

## **Supporting Information**

**An improved device with affinity membrane to collect depth specific contamination free water for environmental assessment**

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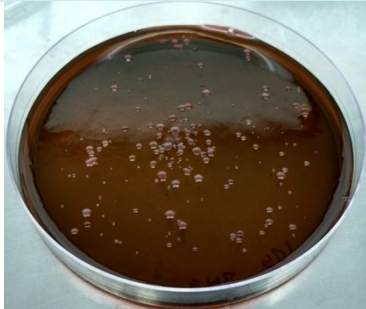
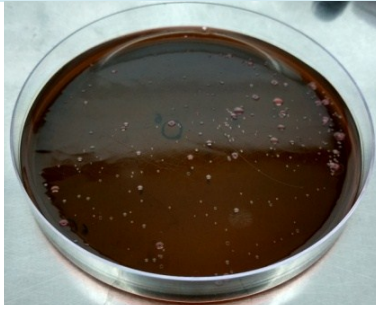
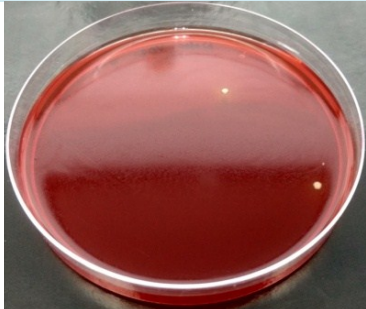
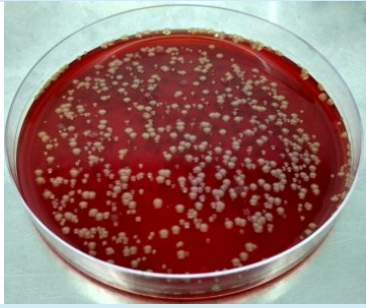

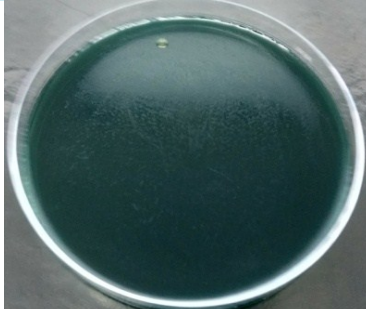
**Table S 1. Concentration of bacteria on different media from different seawater depth**

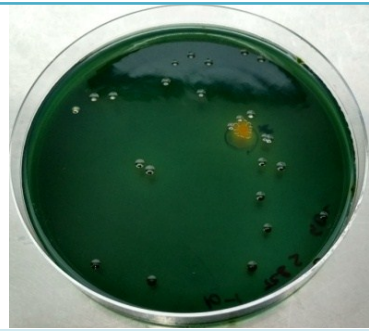
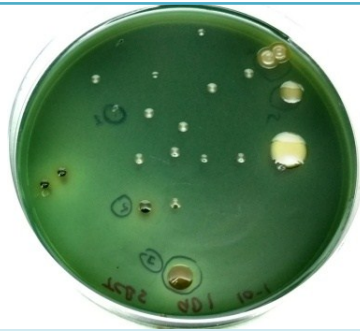
S. No.	Media	GD1		GD2	
		Seawater	PVDF Membrane	Seawater	PVDF Membrane
1.	EMB Agar	-	$1.5 \times 10^3$	-	$5 \times 10^3$
2.	XLD Agar	$3 \times 10^1$	$1.65 \times 10^3$	-	$4 \times 10^3$
3.	TCBS Agar	-	$2 \times 10^3$	$1 \times 10^1$	$3.6 \times 10^3$
4.	Jensen's Agar	-	$2 \times 10^4$	-	$1.5 \times 10^4$
5.	MacConkey Agar	-	$7.5 \times 10^2$	-	$1.5 \times 10^2$
6.	Aeromonas Agar	-	-	-	-
7.	Streptococcus Agar	-	-	-	-
8.	M-Enterococcus Agar	-	-	-	-
9.	Cetrimide Agar	-	-	-	-
10.	ZM Agar	-	$3 \times 10^6$	-	$3.5 \times 10^6$

S. No.	Media	VD1		VD2		VD3	
		Seawater	PVDF Membrane	Seawater	PVDF Membrane	Seawater	PVDF Membrane
1.	EMB Agar	$3 \times 10^1$	$4 \times 10^3$	$4 \times 10^3$	$3 \times 10^4$	$3.5 \times 10^3$	$2.5 \times 10^4$
2.	XLD Agar	-	-	-	-	-	$1 \times 10^3$
3.	TCBS Agar	$1 \times 10^2$	$5 \times 10^3$	$5 \times 10^2$	$8.7 \times 10^3$	$6 \times 10^2$	$4 \times 10^4$
4.	Jensen's Agar	$3 \times 10^3$	$4 \times 10^3$	$5 \times 10^1$	$3 \times 10^4$	$1 \times 10^1$	$7 \times 10^2$
5.	MacConkey Agar	-	-	-	$6.8 \times 10^2$	-	$7.5 \times 10^2$
6.	Aeromonas Agar	-	$4 \times 10^3$	-	$1 \times 10^1$	$1 \times 10^1$	$1.6 \times 10^2$
7.	Streptococcus Agar	-	-	-	-	-	-
8.	M-Enterococcus Agar	-	-	-	$1 \times 10^2$	-	-
9.	Cetrimide Agar	-	$4 \times 10^3$	-	-	-	$2 \times 10^1$
10.	ZMA	-	-	-	-	-	-

**Table S 2. Images of different media plates showing bacterial colony growth from seawater of different depth and bacteria recovered from PVDF membrane from the same seawater depth**

S. No.	Media	GD 1	GD 2
1.	EMB Agar	Seawater	-
		PVDF Membrane dipped in same seawater	
			
2.	XLD Agar	Seawater	-
		PVDF Membrane dipped in same seawater	
			
3.	TCBS Agar	Seawater	-
		PVDF Membrane dipped in same seawater	
			



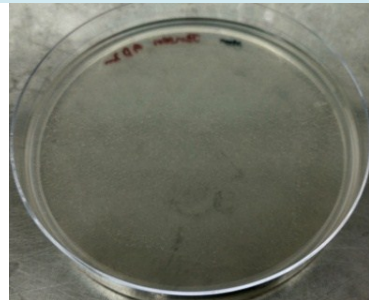
4. Jensen's  
Agar

Seawater

-

-

PVDF Membrane dipped in same seawater



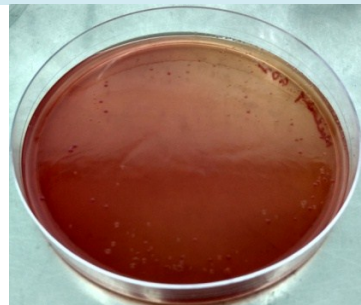
5. MacConkey  
Agar

Seawater

-

-

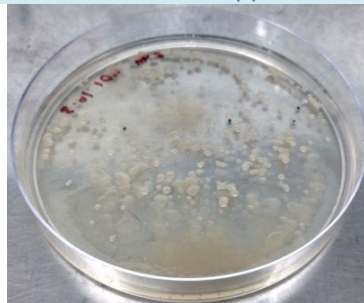
PVDF Membrane dipped in same seawater



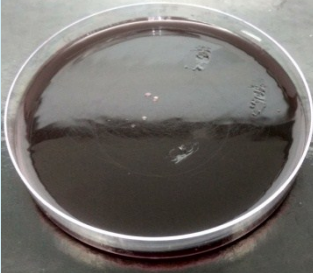
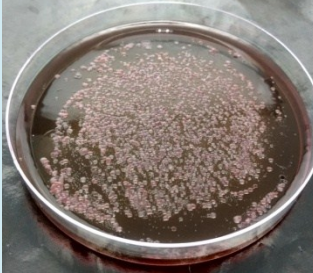
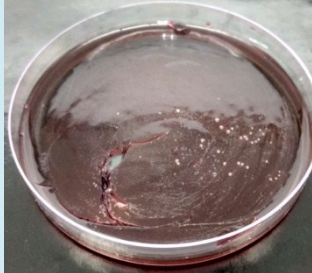
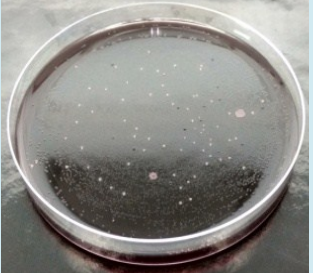
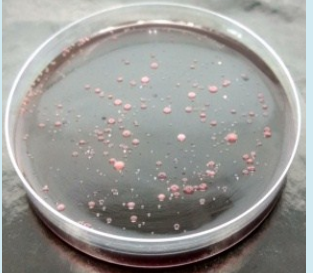
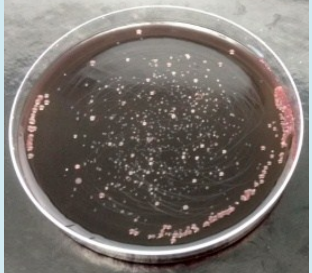

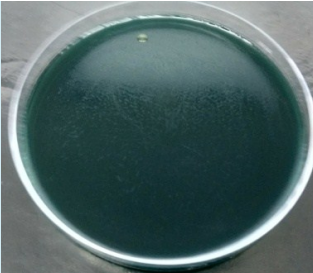

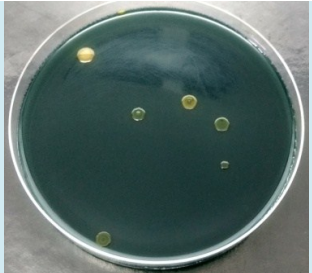
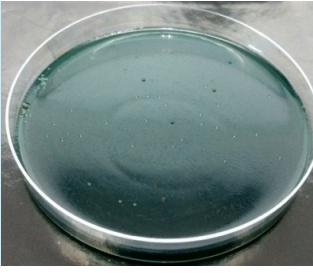

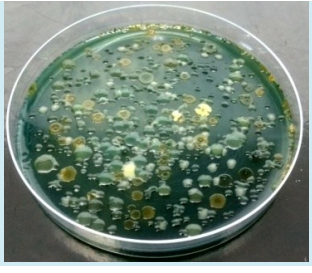
10. ZM Agar

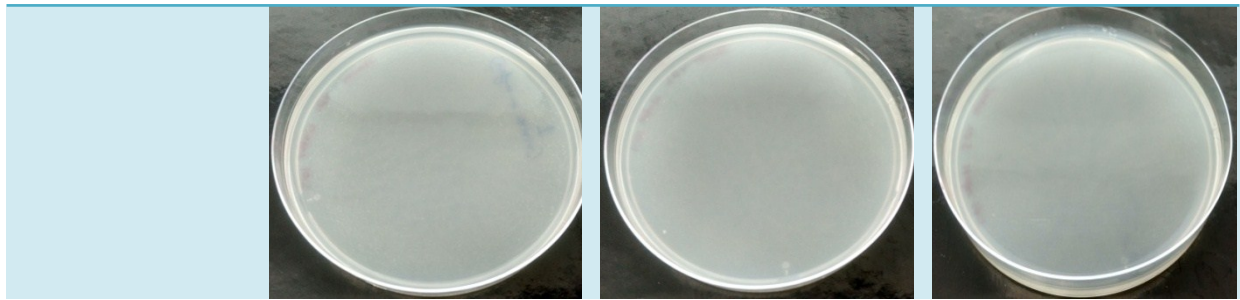
Seawater

PVDF Membrane dipped in same seawater

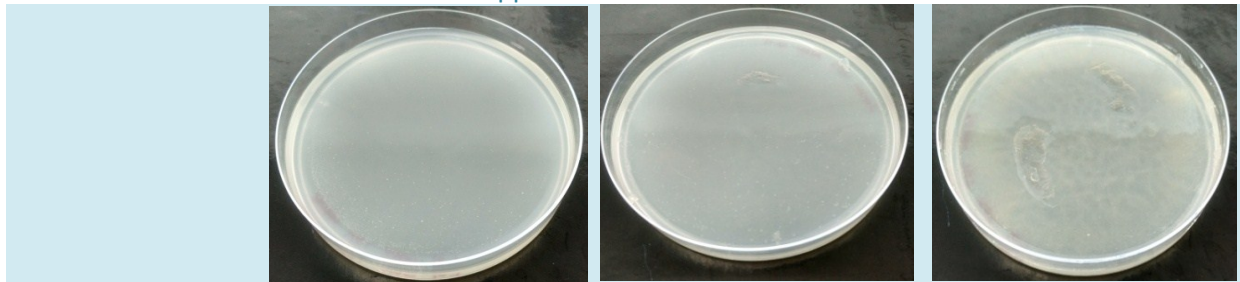




S. No.	Media	VD1	VD2	VD3
1.	EMB Agar	Seawater		
				
		PVDF Membrane dipped in same seawater		
				
2.	XLD Agar	Seawater		
		-	-	-
		PVDF Membrane dipped in same seawater		
		-	-	
3.	TCBS Agar	Seawater		
				
		PVDF Membrane dipped in same seawater		
				
4.	Jensen's Agar	Seawater		



PVDF Membrane dipped in same seawater



5. **MacConkey Agar** Seawater

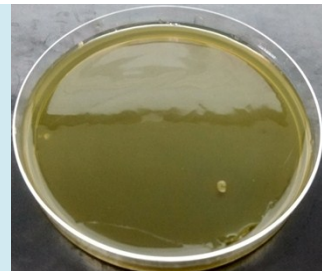
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PVDF Membrane dipped in same seawater

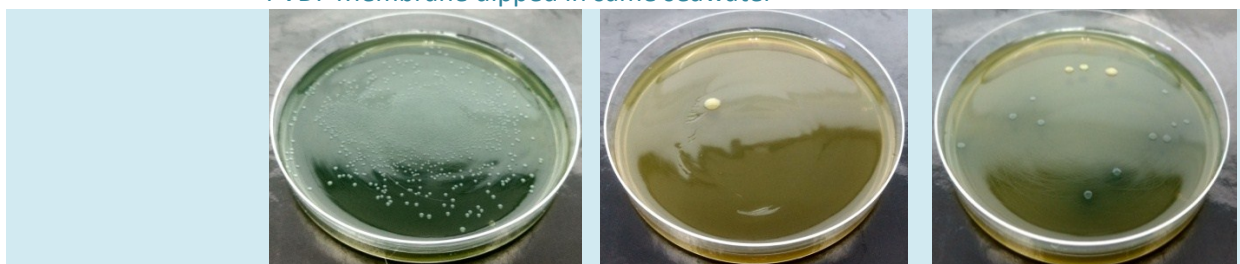


6. **Aeromonas Agar** Seawater

- -

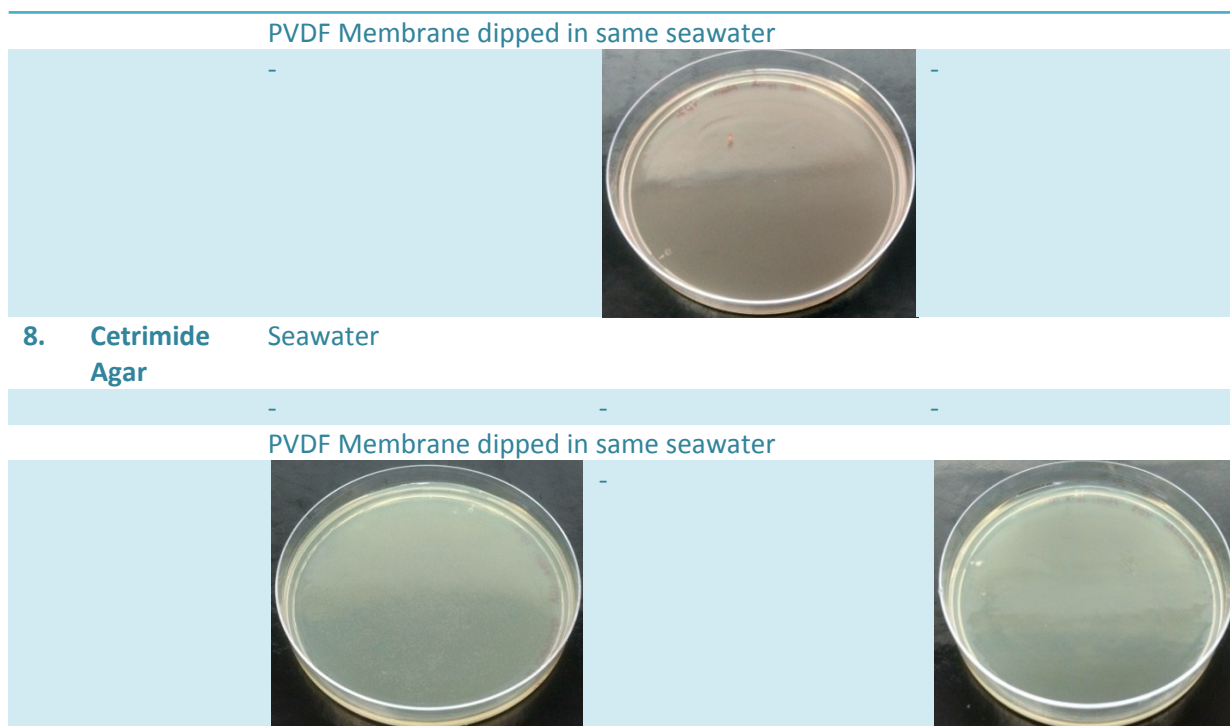


PVDF Membrane dipped in same seawater



7. **M-Enterococcus Agar** Seawater

- - -



**Table S 3. Colony characteristics of the isolated bacteria from different culturable media**

Strain No.	TCBS Agar isolates					
	Morphological characteristics					
	Size	Shape	Color	Texture	Elevation	Margin
GTC1 (GD1)	Medium	Round	Green	Smooth	Umbonate	Entire
GTC2 (GD1)	Medium	Round	Dark Green	Smooth	Raised	Entire
GTC3 (GD1)	Large	Round	Greenish Yellow	Smooth	Raised	Entire
GTC4 (GD1)	Large	Round	Brown	Rough	Umbonate	Entire
GTC5 (GD1)	Large	Round	Brown	Smooth	Raised	Entire
GTC6 (GD1)	Large	Round	Brownish Yellow	Smooth	Raised	Entire
GTC7 (GD2)	Medium	Rhizoid	Yellow	Wrinkled	Flat	Undulate
XLD Agar isolates						
	Morphological characteristics					
GXL1 (GD1)	Medium	Round	Pink	Smooth	Raised	Entire
GXL2 (GD1)	Medium	Round	Yellow	Smooth	Raised	Entire
GXL3 (GD2)	Medium	Irregular	Pink	Rough	Flat	Serrated
GXL4 (GD2)	Medium	Wrinkled	Pink	Rough	Flat	Undulate

EMB Agar isolates						
Morphological characteristics						
GEM1 (GD1)	Medium	Round	Brown	Smooth	Umbonate	Entire
GEM2 (GD1)	Small	Round	Cream	Smooth	Raised	Entire
GEM3 (GD1)	Medium	Round	Dark Brown	Smooth	Raised	Entire
GEM4 (GD2)	Small	Round	Cream	Rough	Flat	Entire
GEM5 (GD2)	Small	Round	Cream	Smooth	Raised	Entire
GEM6 (GD2)	Medium	Round	Cream	Smooth	Raised	Entire
Jensen's Agar isolates						
Morphological characteristics						
GJ1 (GD1)	Punctiform	Round	White	Smooth	Raised	Entire
GJ2 (GD1)	Small	Round	White	Smooth	Raised	Entire
MacConkey Agar isolates						
Morphological characteristics						
GMAC1 (GD1)	Small	Round	Red	Smooth	Raised	Entire
GMAC2 (GD1)	Small	Round	White	Smooth	Raised	Entire
GMAC3 (GD1)	Medium	Round	Red	Rough	Flat	Entire
ZM Agar isolates						
Morphological characteristics						
GZM1 (GD1)	Small	Round	White	Smooth	Raised	Entire
GZM2 (GD1)	Medium	Round	White	Smooth	Raised	Entire
GZM3 (GD1)	Medium	Round	Cream	Smooth	Raised	Entire
GZM4 (GD1)	Film					
GZM5 (GD2)	Large	Round	White	Smooth	Flat	Entire
GZM6 (GD2)	Large	Round	Pale Orange	Smooth	Raised	Entire
GZM7 (GD2)	Medium	Round	Yellow	Smooth	Raised	Entire
GZM8 (GD2)	Medium	Round	Orange	Smooth	Raised	Entire
TCBS Agar isolates						
Morphological characteristics						
Strain No.	Size	Shape	Color	Texture	Elevation	Margin



VTC1 (VD3)	Big	Round	Yellow	Rough	Flat	Entire
VTC2 (VD3)	Big	Round	Green	Smooth	Flat	Entire
VTC3 (VD3)	Medium	Irregular	White	Rough	Raised	Undulate
VTC4 (VD3)	Small	Round	Green	Smooth	Raised	Entire
VTC5 (VD3)	Medium	Round	Dark Green	Smooth	Raised	Entire
VTC6 (VD2)	Large	Round	Yellow	Smooth	Raised	Entire
VTC7 (VD2)	Medium	Irregular	Yellow	Rough	Flat	Undulate
VTC8 (VD1)	Small	Irregular	Dark Green	Rough	Raised	Undulate
<b>XLD Agar isolates</b>						
<b>Morphological characteristics</b>						
VXL1 (VD3)	Big	Round	Yellow	Smooth	Raised	Entire
VXL2 (VD3)	Medium	Round	Cream	Smooth	Raised	Entire
VXL3 (VD3)	Small	Round	Yellow	Rough	Flat	Entire
<b>EMB Agar isolates</b>						
<b>Morphological characteristics</b>						
VEM1 (VD1)	Small	Round	Maroon	Smooth	Raised	Entire
VEM2 (VD1)	Medium	Irregular	Pink	Rough	Flat	Lobate
VEM3 (VD1)	Small	Round	Pink	Smooth	Raised	Entire
VEM4 (VD1)	Punctiform	Round	Pink	Smooth	Raised	Entire
VEM5 (VD1)	Medium	Irregular	Pink	Rough	Flat	Undulate
VEM6 (VD2)	Medium	Round	Pink	Smooth	Crateriform	Entire
VEM7 (VD2)	Medium	Round	Maroon	Smooth	Flat	Entire
VEM8 (VD2)	Small	Round	Chocolate	Smooth	Flat	Entire
VEM9 (VD2)	Small	Round	Pink	Smooth	Flat	Entire
VEM10 (VD3)	Medium	Round	Pink	Smooth	Raised	Entire
VEM11 (VD3)	Medium	Irregular	Pink	Rough	Flat	Undulate
VEM12 (VD3)	Small	spindle	Pink	Rough	Flat	Entire

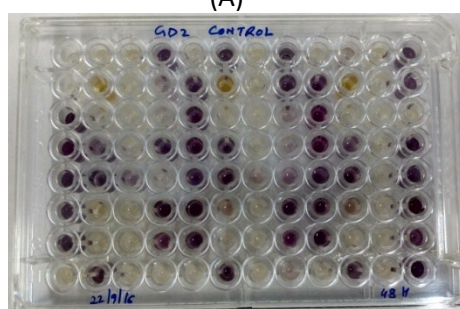
VEM13 (VD3)	Medium	Round	Pink	Smooth	Raised	Entire
<b>Jensen's Agar isolates</b>						
<b>Morphological characteristics</b>						
VJ1 (VD1)	Small	Round	White	Smooth	Raised	Entire
VJ2 (VD1)	Very small	Round	White	Smooth	Raised	Entire
VJ3 (VD1)	Punctiform	Round	White	Smooth	Raised	Entire
VJ4 (VD2)	Small	Irregular	White	Rough	Raised	Curled
VJ5 (VD2)	Small	Round	White	Rough	Flat	Entire
<b>MacConkey Agar isolates</b>						
<b>Morphological characteristics</b>						
VMAC1 (VD2)	Small	Round	Pink	Smooth	Raised	Entire
VMAC2 (VD2)	Big	Round	Cream	Smooth	Raised	Entire
VMAC3 (VD2)	Big	Round	Light pink	Rough	Flat	Entire
VMAC4 (VD2)	Medium	Round	Red	Smooth	Flat	Entire
<b>M-Enterococcus Agar isolates</b>						
<b>Morphological characteristics</b>						
VME1 (VD2)	Punctiform	Round	Colourless	Smooth	Raised	Entire
VME2 (VD2)	Small	Round	Maroon	Smooth	Raised	Entire
<b>Aeromonas Agar isolates</b>						
<b>Morphological characteristics</b>						
VA1 (VD1)	Medium	Round	Green	Smooth	Raised	Entire
VA2 (VD2)	Big	Round	Cream	Smooth	Raised	Entire
VA3 (VD3)	Medium	Round	Green	Smooth	Flat	Entire
VA4 (VD3)	Big	Round	Brown	Smooth	Raised	Entire
VA5 (VD3)	Big	Round	Cream with Green center	Smooth	Raised	Entire
<b>Cetrimide Agar isolates</b>						
<b>Morphological characteristics</b>						
VCET1 (VD1)	Punctiform	Round	White	Smooth	Raised	Entire
VCET2 (VD3)	Small	Round	White	Smooth	Raised	Entire



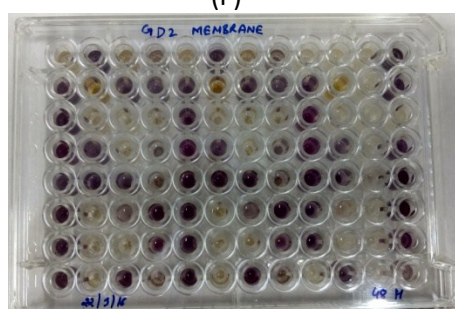
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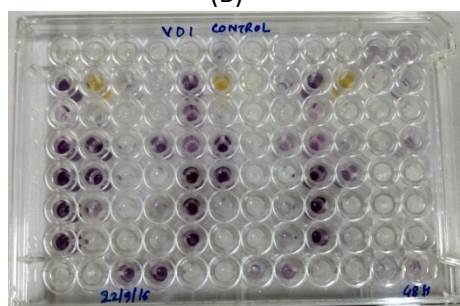
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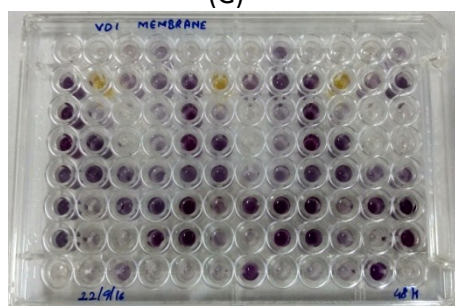
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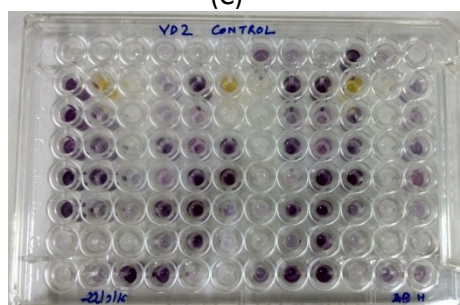
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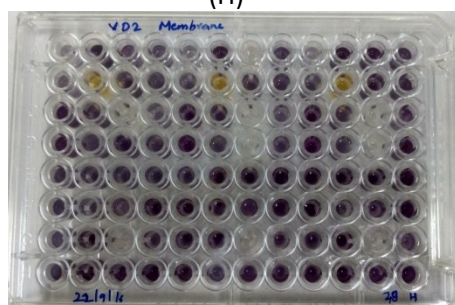
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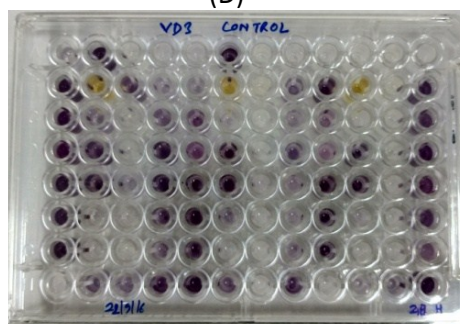
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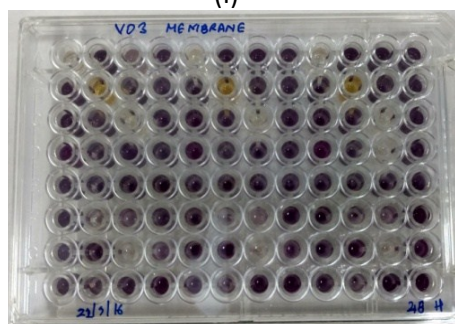
(D)



(I)



(E)



(J)

**Figure S 1.** Digital image of Biolog EcoPlates: (A-E) Direct seawater sample of GD 1, GD 2, VD 1, VD 2 and VD 3 respectively after 48 h of incubation (F-J) Bacteria recovered from membrane dipped in the same seawater samples of GD 1, GD 2, VD 1, VD 2 and VD 3 respectively after 48 h of incubation.