

The page features a decorative design with three overlapping blue circles of varying sizes and shades, arranged in a descending diagonal line from top-right to bottom-right. Two thin, light blue lines intersect at the top-left, forming a large 'V' shape that frames the central text.

**REPORT ON THE EFFICACY OF TULIP WATER
FILTER**

**Prepared by: Water Laboratory Services Division
MINISTRY OF WATER**

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INTRODUCTION

Water for domestic use more specifically drinking water should be free from any kind of contamination. It should be clean and safe water that assures the health of the consumers. A filter with good efficacy has to produce water of acceptable quality which fits the purpose.

OBJECTIVE

The main objective of this test is to evaluate the efficiency of the Tulip Water Filter on its capacity to remove turbidity and micro organisms present in water.

MATERIALS

Petri dishes, culture media- MFC agar and M- Endo agar, 90% ethanol, 20Lts buckets (4), 10Lts buckets (4), incubator, turbidity meter

METHODOLOGY

The coliform group is defined as those facultative anaerobic, gram- negative, non-spore forming rod shaped bacteria that develop red colonies with a metallic (golden) sheen within 24 hrs at 35°C on an Endo – type medium containing lactose.

Water for this test was collected from two types of water sources; rivers and boreholes. Following the procedures on the instruction manual, the first twenty liters were filtered before starting the test. For bacteriological analysis Membrane Filtration Method using MFC agar and M-Endo agar media was used. For turbidity measurement, nephelometric method was used for both filtered and unfiltered water. Four runs were conducted on different date and the results are presented in the table below:

TESTING THE EFFICACY OF TULIP WATER FILTERS

FILTER NO.	RAW WATER							FILTERED WATER					
	DATE	LOCATION	SITE	SOURCE OF SAMPLE	TOTAL COLIFORM	FECAL COLIFORM	TURB. NTU	TOTAL COLIFORM	FECAL COLIFORM	TURB. NTU	PERCENTAGE REMOVAL OF TOTAL COLIFORM (%)	PERCENTAGE REMOVAL OF FECAL COLIFORM (%)	PERCENTAGE REMOVAL OF TURBIDITY (%)
FILTER NO.1	22/02/2011	MTONGANI	MTONGANI TREATMENT PLANT	MZINGA RIVER	36,000	12,800	30.7	NIL	NIL	0.65	100	100	97.90
	22/02/2011	UBUNGO TANESCO	DARAJANI	GIDE RIVER	29,500	14,000	13.4	1	NIL	0.02	99.99	100	99.80
FILTER NO.2	22/02/2011	MTONGANI	MTONGANI TREATMENT PLANT	MZINGA RIVER	39,600	12,400	30.4	NIL	NIL	0.51	100	100	98.3
	22/02/2011	UBUNGO TANESCO	DARAJANI	GIDE RIVER	38,000	6,000	20.4	NIL	NIL	0.05	100	100	99.80
FILTER NO.1	23/02/2011	RUVU	RUVU RIVER AT THE INTAKE	RUVU RIVER	1,800	300	93.2	NIL	NIL	1.09	100	100	98.80
	23/02/2011	SINZA LION	SINZA LION KWA DR. NGEMA	BH	2	NIL BGB	18.05	NIL	NIL	0.07	100	100	99.60
FILTER NO.2	23/02/2011	RUVU	RUVU RIVER AT THE INTAKE	RUVU RIVER	5,000	200	83.4	NIL	NIL	1.03	100	100	98.80
	23/02/2011	SINZA LION	SINZA LION KWA DR. NGEMA	BH	384	8	44.7	NIL	NIL	0.08	100	100	99.83

FILTER NO.	RAW WATER							FILTERED WATER					
	DATE	LOCATION	SITE	SOURCE OF SAMPLE	TOTAL COLIFORM	FECAL COLIFORM	TURB. NTU	TOTAL COLIFORM	FECAL COLIFORM	TURB. NTU	PERCENTAGE REMOVAL OF TOTAL COLIFORM (%)	PERCENTAGE REMOVAL OF FECAL COLIFORM (%)	PERCENTAGE REMOVAL OF TURBIDITY (%)
FILTER NO.1	24/02/2011	TANDALE	UZURI DARAJANI KWA SHIRIMA	BH	864	240	113	NIL	NIL	1.16	100	100	98.97
FILTER NO.2	24/02/2011	TANDALE	UZURI DARAJANI KWA SHIRIMA	BH	160	6	109	NIL	NIL	1.05	100	100	99.04
FILTER NO.1	17/03/2011	KEKO MWANGA	VICTORIA FACTORY	B/H	32	30	2.50	NIL	NIL	0.09	100	100	96.6
		MTONGANI	MTONGANI TREATMENT PLANT	MZINGA RIVER	12,800	8,200	75.8	NIL	NIL	0.08	100	100	99.8
FILTER NO.2	17/03/2011	KEKO MWANGA	VICTORIA FACTORY	B/H	48	34	2.61	NIL	NIL	0.08	100	100	96.4
		MTONGANI	MTONGANI TREATMENT PLANT	MZINGA RIVER	12,800	7,000	69.7	NIL	NIL	0.18	100	100	99.7

DISCUSSION

The results above shows that after conducting tests on raw and filtered water the tested Tulip Water Filters have shown good performance on the removal of micro organism, Total Coliform bacteria is 99.99% and removal of Fecal coliform bacteria is 100%. The results for turbidity removal range is 98 – 98%.

CONCLUSION AND RECOMMENDATION

The tested filters have shown high efficiency on the removal of micro-organism as there was no growth of coliform bacteria in the filtrate. The filter also has the capacity to produce clear water by reducing turbidity levels. There should be a mechanism to create awareness on the type of water to be treated and how to use the filter as very high turbid water requires more time of filtration.