

# Safe Water, Health & Sustainable Development

**Dr. Md. Sirajul Islam**  
**Emeritus Scientist**  
**icddr,b**

# Use of safe water

Household purposes:

Washing hands, utensils

Vegetables (cucumber, tomato, carrot etc.)

Drinking

# Waterborne Diseases

Out of 50 most prevalent diseases in Bangladesh, 40 of them are waterborne diseases (Cholera, Shigellosis, Salmonellosis, Amoebiasis, Giardiasis, etc.)

# Effect of Waterborne Diseases

Diarrhoeal diseases: Repeated DD causes malnutrition which affects physical and mental growth of the children.

To prevent waterborne diseases, use of safe water needs to be ensured.

# How to get safe water?

- Supply of treated safe water through pipe system.
- Boiling of water.
- Filtering of water.
- Point-of-use water treatment using various chemicals.

# Mucilaginous sheath of blue green algae

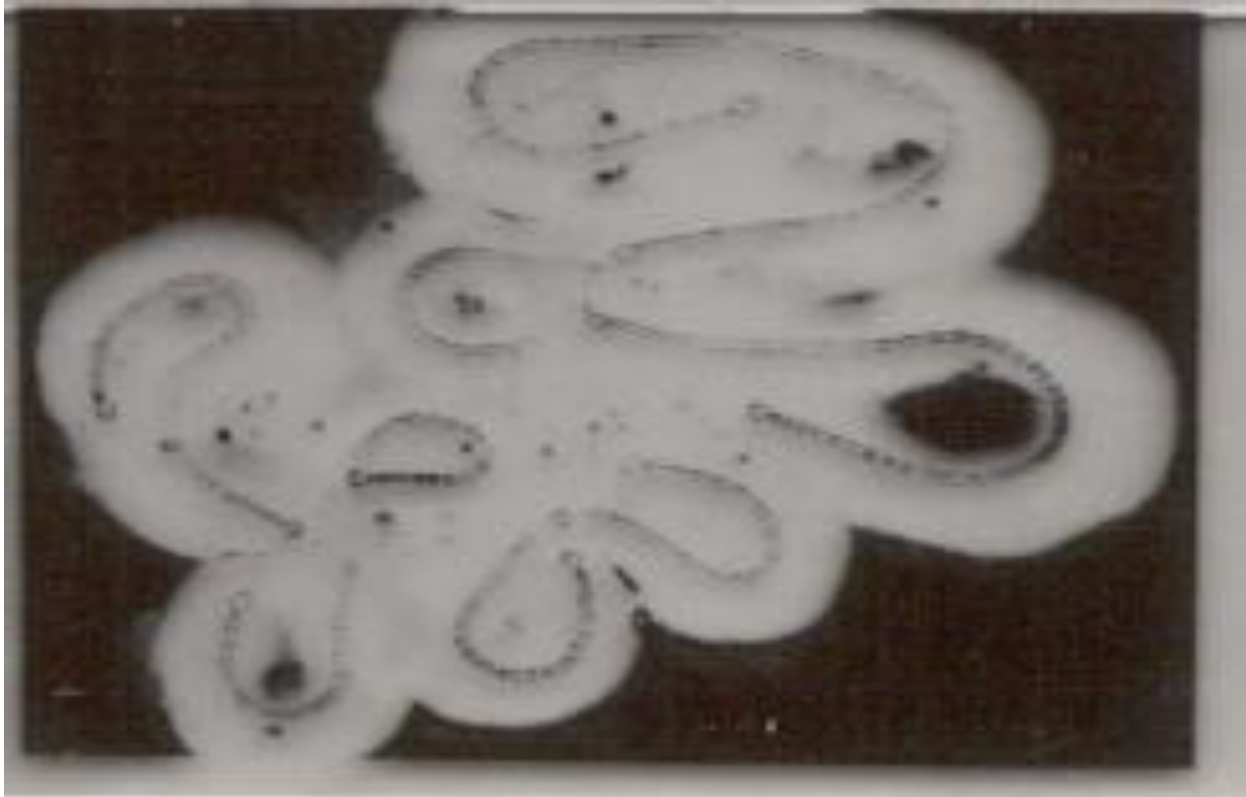
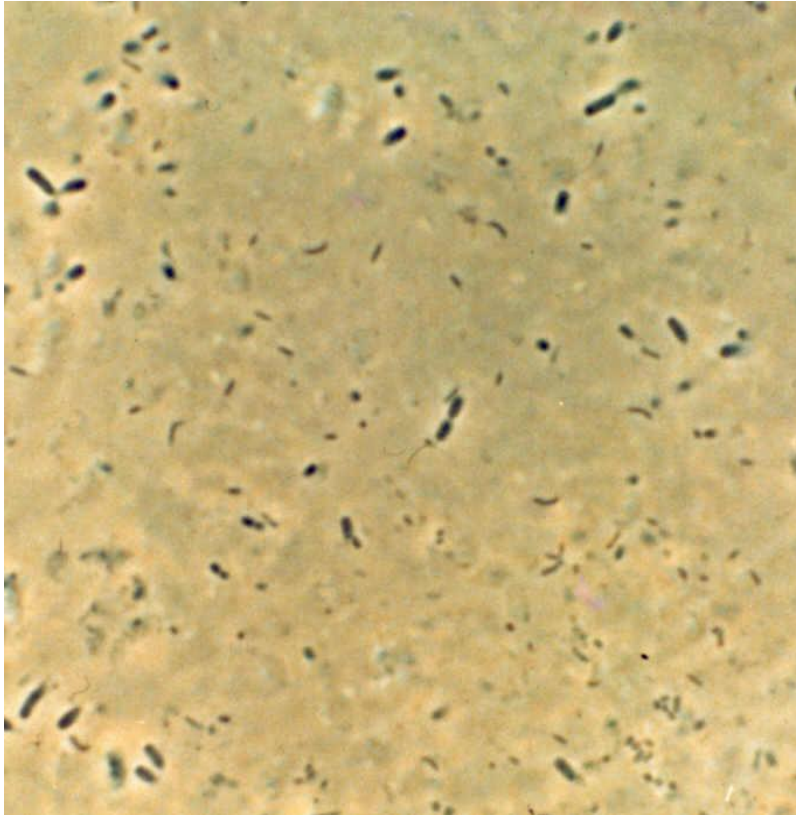
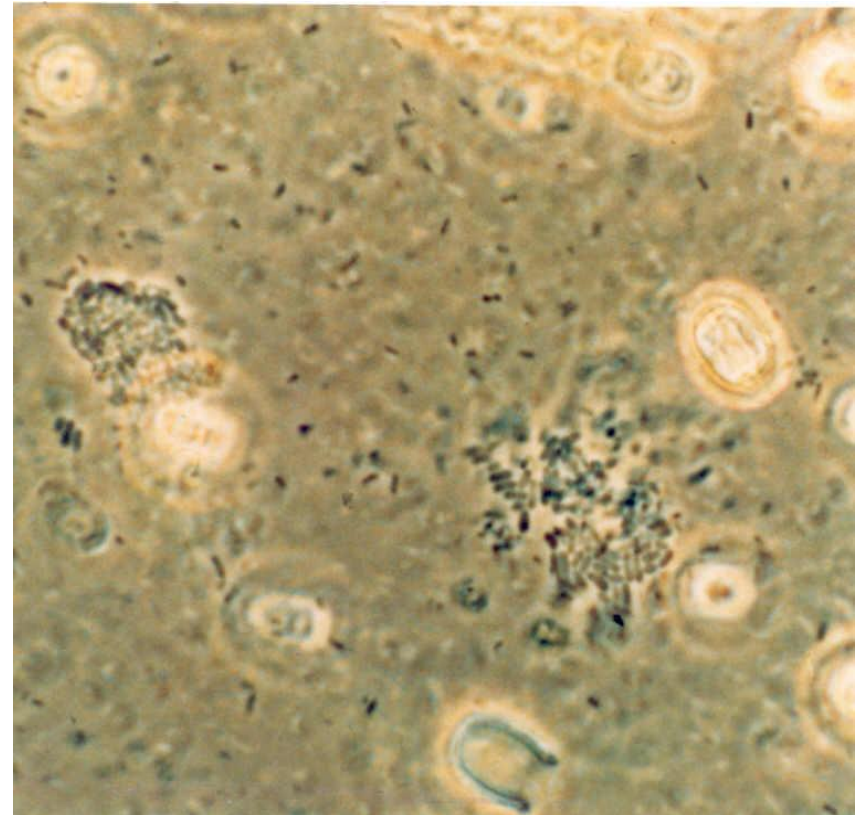


Figure 44: (a) Dividing cells of *V. cholerae* inside mucilaginous sheath of *A. variabilis* (b) Aggregation of dividing cells of *V. cholerae* on the detached heterocysts ( Magnification x630)



(a)



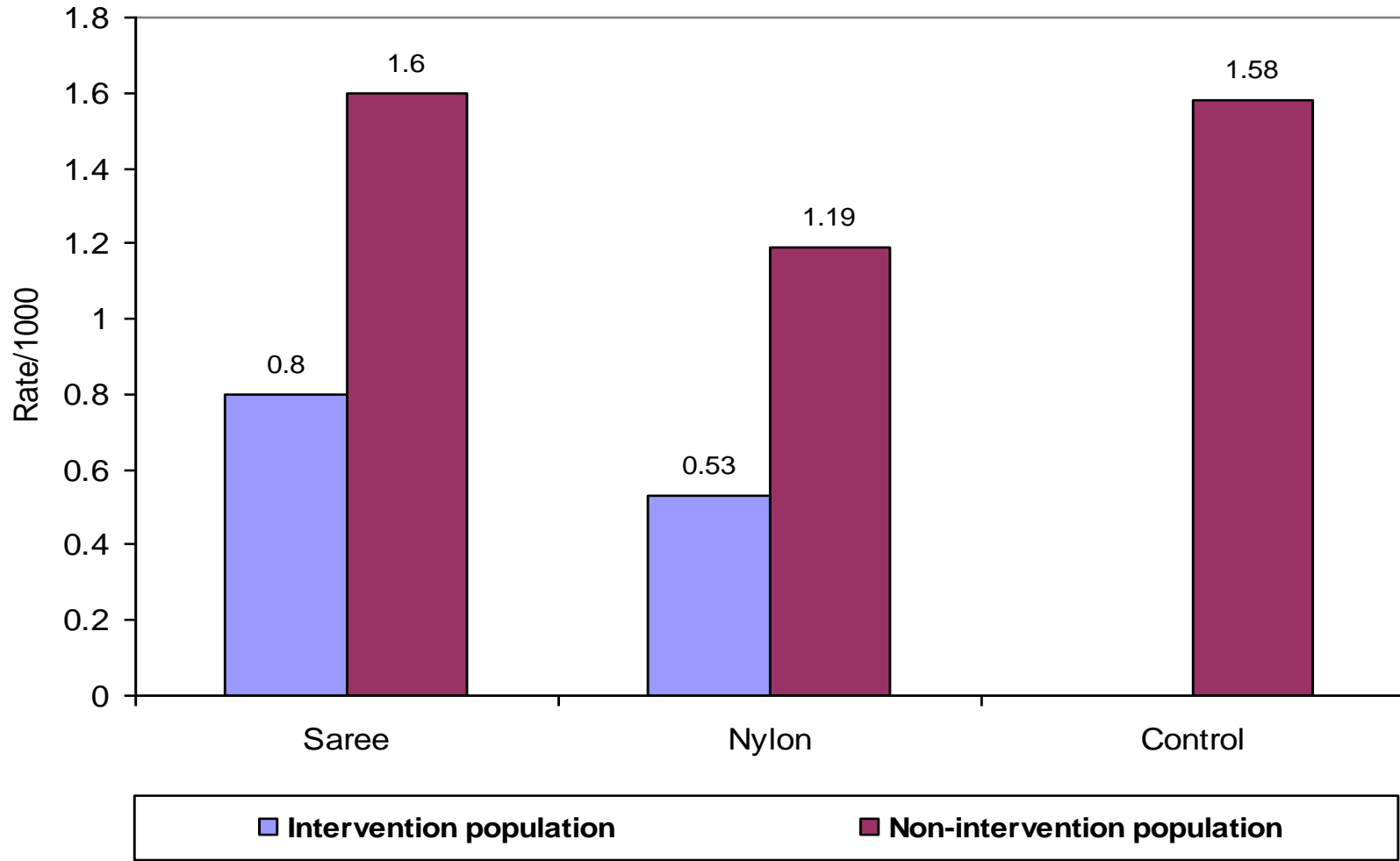
(b)

# Water filtration with 'Sari'

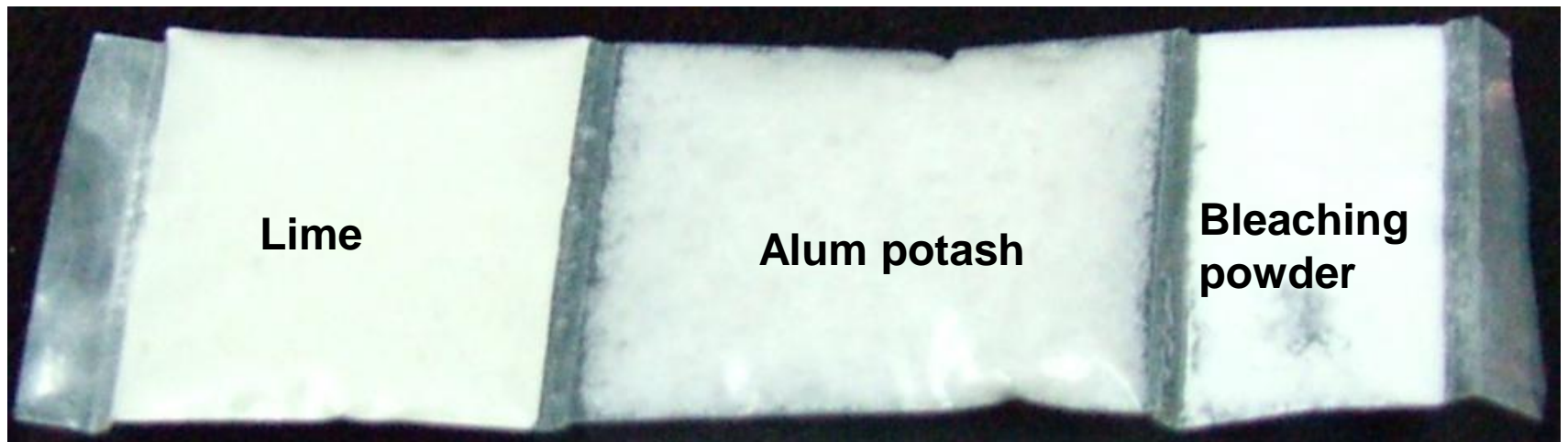


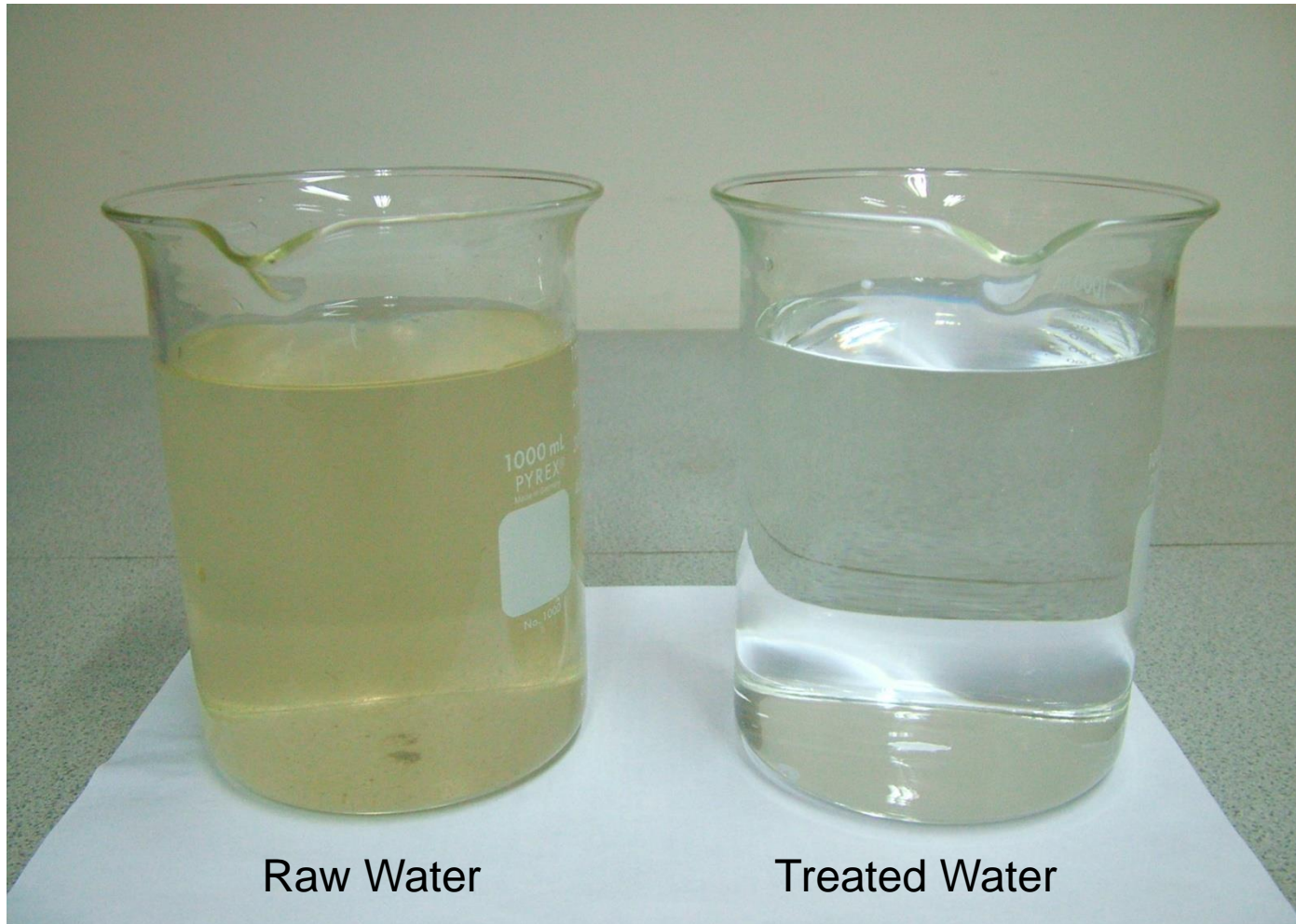


## Cholera attack rate/1000 in population with and without intervention



# Siraj Mixture





Raw Water

Treated Water

# Efficacy of Siraj Mixture in Prevention of Diarrhoeal Diseases

Area/Unit		Total HHs with <5 children	A	B	May '05- April'06		May '06- April'07	
					Diarrhoeal cases in A	Diarrhoeal cases in B	Diarrhoeal cases in A	Diarrhoeal cases in B
Study (with H <sub>2</sub> S kit)	1	180	42	138	2	5	0	9
	2	210	42	168	1	10	0	14
	3	194	42	152	2	9	0	7
	4	191	42	149	0	7	0	8
	5	173	42	131	1	5	0	6
Control (with out H <sub>2</sub> S kit)	6	273	42	231	2	12	0	13
	7	212	42	170	0	17	0	13
	8	227	42	185	1	5	0	10
	9	184	42	142	1	1	0	0
	10	189	42	147	0	0	0	3
<b>Total</b>	<b>10</b>	<b>2033</b>	<b>420</b>	<b>1613</b>	<b>10</b>	<b>71</b>	<b>0</b>	<b>83</b>

A = Families who received mixture in 2006-07 but not in 2005-06, B = Neighbouring families who did not receive mixture

# Water and Sustainable Development

Provision of supply of safe water for all kinds of HH purposes including drinking – Will help to have a healthy nation, and healthy is a prerequisite for sustainable development.

**Thank you**