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INTRODUCTION

Water pollution is increasing due to anthropogenic activities. The treatment of polluted water by sustainable technology is strictly required. Phytoremediation is an emerging as an effective technology for sustainable pollution control. Phytoremediation is defined as the use of green plants to remove pollutants from the environment or to render them harmless. It can be applied to both organic and inorganic pollutants, present in water, soil and air. Phytoremediation is a rapidly developing method that utilizes plants either to degrade, assimilate and metabolize environmental pollutants. On this basis, phytoremediation can be divided into various techniques like – Phytoextraction/ phytoaccumulation, phytodegradation, phytostimulation, rhizofiltration, phytovolatization and phytotransformation.

Phytoremediation of municipal wastewater by using plant *Phragmites australis*

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METHODOLOGY

- 1) DO, pH and Temperature of the wastewater was analyzed and its collection from bwasserzweckverband Wastewater Treatment Plant.
- 2) The plants were grown using hydroponics in triplets using tap water (control), concentrated water sample (test 1) and 50 % diluted wastewater sample with tap water (test 2), from left to right.
- 3) The water samples were analyzed on every 3rd day to check the changes in parameters like pH, temperature, DO, NO₃, NH₄, TDS, COD and SO₃
- 4) On the other hand, the plants growth was also visualized physically, if their growth had been effected by the wastewater or not by number of green shoots arising.
- 5) The changes in parameters increase/ reduction/ no changes determined, if phytoremediation was taking place or not.



RESULT

Date	Samples	Temp	рН	NO3	DO	TDS	SO3	COD	NH4	
				(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	
16th Feb										
	Tap Water	21	8.39	37.5	8.1	339	25	46.6	0.664	
	Conc. smaple	21	7.48	37.5	5.84	179	25	64.2	0.686	
	Diluted sample	21	7.74	37.5	6.84	266	25	64	0.678	
19th Feb										
	Tap Water	19	7.8	25	6.77	348	25	56.8	0.661	
	Conc. smaple	19	7.4	25	6.28	182	25	69	0.679	
	Diluted sample	19	7.4	25	6.53	266	25	63.5	0.696	
22nd Feb										
	Tap Water	19	8.01	17.5	7.07	368	5	62	0.663	문
	Conc. smaple	19	7.5	17.5	6.53	194	5	72.2	0.667	
	Diluted sample	19	7.8	17.5	6.79	286	5	64	0.683	
25th Feb										
	Tap Water	19	8.01	5	7.12	397	5	58.4	0.682	
	Conc. smaple	19	7.58	5	6.46	204	5	89.6	0.667	
	Diluted sample	19	7.04	5	6.87	291	5	65.2	0.674	
28th Feb										
	Tap Water	19	7.9	0.5	7.5	426	5	80	0.996	
	Conc. smaple	19	7.76	0.5	7.04	208	5	82.7	0.996	TDS
	Diluted sample	19	8.07	0.5	7.64	315	5	78.4	0.927	



NUMBER OF DAYS





CONCLUSION

The method establishes the suitability of using *Phragmites australis* – the aquatic plant, to phytoremediate the municipal waste water. With increase in time, certain parameters reached to an equilibrium state. The changes in parameters, the growth of plant shoot in numbers and height in cms were counted and measured respectively. This indicated that the plant was somehow successful in attaining the objective of this short research with limited period of time

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