

Berhanu Kiber Import & Export Enterprise

**Efficacy Test of Tulip Water Filter for Fecal and Total
Coliform Bacteria and Turbidity**

Water Works Design and Supervision Enterprise

**Laboratory Service
4/29/2010**



1 Introduction

This work has been done at WWDSE Laboratory for Berhanu Kiber Import & Export Enterprise as per their request to conduct and know the efficacy Microbiological Examination of Coliforms Bacteria such as Total Coliforms (*Escherichia coli*) and Fecal Coliforms (*E. coli*) and Turbidity. The task is undertaken to proof the efficiency of the Tulip Water Filter (which is a water purification tool) in screening or filtering diarrheal from bacterial contaminated water.

2 Methodology

Polluted water samples have been collected from the Rivers namely Kebena Kerra 1, Kerra 2, Kerra at the bridge and mixture of Mekenesa & Kerra River.

The Method used for testing are Membrane Filter. The Quality Controls procedures undertaken during testing of the samples are summarized here under,

- a) General quality Control procedures
Check sterility of media, membrane filters, dilution and rinse water, glassware and equipment.
- b) Measurement of Method Precision
Comparing the result of duplicate analyses for each different samples
- c) Quality Control on Membrane Filter
For each type of test conducted known negative sample has been run with the laboratory analysis.
Results of the Microbiology tests are presented sequentially according to the date of sampling.
- d) Tulip water filter kits were used to test 5 (five) samples



3. Testing of the Tulip Water Filter

Test No-1

Date of Sampling	River	Lab. ID No.	Code of Tulip	Type of Sample	Volume taken for test	Coliforms Colony counted at		Turbidity (NTU)	Remark			
						37 ^o C	44 ^o C					
19/4/2010	Kebena	1747/2002	1	Blank	10ml	Nil	Nil	368.0				
				Raw water	2ml	Many	Many					
					5ml	Many	Many					
		Filtered water (After Passing through Tulip water filter)		5ml	Nil	Nil	3.0					
				10ml	Nil	Nil						
					Nil	Nil						
1748/2002												

Test No-2

Date of Sampling	River	Lab. ID No.	Code of Tulip	Type of Sample	Volume taken for test	Coliforms Colony counted at		Turbidity (NTU)	Remark			
						37 ^o C	44 ^o C					
19/4/2010	Kera-1	1749/2002	1	Blank	10ml	Nil	Nil	39.0				
				Raw water	2ml	Many	Many					
					5ml	Many	Many					
		Filtered water (After Passing through Tulip water filter)		5ml	Nil	Nil	2.0					
				10ml	Nil	Nil						
					Nil	Nil						
1750/2002												

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Test No-3

Date of Sampling	River	Lab. ID No.	Code of Tulip	Type of Sample	Volume taken for test	Coliforms Colony counted at		Turbidity (NTU)	Remark
						37°C	44°C		
20/4/2010	Junction of Mekenesa & Kera (Mixture of Mekenesa and Kera)	1751/2002	2	Blank	10ml	Nil	Nil	806.0	
				Raw water	2ml	Many	Many		
		5ml			Many	Many			
		Filtered water (After Passing through Tulip water filter ;		5ml	Nil	Nil	10.0		
				10ml	Nil	Nil			

Test No-4

Date of Sampling	River	Lab. ID No.	Code of Tulip	Type of Sample	Volume taken for test	Coliforms Colony counted at		Turbidity (NTU)	Remark
						37°C	44°C		
20/4/2010	Kera-3 (Kera at the Bridge)	1753/2002	2	Blank	10ml	Nil	Nil	146.0	
				Raw water	2ml	Many	Many		
		5ml			Many	Many			
		Filtered water (After Passing through Tulip water filter ;		5ml	Nil	Nil	20.0		
				10ml	Nil	Nil			

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Test No-5

Date of Sampling	River	Lab. ID No.	Code of Tulip	Type of Sample	Volume taken for test	Coliforms Colony counted at		Turbidity (NTU)	Remark
						37 ⁰ c	44 ⁰ c		
21/4/2010	Kerra-2	1755/2002	3	Blank	10ml	Nil	Nil	170.0	
				Raw water	0.5ml	Many	Many		
					2ml	Many	Many		
		Filtered water (After Passing through Tulip water filter)		5ml	Nil	Nil	5.0		
				10ml	Nil	Nil			
					Nil	Nil			



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4. Conclusion

From the above test results the following are summarized for the Tulip Water Filter kit

1. During Fecal and Total coliform tests the kits have efficiently filtered the polluted water samples
2. During Turbidity Test a substantial reduction are recorded specifically ;
3 Samples were reduced to WHO Standard level (WHO is fulfilled i.e. NTU 3, 2, 5)
2 Samples below WHO Standard Level (WHO is not fulfilled, i.e. NTU 10 and 20)

Tasted by:



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Date:

Checked by:



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7/5/2010

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Date:

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