 5.85% in the sampling station No. 6 during summer season. The available phosphorous was recorded in the range between 0.06% in sampling station No. 1 during winter season to 3.1% in the sampling station No. 5 in the monsoon season.

The overall data for water and soil analyses shows the drastic fluctuations in the levels of different parameters undertaken during the study of present research work.

To substantiate the study to human health, count of microbial population had also been considered as one of the prime factor for the pollution studies and its hazards effect on human being and other living organisms. Similarly, study on the biotic population such as phytoplankton, zooplankton, had also been carried out. The microscopic observations in this line of different water samples and soil samples gives the clue about the nature of water quality and how it is hazardous to human life in the vicinity of Aurangabad city.

These comprehensive details are presented in different chapters with exclusive descriptions and high lighted the reasons and the depth of pollution load in Aurangabad city which have been neglected and ignored by every one of the society in respect with the pollution studies.
In the present work, for its systematic presentations, has been split into chapter as:

1. Introduction
2. Material and methods
3. Results.
4. Discussion.
5. Significance of effluent treatment plant (ETP)
   
Annexure: Summary