



# REMOVAL OF MICROPLASTIC IN WATER USING OIL-BASED FERROFLUID SOLUTION

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## ABSTRACT

Microplastic in water is the major cause of many harmful diseases so along with the government this is the duty of every citizen to contribute to resolving it. By using knowledge in a correct way, we can reduce the amount of micro plastic in water, and it is possible to make our drinking water safe and clean.

## INTRODUCTION

Microplastic are plastic particle under 5mm in size. They enter the environment through human use. Larger plastic debris can degrade into micro size particle with exposure to sun and water. Microplastic are pervasive in lakes, Oceans and drinking water. They are ingested, Inhaled and absorbed throughout the food chain from microscopic organisms to human.

## METHODOLOGY

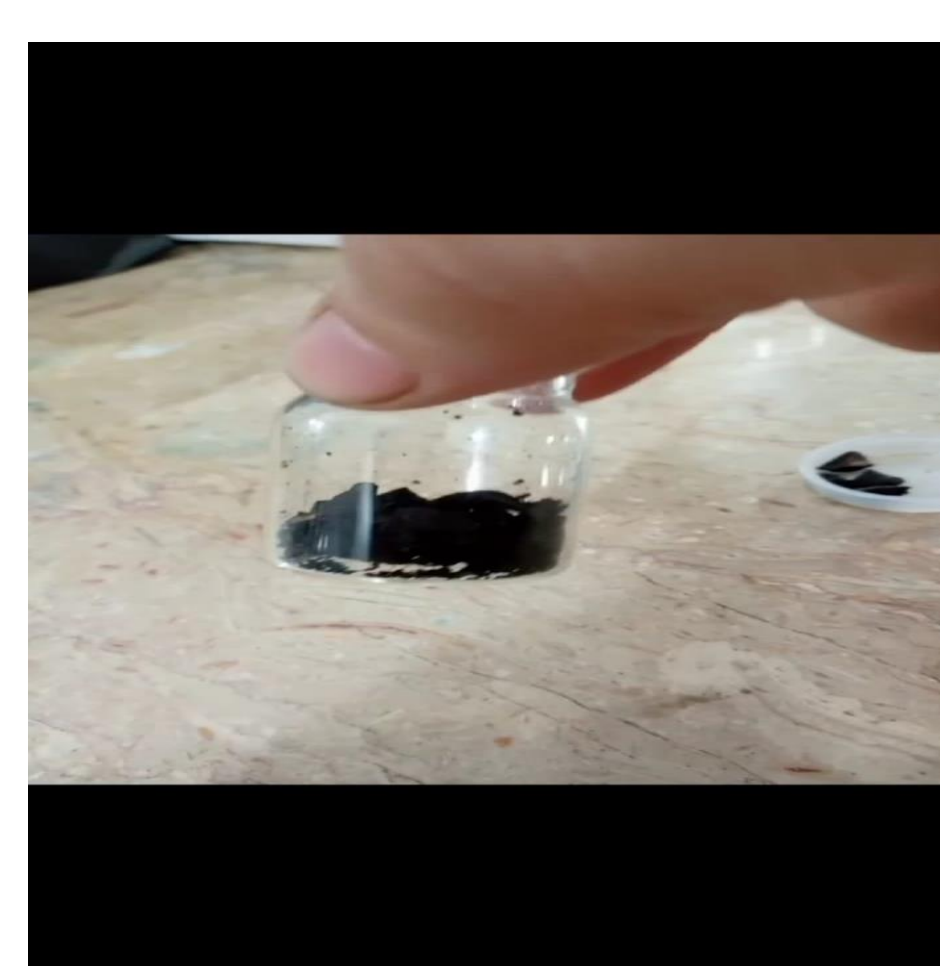
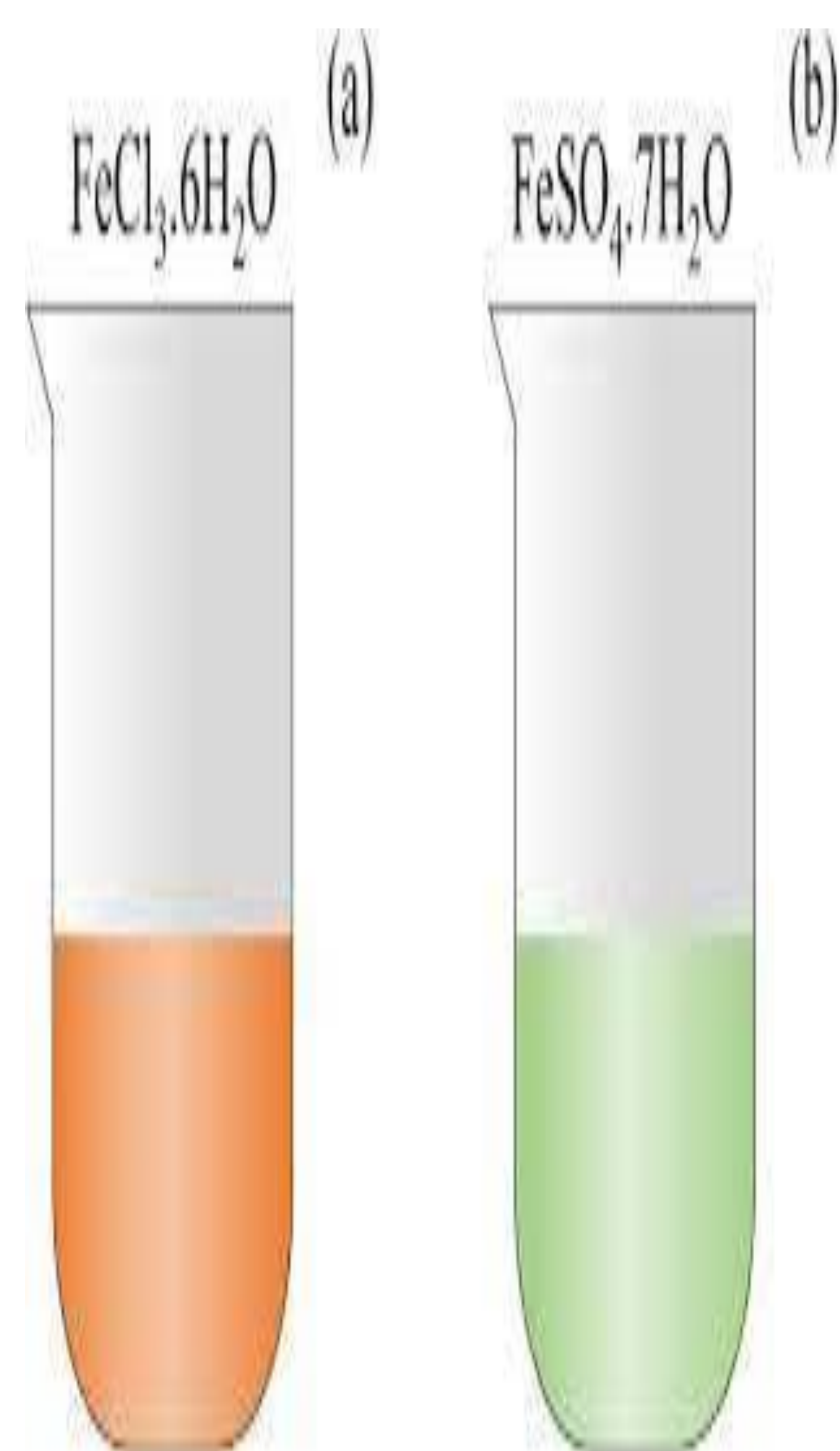
Firstly, we have to prepare Ferro fluid solution containing Oil and magnetite powder. The solution is prepared by mixing equal quantity of Ferrous sulfate and ferric chloride stir the solution and add some amount of water then put it on water bath until solution mixed completely then adding Ammonia solution drop by drop until the solution become dark black and precipitates are formed filter the solution and dry in oven until solution become powdered form.

## WORKING TEST

Take tap water containing micro plastic and add Ferro fluid solution powder in it along with few drops of mustard oil. The micro plastics that were attached to the magnetite powder and oil could be removed using a magnet, leaving the water and filtered it to get a pure clean water.

## RESULT & DISCUSSION

As a consequence, we discovered that the Microplastic in water can be removed by oil-based Ferro fluid solution due to the nonpolar nature of plastic and Ferro fluid solution they both attracts with each other and water that is polar remain in container hence we got clean water after filtration that is checked by slide observation in microscope.



## CONCLUSION

It's important to note that the health effects of micro plastic ingestion in humans are an active area of research this problem is resolved by Ferro fluid solution that act as a magnet that attracts Microplastic from water. Although we've to reducing plastic waste and improving waste management practices can help mitigate the presence of micro plastics in the environment and in the human diet..

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## REFERENCE

Berger, Patricia B, et al. "Preparation and Properties of an Aqueous Ferro fluid." Journal of Chemical Education, July 1999. Churchhouse, F. (2008).;