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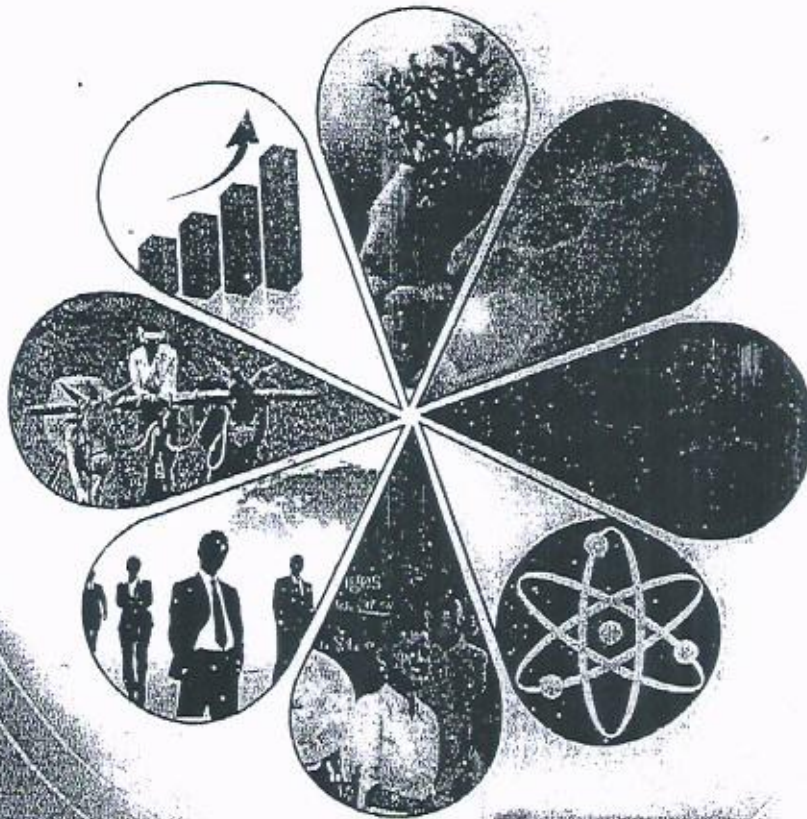
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Bacteriological and Physico-chemical characterization of Godavari water in Kumbh Mela period

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Abstract:

Human population suffers from a variety of water borne diseases. It is difficult to understand the biological phenomena fully because the Chemistry of water reveals much about the Metabolism of the Ecosystem and explain the general hydro biological relationship. In the study the physico chemical parameter such as pH, optical density (O.D.), alkalinity, hardness, chloride content, dissolved oxygen (D.O), Biological Oxygen Demand (BOD) and Most Probable Number (MPN) was evaluated. Water samples collected from Ramakunda, Tapovan and Dasak at the time of Shahisnān during Kumbha Mela and bacteriological, physical and chemical analysis was done. The water analysis shows that the pollution level in the water sample is so high that water cannot be used as potable water. This may have a very serious impact on the health of the society. High organic matter content is responsible for the depletion of dissolved oxygen content which has adverse effect on aquatic ecosystem⁴.

Key Words : water quality, water potability, pollution, MPN, Bacteriological quality of Water, Kumbha Mela

Introduction:

Water is the most precise thing in the world, which we cannot live without. Water is super abundant on the planet as a whole, but fresh potable water is not always available at the right time or the right place for Human or ecosystem use. The water being an important part of environment occurs as solid, liquid and gas forms on the earth. As a liquid, it forms hydrosphere, which covers approximately three-fourth of the earth's surface. About 97% of the total available water on earth is saline, and hardly 3% is fresh. A small portion of the fresh water fulfils the fresh water requirements of Human beings. River plays a significant role in fulfilling the fresh water requirements in the world¹. India is a secular country so there many festivals celebrated like Deepawali, Dussahra, Eid etc. except these festivals some other festival which is celebrated enthusiastically; KUMBH MAHOTSAV is one of them. It is mass gathering of Hindus along the banks of holy river in India¹.

Thousands of years ago, perhaps in the Vedic period, gods & demons made a temporary agreement to work together in obtaining amrita (the nectar of immortality) from the Milky Ocean, & to share this equally. However, when the Kumbha (pot) containing the amrita appeared, the demons ran away with the pot & were chased by the gods. For twelve human years the gods & demons fought in the sky for the possession

of this pot of amrita fell on the four places: Prayag, Haridwar, Ujjain & Nashik.² Thus, Kumbhamela is observed at these four locations where the nectar fell. The Venue depends on the position of the stars and planets. It is held every third year at the one of four venues by rotation. Our study place Nashik Kumbh is celebrated when Jupiter ascends into sun sign leo's quarter or the "Simhastha". It is believed that a holy bath in sacred river during Simhasthamela has purifying effects. For this reason, Hindu religion follower believes that Simhasthamela is the most auspicious place in the universe to take a holy bath³. These impacts Water quality refers to the chemical, physical and biological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species or to any human need or purpose.³ It is most frequently used by reference to a set of standards, generally achieved through treatment of the water. The discharge of wastes from municipal sewers is one of the most important water quality issues world-wide. It is of particular significance to sources of drinking-water. High Chloride content is the index of pollution, the source being the human fecal matter containing high quantity of chlorides along with nitrogenous waste. Chloride based health complications have not reported yet but 250mg/l, they give bad taste to the water and corrode the metals.

The estimation of alkalinity is very essential for the water softening process. It is also determined to prevent corrosion in water pipelines and to evaluate the buffering capacity of water. Among the different forms of alkalinity, water with hydroxide alkalinity is strictly restricted and therefore along with the determination of total alkalinity, the identification of different forms is needed⁹. Municipal sewage contains human feces and water contaminated with these effluents may contain pathogenic (disease-causing) organisms and, consequently, may be hazardous to human health if used as drinking-water or in food preparation⁴. Faecal contamination of water is routinely detected by microbiological analysis. The term "total coliforms" refers to a large group of Gram-negative, rod-shaped bacteria that share several characteristics.

Materials and Methods:

1. Site Description

The Godavari is a major waterway in central India, originating in the Western Ghats Trimbakeshwar, in the Nashik Subdivision or District of Maharashtra and flowing eastwardly across the Deccan Plateau through the state of Maharashtra. It is known as Dakshin-Ganga (Southern Ganges) because it originates from river Ganga (underground water) near Trimbak in Nashik. Water samples were collected from Ramakunda, Tapovan and Dasak at the time of Shahisnan

2. Sampling Procedure

For collection of water sterilized bottles was used. Bottles were washed thoroughly and rinsed with distilled water, for microbial analysis each dry bottle was rinsed with 0.5ml Sodium Thiosulphate (10% solution). Water samples were collected from a depth of 30-40 cm by lowering pre-cleaned plastic bottles into the river. Water collected in the air tight bottles was taken to the laboratory for further analysis.

3. The parameters analyzed during study including physico-chemical characteristics are pH, BOD, alkalinity, chloride content and MPN test for coliform contents in the water.

- 3.1. pH - Assessment of this parameter was made using electronic pH meter.
- 3.2. The optical density of water that is the logarithmic ratio of intensity of transmitted light is measured by using a spectrophotometer at 530nm.
- 3.3. Biochemical Oxygen Demand – BOD is a measure of the amount of oxygen used by biological and chemical processes in a stream of water over a 5-day. BOD is calculated by measuring the oxygen level of the water on collection and then 5 days after storage in the dark at a constant temperature of 20°C. The difference between DO and BOD is the demand or consumption of oxygen by chemical and biological process. The BOD is measured in milligram per litre of water. Unpolluted and natural water should have a 3 mg/l or less.
- 3.4. Chloride content evaluation is done by titrating the sample against silver nitrate using potassium chromate indicator. The method is mercuric nitrate method.
- 3.5. For determination of alkalinity, 50ml sample after collection is taken, 2-3 drops of phenolphthalein indicator was added. If the solution is pink in colour it was titrated against 0.1N Sulphuric acid. Appearance of slight pink colour indicates presence of hydroxide or carbonates.
- 3.6. Spread Plate Technique - The spread plate technique involves using a sterilized spreader with a smooth surface made of metal or glass to apply a small amount of bacteria suspended in a solution over a plate. Spread the sample evenly over the surface of Nutrient agar, Sabouraud's agar and MacConkey's agar using the sterile glass spreader, carefully rotating the Petri dish underneath at the same time. Incubate the plate at 37°C for 24 hours. Calculate the CFU value of the sample. Once you count the colonies, multiply by the appropriate dilution factor to determine the number of CFU/ml in the original sample.
- 3.7. The MPN (Most Probable Number) method is multiple tube fermentation. Where the determination of water quality is done. The presumptive test involves the use of MacConkey Broth fermentation tubes (D.S. Strength and 5 tubes with 10ml and S.S. 10 tubes 5ml each). The tubes were inoculated with water sample (10ml in 5 tubes of D.S. media, 1ml in 5 tubes of S.S. and 0.1ml in 5 tubes of S.S. media). The results were confirmed by using McCrady's table.

Results:

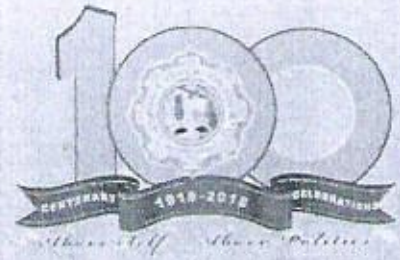
Table 1. pH Analysis of Godavari water collected from different places

Dates	pH		
	Dasak	Ramkund	Tapovan
14/07/15	7.07	6.64	6.67
29/08/15	6.38	6.88	6.65
13/09/15	6.20	5.98	6.92
18/09/15	6.18	5.95	6.45

The MPN Index (Most Probable Number) is found to be 1700 coliforms per 100ml of Water sample confirmed by McCrady's table. The water cannot be used for drinking and other household works due to high concentration of pollutants. Thus it can be concluded that, during Shahisnan, Microbial content was found to be very high, and also, other physico-chemical parameters are found to be at high risk levels.

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Administration in Science College

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Abstract:

Now days, technology is used in every sectors in increasingly innovative ways to expand the accessibility to education, improve student learning outcomes, provide greater institutional effectiveness and enable greater efficiencies that help to keep the cost of college that would be affordable to more number of students. Since a long time scientific and social challenges have become more complex and scientific knowledge have advanced, scientists have increasingly joined with colleagues in collaborative research referred to as team science. The Research and Development office and Scholarship Committee shall work closely to determine the gaps in human resource capability to prioritize the special fields that are in demand. Collaboration is very important in capability building of qualified person. This is the study related with the challenges for students, teachers and management system to carry out day to day activities.

Key words: *administration, research attitude*

Introduction

Colleges or Universities are the places where employees are handling all the maintenance and supervision of Institution. Some involve separate administrative structure and some have scholarly work. There are many administrative responsibilities such as Admissions, Supervision of academic affairs, maintenance of official records, maintenance of audit, maintenance and construction of campus buildings, grounds, library, laboratories etc. Apart from that Research administration, public affairs and student services such as disability services, career counseling and library staff.

With the rise of globalization and electronic commerce, the world of business has become much more interesting and more complex. To be successful, you need not only to understand this complexity, but to acquire the skills to manage and embrace rapid change.

Research has shown that strong and supportive leadership from administrators is imperative for the continuous enhancement of knowledge, skills, and performance of their staff. Although Education is the field that gives Education, Knowledge, Career opportunities and the way of life, still every member of this society has its own challenges.

The present study reveals the challenges faced by the members of administrative system such as students, teachers and management to perform their routine work.

For Students

1. To develop the scientific attitude amongst students.
2. Experimentation should be guided with keen observation and logical thinking.

3. Think to overcome the difficulties.
4. Scientific library and laboratories should go hand in hand.
5. Innovation approach may be appreciated, guided and corrected.
6. Active participation of students in Research project will train them in development of research.
7. Time Management problem
8. Debt. Problem: Tuition costs are rising at alarmingly high rates.
9. Homesickness

For Teachers

1. Teachers should be well qualified.
2. Teachers should find the way to percolate whatever he /she has learnt from book and experience in a lucid manner.
3. Never neglect the difficulties raised by the students to present the best scientific thoughts.
4. They should present the best/scientific thoughts from the literate / great scientist.
5. Teachers should be research oriented.
6. Teachers should be motivated to undertake Minor / Major Research Projects.
7. Teachers should get financial support from funding agencies.
8. Tap scholarship opportunities from national and international sponsors to build/enhance capabilities among faculty and other personnel doing R&D activities. The R&D Office and the Scholarship Committee shall work closely to determine the gaps in human resource capability to prioritize the specialized fields which are wanting.

For Management

1. College should take efforts to obtain the funds from funding agencies like DST, UGC etc.
2. For teachers and students, management should take initiative for financial support through BCUD or similar funding agencies.
3. Management should encourage teachers for patent filing and should support financially for the same.
4. To exchange the ideas, management should organize various workshops, seminars and conferences at state, National and International levels.
5. The enthusiasm of faculty researchers in Research and Development should be sustained.

Difficulties

1. Laboratory facilities are not sufficient for carrying out research work.

2. Sufficient funding are not available.
3. Students are reluctant towards research.

Remedies

1. Laboratories facilities can be improved by the support of management. At least the required instruments and apparatus can be provided by management.
2. Motivation should be given to teachers for Major and Minor Research Projects.
3. International and National collaborations should be increased to raise the funds.
4. Awards or incentives should be given to the students for their research to increase awareness in research.
5. Partnership with international institutes in the form of joint research projects, allows sharing of research facilities and major infrastructure, which will allow access to research data and discoveries and linking of research centers and virtual networks.
6. The enthusiasm in researcher/ teacher can be sustained by provision of incentives and support of travel grants to attend and present papers in scientific for gatherings, publication support and time release to efficiently work on their research through teaching load reduction.

Conclusion

Studies show that communication skills, conflict management skills, and cultural management skills were required of effective academic leaders. Also, research has shown that strong and supportive management and leadership from administrators is imperative for the continuous enhancement of knowledge, skill and performance of their staff.

Administrator skills of flexibility, openness to change, creativity, professionalism, good public relations, and fund-raising were recognized as providing a competitive edge by faculty.

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