

Supplementary File

Appendix 1. Phage Adsorption Assay. P_t' , initial concentration of phage; P_t , the concentration of phage at a given time.

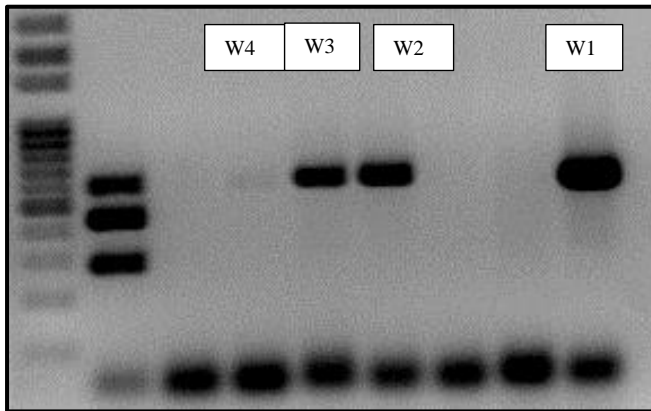
S.No.	Time in min.	The average value of plaque-forming unit (as PFU/ml)	Free Phage (Unadsorbed) (in percent values) = $[(P_t' - P_t)/P_t'] * 100$
1	0	157	100
2	1.5	28	17.9
3	3	22	14.1
4	4.5	12	7.7
5	6	9	5.8
6	7.5	1	0.7
7	9	0	0

Appendix 2. Location of the samples; confirmed *S. aureus* isolates and their resistance profiles. *E. coli* was isolated on MEC-agar.

Water sample No	Location	<i>Staphylococcus aureus</i> confirmed isolates (Biochemical Test or 16s rRNA)	Resistance profile through AST	<i>E. coli</i> isolate numbers
1	21° 8' 6.3" N 79° 3' 38.58" E	W1 (Biochemical test and 16s rRNA) (obtained bacteriophage against this isolate.)	Vancomycin (VA30) Erythromycin (E15) Ceftriaxone/Tazobactam (CIT30/10) Oxacillin (OX5) Ampicillin (AMP10)	E1
2	21° 9' 2.7" N 79° 2' 41.34" E	Nil	N.A	E2
3	21° 7' 45.78" N 79° 2' 43.92" E	Nil	N.A	E3
4	21° 8' 16.38" N 79° 4' 24.18" E	Nil	N.A	E4, E5
5	21° 8' 32.4" N 79° 4' 48.72" E	W2 (Biochemical Test)	Vancomycin (VA30) I Cefuroxime (CXM30) Cefprozil (CPR30) Tobramycin (TOB30) Erythromycin (E15) Clindamycin (CD2) Ciprofloxacin (CIP5) Ceftriaxone/Tazobactam (CIT30/10) Oxacillin (OX5) Ampicillin (AMP10)	E6, E7
6	21° 7' 43.34" N 79° 5' 54.42" E	W3 (Biochemical Test)	Cefepime (CPM30) Cefuroxime (CXM30) Gentamicin (GEN10) Tobramycin (TOB30) Clindamycin (CD2) Oxacillin (OX5)	E8, E9
7	21° 9' 13.38" N 79° 5' 27.48" E	W4 (Biochemical Test)	Vancomycin (VA30) Cefepime (CPM30) Gentamicin (GEN10) Oxacillin (OX5) Ampicillin (AMP10) Cefprozil (CPR30)	E10, E11

Appendix 3. Identification through HiStaph biochemical testing kit, a set of twelve reactions.

Biochemical Reactions	Isolates			
	W1	W2	W3	W4
Voges Proskauer's	+	+	+	+
Alkaline phosphatase	+	+	+	+
ONPG	-	-	-	-
Urease	w	w	+	w
Arginine utilization	+	+	+	+
Mannitol	+	+	+	+
Sucrose	+	+	+	+
Raffinose	-	-	-	-
Lactose	+	+	+	+
Arabinose	-	-	-	-
Trehalose	+	+	+	+
Maltose	+	+	+	+



Appendix 4. Gel image of multiplex PCR products, from left, Lane 1: 100 b.p. ladder, Lane 2: positive control, topmost amplicon for identifying *Staphylococcus* genus by 16S *rRNA* gene of 597b.p., middle amplicon *femA* gene of 450 b.p and the lowermost amplicon *mecA* 279. Lane 3 to 9 samples, Lane 4,5,6 and 9, confirms the presence of *S aureus*. (note: we got phage against isolate W1, 16S rRNA sequencing was done for this isolate.)

Appendix 5. Bacteriophage isolation from all the water samples against confirmed *S. aureus* isolates.

Host→ Water sample↓	W1	W2	W3	W4
1	Nil	Nil	Nil	Nil
2	Nil	Nil	Nil	Nil
3	Nil	Nil	Nil	Nil
4	Nil	Nil	Nil	Nil
5	Nil	Nil	Nil	Nil
6	Nil	Nil	Nil	Nil
7	Nil	Nil	Nil	Nil
River Ganga	Phage (38PFU/ml)	Nil	Nil	Nil

Appendix 6. Screening of bacteriophages from water samples (Nagpur city) against *E. coli* isolates. *E. coli* ATCC 23848 was used in comparing the method of bacteriophage isolation from the water sample of the River Ganga.

Host→ Water sample↓	E1	E2	E3	E4	E5	E6	E7	E8	E9	E 10	E11
1	+	-	+	-	+	+	-	-	-	+	-
4	-	-	+	-	-	-	-	-	-	-	-
5	-	-	-	-	+	-	-	-	+	-	-
6	-	-	-	-	-	-	-	-	-	-	-
7	-	+	-	-	+	-	+	+	-	+	+