



CONCLUSION



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In the present investigation, the results of the study justified that, iron content can be reduced effectively by using the suitable adsorbent and effective oxidizing/degrading microbes (here iron oxidizing bacteria).

1) Conclusion –

The following concluding points of the research work as follows are-

- a) Iron oxidizing bacterial isolates have significant reduction potential in removing the iron content from the water samples. Precisely if compatible natured bacteria are available and we can develop an effective medium for the same maintaining suitable pH and temperature, the iron removal activity will be increased.
- b) The compatibility screening of iron oxidizing bacteria is a vital step in the development of a successful bioremediation strategy. By identifying synergistic bacterial consortia, we can enhance the efficiency of iron removal processes, leading to more effective and sustainable water treatment solutions.
- c) The detailed characterization of carriers used in this study highlights their suitability for supporting iron oxidizing bacteria and enhancing iron removal from water. Understanding the physical and chemical properties of these carriers is crucial for optimizing the bioremediation process.
- d) Suitable carriers having effective adsorption capacity are also another strategical agent in removal of iron from the water. The carriers along with suitable consortia was utilized in the reactor with inside coating allowing a retention of 35-45 minutes enables the significant reduction in iron content.

- e) The pilot reactor designing (mainly from inside) having coating of carrier and iron oxidizing bacteria will be favorable in such treatments.

2) Future prospectives –

Further studies are still required to work further on large scale to optimize the suitable carriers, microbial dosages, retention/exposure intervals etc. to develop the commercial scale viability.