



Awareness among the population about algae and its application in today's world like the rising technology of harnessing electricity from algae.

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Abstract : This study has been done to know how many people in our state, including from both rural and urban areas, are aware about algae and its application in harnessing electricity. This study also discusses algae and its application in today's world. Surveys have been conducted through both online and offline mediums with different people belonging from different areas. Public awareness programs have also been conducted to create its awareness.

1. INTRODUCTION

Algae which is a phytoplankton and plays a crucial role in oxygen production and is now also rising as a source of electricity in Bihar. It is also an important resource for reducing pollution but still in different regions people consider it as a waste. We have conducted public awareness programs for the people of rural areas and told them about the importance of algae in our environment. Survey data have been added in this research paper.

2. NEED OF THE STUDY.

In Today's time also people are not much aware about algae and its applications. Currently algae is used as air purifiers, for making bio fuel, for making medicines and also for harnessing electricity but people are not at all aware about it. This study aims to create awareness among the people about algae because it is now rising as a useful resource in many fields and we can promote it's usage domestically.

2.1 Applications of algae in today's world:

1. **Utilization of algae for electricity generation:** Two students in Bihar namely Jay Aditya and Paramveer Kumar are working on the project "Technological innovation to generate electricity from algal biomass" they are currently harnessing around 5 volts from 65gm algae and it is in R&D. It is an algal bio-photovoltaic cell. They are working on it with Gaurav Kr. Pandit sir (Srikrishna science centre) and Dr. Saurabh Kumar sir (ICAR RCER) and this project has also been selected in 31st National Children

Science Congress from state of Bihar and also won many competitions like Top 1000 in Youth

Ideathon 2023 and many more.



Jay presenting his project electricity from algae to former education minister of Bihar

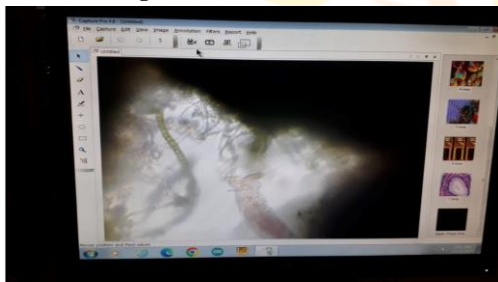
2. **Utilization of algae in reducing air pollution:** A project namely "Liquid Tree" is going on in Serbia. This project aims to reduce air pollution in urban areas. The microalgae within the bioreactor possess the ability to replicate and replace the carbon dioxide absorption equivalent to that of two ten-year-old trees or a lawn spanning an area of 200 square meters. Notably, microalgae demonstrate a photosynthesis-based carbon dioxide binding efficiency that is 10 to 50 times higher than that of trees, as demonstrated in a

study by Singh and Dake in 2023. (Ananya Dhar, Sukamal Sarkar, Saikat Dey, 2023)



Liquid tree

- Utilization of algae and its surrounding zooplanktons: During examining algae under microscope several zooplanktons were noticed and after further research, it was found that they are called as "ROTIFER" and after discussing it with Dr. Kamal Sarma sir (ICAR RCER) we got to know that "ROTIFER" is used as fish food and after discussing use of algae in pisciculture with Jawaid Alam sir (Hydroponist) he told that algae can also be used as fish food.



Rotifers microscopic image

- Utilization of algae for making biofuels: The concept of using green algae as a feedstock for biofuel production is gaining attention due to spiraling prices of petroleum, rapidly diminishing natural oil reserves, and more notably, the emerging lethal problems associated with global warming caused by the burning of fossil fuels. (Sahib Alam, 2022)
- Utilization of algae in making medicines: Algae is one of the most alkalising of all natural foods on our planet that provide abundant supply of many alkalising minerals and compounds. It explains its credibility in maintaining more alkaline internal environment and thus it's potential in treatment including cancer (James, 2011).

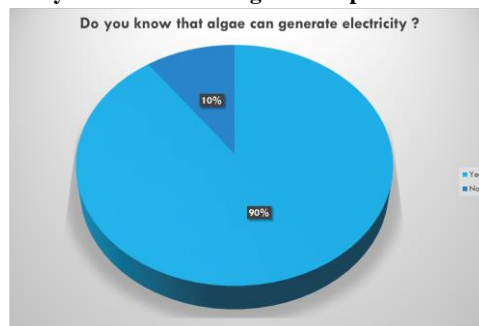
3. RESEARCH METHODOLOGY

To know about the awareness among people about algae and it's application in modern world, some surveys have been performed in both online and offline medium. A survey cum public awareness program with the people of rural area was also performed in Bihar water development society. An online survey was performed with professionals from different sectors. In these two survey the number of question was less but in another offline survey we had 20 questions.

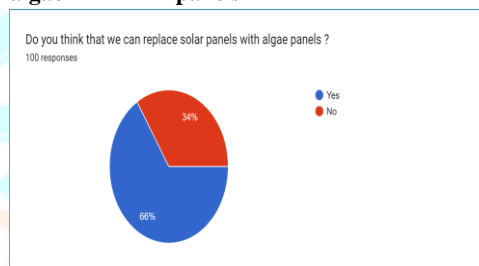
3.1 Questionnaire and Responses of survey

In first online survey about electricity generation from algae:

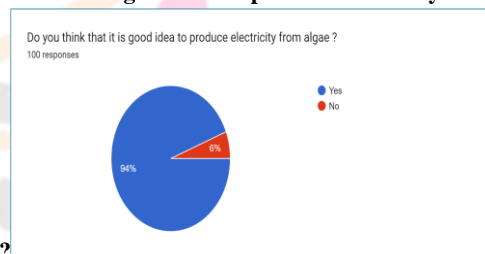
- Do you know that algae can produce electricity?



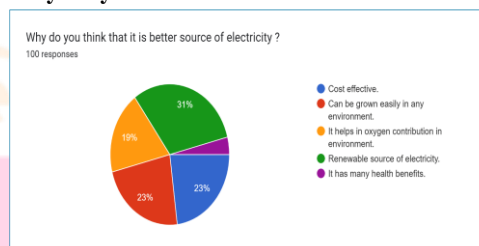
- Do you think that we can replace solar panels with algae panels in future?



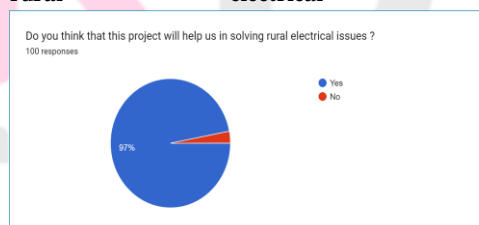
- Do you think it is good idea to produce electricity from algae?



- Why do you think it is a better source of electricity?

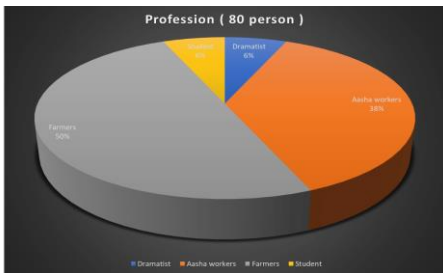


- Do you think that this project will help us in solving rural electrical issues?

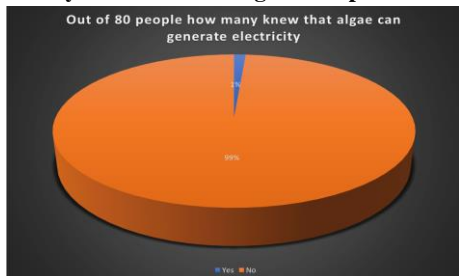


In second offline survey about electricity generation from algae among the people of rural areas:

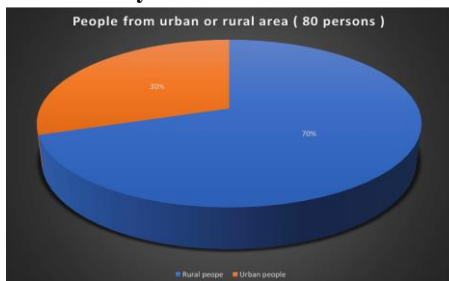
1. Profession.



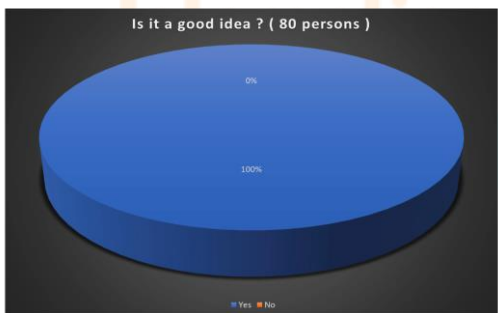
2. Do you know that algae can produce electricity?



3. How many of them were from rural areas?



4. Is it a good idea?

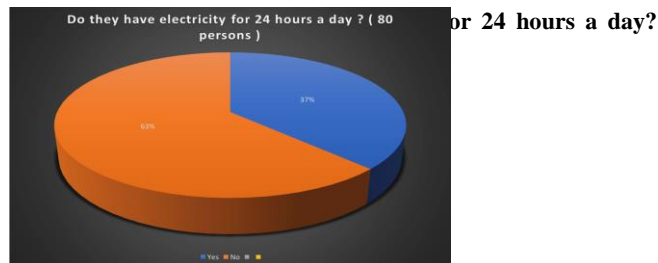


5. Why do you think it is a good idea to produce electricity from algae?

-People considered it as a good idea because they considered algae as a waste and never thought that it would also help us generate electricity. That is why they considered it as a good idea.

6. Will it solve rural electrical issues?

-Everybody affirmed and said that if upscaled and implemented properly it will solve rural electrical issues.



8. What problem do they face due to lack of electricity?

-They told us that due to lack of proper electricity it becomes difficult for their children to study and specially in summer they face more difficulties due to heat waves.

Questionnaire of third offline survey about electricity generation from algae among the professionals from different sector:

1. Are you from rural area?
2. Do you have electricity for 24 hours a day?
3. If you don't have electricity for 24 hours a day, then what problem do you face?
4. Have you ever seen algae?
5. Do you consider algae as waste?
6. Do you consider algae beneficial for earth?
7. Do you know that we can harness electricity from algae?
8. Do you think that it is good idea to produce electricity form algae?
9. Which is better, algae or plant?
10. On earth from where do we get most of the oxygen? Plant or algae
11. Why do you think it is a good idea?
12. Do you think that we can replace solar panels with algae panels in future?
13. Will it be able to solve rural electrical issues?
14. Do you consider algae as a beneficial resource for energy generation in future?
15. Is it efficient to harness electricity from algae?
16. Do you or your children face problems in studying due to lack of proper electricity?
17. Do you have solar panels at your home?
18. If yes, then how much did it cost you?
19. If yes, what do you use it for?
20. Have you ever imagined that we could use algae for electricity?

Filled survey form

3.2 Steps taken to create public awareness initially

For creating awareness among the people we have conducted some public awareness programs. One of them was

among teachers of B.D. Public School, another was among the students and teachers of Kainat international school and was conducted in the hall of Tarumitra Ashram and the other one was conducted at Bihar Water Development society, it was among the people of rural areas, it was a public awareness cum survey collection program.

4. RESULTS AND DISCUSSION

From the survey data it can be interpreted that people are not much aware about algae and its applications and still consider it as waste. The survey data presented in this research paper is assumed to be the average response of the population.

5. Images of public awareness program:



Among teachers



Among people of rural areas

6. Acknowledgment

The Author is extremely thankful to Mr. Gaurav Kr. Pandit and Srikrishna Science Centre for guiding the author at each and every step and would also like to thank Debopriya ma'am from the NGO namely Tarumitra. The author would also like to express his gratitude to Dr. Saurabh Kumar and Dr. Kamal

Sarma sir from ICAR RCER, Patna and Jawaid Alam sir. The author would also thank his parents, his teacher MR. Ranesh Kr. Jha, Paramveer Kumar and B.D. Public School.

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