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Efficiency of banana peels in water purification

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Abstract:-

Conventional water treatment plants apply combination of coagulation, sedimentation, filtration and disinfection to provide clean and safe water to urban population. Generally chemicals i.e. inorganic polymers are used for coagulation which is a most important step in water purification. Use of chemicals or synthetic coagulants is costly and also unsafe for human health. Present study is for survey of most promising and natural coagulant. Banana is the common name for herbaceous plants of the genus Musa and for the fruit they produce. It is one of the oldest cultivated plants. All parts of the banana plant have medicinal applications. Banana peels are full of acids and other purifying molecules that aren't harmful to people. One of the biggest sources of water contamination is heavy metals.

Key Words: Peels of Banana, Coagulation, Turbidity

Introduction:

In most developing countries as ours, most of the water sources of drinking water in cities and villages are polluted. Due to polluted drinking water there had been epidemic cholera, dysentery and other diseases in the last couple of years. This is mainly due to the inadequate water supply systems in these areas. The water quality is normally characterized by different physical and chemical parameters, these parameters are affected by the various types of pollution, agriculture, seasonal fluctuation etc. Several technologies have been proposed to treat wastewater contaminated with several pollutants. The present work studies the feasibility of use of banana peel as in removal of Turbidity, TDS from the drinking water.

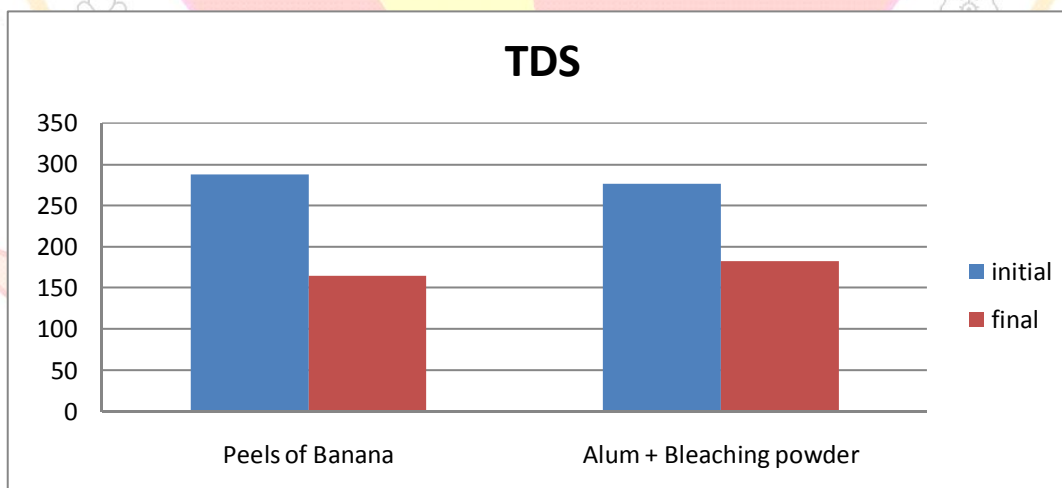
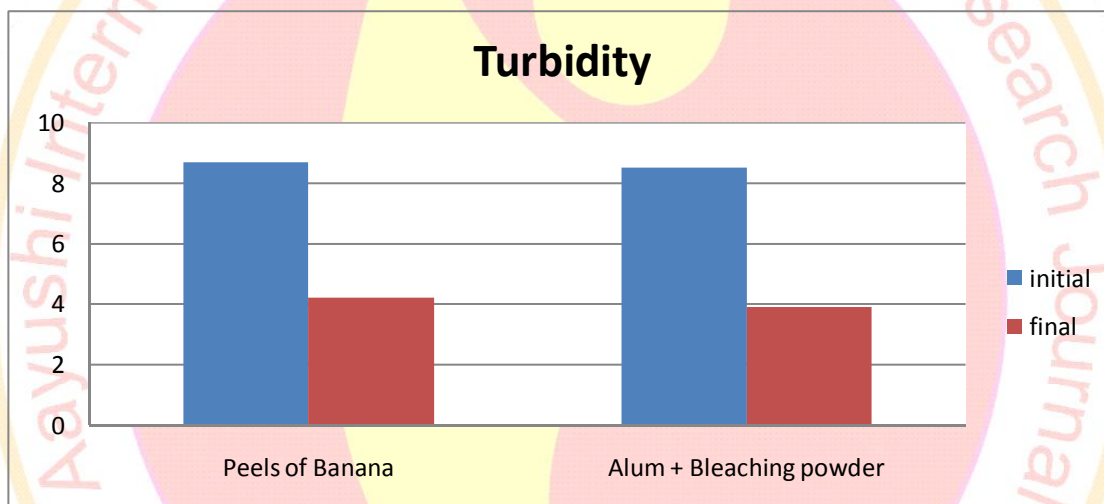
Materials and methods:

In the present study, we collect water samples from pimpari dam of Udgir, dist Latur, Maharashtra. On the spot, we measure Turbidity with the help of turbidity meter (HANNA). Total two water samples were collected in plastic bottles. As we measure turbidity on the spot hence we tried to collect samples of comparatively same turbid water. Samples were analysed before and after treatment by using prescriber methods from APHA (1998) and NEERI (2007). We compare Coagulation efficiency of powder of dried peels of banana and Alum + Bleaching powder (Generally used in water purification plant of several Municipal corporation of Maharashtra for water purification) on water samples collected.

Experimental Results and analysis:

Experimental details of present work is summarised in table No. 1

Sr.No.	Sample location	Coagulant used	Coagulant dose	Turbidity in NTU		TDS in mg/L	
				Initial	Final	Initial	Final
1	Pimpri dam	Peels of Banana	15 mg/L	8.7	4.2	287	164
2	Pimpri dam	Alum + Bleaching powder	15 mg/L	8.5	3.9	276	182



Initially, we recorded turbidity 8.7 NTU in sample 1 which is get minimized after treatment of peels of banana up to 4.2 NTU and 3.9 after treatment of Alum + bleaching powder. In case of Total dissolved solid, initially it is recorded 287 mg/L and finally we observed 164 mg/L in case of banana peels treatment.

Conclusion:

The present study reveals that powder of peels of banana is average effective as compared to Alum + bleaching powder. But one is natural and other is an chemical so must have to be considered.

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