

**Table S1. Colony morphology of the bacteria isolated in sampling #1.**

<b>SAMPLING 1</b>							
<b>Strains</b>	<b>Size (mm)</b>	<b>Shape</b>	<b>Margin</b>	<b>Configuration</b>	<b>Elevation</b>	<b>Color</b>	<b>Transparency</b>
<b>SEHER RHIZOPLANE</b>							
SHR1-1	Pinpoint	Round	Lobate	Round	Raised	Orange	Opaque
SHR1-2	2.5	Irregular	Smooth	Star-shaped	Umbonate	Off-white	Opaque
SHR1-3	1	Round	Smooth	Wrinkled	Convex	Off-white	Opaque
SHR1-4	3	Round	Smooth	Round	Raised	Shiny yellow	Opaque
SHR1-5	5	Round	Smooth	Concentric	Flat	Yellow	Opaque
SHR1-6	3	Round	Smooth	Round	Convex	Off-white	Opaque
SHR1-7	4	Round	Wavy	Concentric	Flat	Bright yellow	Opaque
SHR1-8	0.5	Round	Lobate	Round	Flat	White	Opaque
SHR1-9	4	Round	Smooth	Scalloped margins	Flat	White	Opaque
SHR1-10	4	Round	Wavy	Round	Raised	Pale	Opaque
SHR1-11	3	Round	Smooth	Scalloped margins	Umbonate	White	Opaque
<b>FAISALABAD RHIZOPLANE</b>							
FDR1-1	2.5	Round	Smooth	Round	Raised	Bright yellow	Opaque
FDR1-2	4	Round	Wavy	Round	Flat	Off-white	Opaque
FDR1-3	2	Round	Smooth	Wrinkled	Convex	Off-white	Opaque
FDR1-4	5	Irregular	Lobate	Wrinkled	Flat	Off-white	Opaque
FDR1-5	Pinpoint	Round	Smooth	Round	Raised	Bright yellow	Opaque
FDR1-6	5	Round	Smooth	Concentric	Flat	Yellow	Opaque
FDR1-7	3	Round	Smooth	Round	Convex	Off-white	Opaque
FDR1-8v	Pinpoint	Round	Lobate	Round	Raised	Orange	Opaque
FDR1-9	3	Irregular	Wooly	Rhizoid	Flat	Off-white	Opaque
FDR1-10	2	Round	Smooth	Round	Flat	Off-white	Opaque
FDR1-11	3	Round	Smooth	Scalloped margins	Umbonate	White	Opaque
<b>LASANI RHIZOPLANE</b>							
LAR1-1	3	Round	Wavy	Wrinkled	Flat	Yellow	Opaque
LAR1-2	2.5	Round	Smooth	Concentric	Flat	Light yellow	Opaque
LAR1-3	3	Irregular	Wooly	Rhizoid	Flat	Off-white	Opaque
LAR1-4	2	Round	Smooth	Round	Flat	Off-white	Opaque
LAR1-5	2	Oval	Thread-like	Wrinkled	Flat	Off-white	Opaque
LAR1-6	5	Round	Smooth	Concentric	Flat	Yellow	Opaque
LAR1-7	3	Round	Smooth	Round	Convex	Off-white	Opaque

LAR1-8	4	Round	Wavy	Round	Flat	Off-white	Opaque
LAR1-9	2	Round	Smooth	Wrinkled	Convex	Off-white	Opaque
LAR1-10	3	Round	Smooth	Scalloped margins	Umbonate	White	Opaque

**Table S2. Important characteristics of the bacterial isolates from sampling #1.**

Strain	Gram reaction	Shape	Oxidase	Catalase	HCN production	Phosphate solubilization	N <sub>2</sub> fixation	Auxin production (µg ml <sup>-1</sup> )
<b>SEHER RHIZOPLANE</b>								
SHR1-1	GN	bacilli	+	+	-	-	+	0
SHR1-2	GP	bacilli	-	+	-	+	+	0
SHR1-3	GP	cocci	-	+	-	+	+	8.12
SHR1-4	GP	cocci	-	+	-	+	+	6.38
SHR1-6	GN	bacilli	-	+	+	-	+	0
SHR1-7	GP	cocci	-	+	-	-	+	0
SHR1-8	GN	cocci	+	+	+	-	+	22.33
SHR1-9	GP	cocci	+	+	-	+	+	9.01
SHR1-10	GP	cocci	-	+	-	-	+	4.41
SHR1-11	GN	cocci	-	+	-	-	+	0
<b>LASANI RHIZOPLANE</b>								
LAR1-1	GN	cocci	-	+	-	-	+	4.84
LAR1-2	GN	cocci	-	+	-	-	+	0
LAR1-3	GP	cocci	-	+	-	-	+	6.04
LAR1-4	GP	coccobacilli	-	+	-	+	+	60.21
LAR1-5	GP	cocci	+	+	-	+	+	5.61
<b>FAISALABAD RHIZOPLANE</b>								
FDR1-1	GP	coccobacilli	+	+	+	-	+	36.07
FDR1-2	GN	bacilli	+	+	-	+	+	0
FDR1-3	GP	bacilli	-	+	-	-	+	52.85
FDR1-4	GP	cocci	-	+	-	+	+	5.85
FDR1-5	GP	cocci	-	+	-	+	+	35.49

**Table S3. Colony morphology of the bacteria isolated in sampling #2.**

<b>SAMPLING 2</b>							
<b>Strains</b>	<b>Size (mm)</b>	<b>Shape</b>	<b>Margin</b>	<b>Configuration</b>	<b>Elevation</b>	<b>Color</b>	<b>Transparency</b>
<b>SEHER RHIZOPLANE</b>							
SHR2-1	2	Round	Smooth	Round	Drop-like	Bright yellow	Opaque
SHR2-2	2	Round	Smooth	Round	Convex	pale yellow	Translucent
SHR2-3	3	Irregular	Smooth	Round	Raised	Pale yellow	Opaque
SHR2-4	5	Round	Smooth	Round	Raised	Yellow	Opaque
SHR2-5	1	Round	Smooth	Round	Drop-like	Orange	Opaque
SHR2-6	6	Round	Smooth	Round	Convex	Cream	Opaque
SHR2-7	1	Round	Smooth	Round	Drop-like	Cream	Opaque
SHR2-8	5	Round	Smooth	Round	Flat	Colorless	Transparent
SHR2-9	4	Round	Smooth	Double margin	Flat	Cream	Opaque
SHR2-10	3.5	Round	Smooth	Concentric	Flat	Pale	Opaque
SHR2-11	1.5	Round	Smooth	Circular rings	Flat	Off-white	Opaque
SHR2-12	Pinpoint	Round	spreading	Hollow margins	Raised	Bright yellow	Opaque
SHR2-13	3	Irregular	Smooth	Dark from center	Flat	yellow	Opaque
<b>LASANI RHIZOPLANE</b>							
LAR2-1	2	Round	Smooth	Round	Convex	Shiny pale yellow	Translucent
LAR2-2	3	Round	Smooth	Round	Convex	Bright white	Opaque
LAR2-3	4	Round	Smooth	Double margin	Flat	Cream	Opaque
LAR2-4	5	Round	Smooth	Round	Flat	Colorless	Transparent
LAR2-5	4	Round	Smooth	Double margin	Flat	Cream	Opaque
LAR2-6	Pinpoint	Round	spreading	Hollow margins	Raised	Bright yellow	Opaque
<b>FAISALABAD RHIZOPLANE</b>							
FDR2-1	10	Round	Smooth	Round	Raised	Light brown	Opaque
FDR2-2	1	Round	Smooth	Round	Drop-like	Orange	Opaque
FDR2-3	3	Round	Smooth	Circular	Flat	Off-white	Translucent
FDR2-4	2	Round	Smooth	Round	Raised	Light yellow	Opaque
FDR2-5	5	Round	Smooth	Round	Raised	Yellow	Opaque
FDR2-6	4	Round	Smooth	Double margin	Flat	Cream	Opaque
FDR2-7	5	Round	Smooth	Round	Flat	Colorless	Transparent
FDR2-8	2	Irregular	Wavy	Round	Flat	yellow	Opaque
FDR2-9	2	round	smooth	concentric	Flat	Off-white	Translucent

**Table S4. Important characteristics of the bacterial isolates from sampling #2.**

Strain	Gram reaction	Shape	Oxidase	Catalase	HCN production	Phosphate solubilization	N <sub>2</sub> fixation	Auxin production (µg ml <sup>-1</sup> )
<b>SEHER RHIZOPLANE</b>								
SHR2-1	GN	cocci	-	+	+	+	+	6.46
SHR2-2	GP	cocci	+	+	+	-	+	1.85
SHR2-3	GP	cocci	+	+	-	-	+	22.83
SHR2-4	GP	cocci	+	+	-	+	+	8.16
SHR2-5	GP	cocci	+	+	+	+	+	5.22
SHR2-6	GP	coccobacilli	-	-	-	-	+	17.41
SHR2-7	GN	cocci	+	+	+	-	-	13.55
<b>FAISALABAD RHIZOPLANE</b>								
FDR2-1	GN	cocci	+	+	-	-	+	20.28
FDR2-2	GP	cocci		+	-	-	+	0
FDR2-3	GN	bacilli	-	+	-	-	+	0
FDR2-4	GP	bacilli	+	+				77.57
<b>LASANI RHIZOPLANE</b>								
LAR2-1	GP	bacilli	+	+	-	-	+	18.03
LAR2-2	GP	cocci	+	+	+	-	+	7.90

**Table S5. Colony morphology of the bacteria isolated in sampling #3.**

<b>SAMPLING 3</b>							
<b>Strains</b>	<b>Size (mm)</b>	<b>Shape</b>	<b>Margin</b>	<b>Configuration</b>	<b>Elevation</b>	<b>Color</b>	<b>Transparency</b>
<b>SEHER RHIZOPLANE</b>							
SHR3-1	1	Round	Smooth	Round	Drop-like	Yellow	Opaque
SHR3-2	1	Round	Smooth	Round	Drop-like	Bright yellow	Opaque
SHR3-3	2	Round	Smooth	Round	Drop-like	Orange-red	Opaque
SHR3-4	3	Round	Smooth	Round	Drop-like	Cream	Opaque
SHR3-5	1	Round	Smooth	Round	Drop-like	Orange	Opaque
SHR3-6	Pinpoint	Round	Smooth	Round	Convex	Yellow	Opaque
SHR3-7	Pinpoint	Round	Smooth	Round	Drop-like	Off-white	Opaque
SHR3-8	2	Round	Smooth	Round	Flat	Pale yellow	Translucent
SHR3-9	2	Round	Smooth	Round	Raised	Off-white	Opaque
SHR3-10	3	Round	Smooth	Round	Flat	Off-white	Opaque
SHR3-11	3	Round	Smooth	Round with scalloped margins	Flat	Creamy white	Opaque
SHR3-12	2	Round	Smooth	Circular lines	Flat	Yellow	Opaque
<b>LASANI RHIZOPLANE</b>							
LAR3-1	2	Round	Wavy	Round with scalloped margin	Flat	White	Opaque
LAR3-2	1.5	Round	Smooth	Round	Convex	Pale yellow	Opaque
LAR3-3	2	Round	Smooth	Round	Convex	Pale yellow	Opaque
LAR3-4	4	Irregular	Smooth	Round	Raised	Cream	Opaque
LAR3-5	3	Round	Smooth	Round	Convex	Bright white	Opaque
LAR3-6	5	Round	Smooth	Round	Flat	White	Translucent
LAR3-7	3	Round	Smooth	Round	Umbonate	Cream	Opaque
<b>FAISALABAD RHIZOPLANE</b>							
FDR3-1	3	Round	Smooth	Round	Umbonate	Cream	Opaque
FDR3-2	1	Round	Smooth	Round	Drop-like	Red	Opaque
FDR3-3	Pinpoint	Round	Smooth	Round	Convex	Yellow	Opaque
FDR3-4	3	Round	Smooth	Round	Umbonate	Cream	Opaque

**Table S6. Important characteristics of the bacterial isolates from sampling #3.**

Strain	Gram reaction	Shape	Catalase	Oxidase	HCN production	Phosphate solubilization	N <sub>2</sub> fixation	Auxin production (µg ml <sup>-1</sup> )
<b>SEHER RHIZOPLANE</b>								
SHR3-2	GP	cocci	+	+	+	+	+	37.45
SHR3-3	GP	coccobacilli	+	+	-	+	+	2.88
SHR3-4	GP	bacilli	+	-	+	-	+	8.69
SHR3-5	GP	coccobacilli	+	+	+	-	+	42.64
SHR3-6	GP	cocci	+	+	-	-	+	5.72
SHR3-7	GP	cocci	+	+	-	-	+	11.46
SHR3-8	GP	cocci	+	-	-	-	+	8.01
SHR3-9	GP	cocci	+	+	-	+	+	12.70
SHR3-10	GP	cocci	+	-	-	+	+	6.59
SHR3-11	GN	bacilli	+	-	-	+	+	6.83
SHR3-12	GP	coccobacilli	+	+	-	+	+	4.37
<b>FAISALABAD RHIZOPLANE</b>								
FDR3-2	GP	coccobacilli	+	+	-	-	+	12.70
FDR3-3	GP	cocci	+	-	-	+	+	11.71
FDR3-4	GP	coccobacilli	+	+	-	+	+	0
<b>LASANI RHIZOPLANE</b>								
LAR3-1	GP	cocci	+	-	-	-	+	3.69
LAR3-2	GP	coccobacilli	+	+	-	-	+	1.34
LAR3-3	GP	coccobacilli	+	-	-	-	+	3.56
LAR3-4	GN	coccobacilli	+	+	+	-	+	24.80
LAR3-5	GP	coccobacilli	+	-	-	-	+	1.46
LAR3-6	GP	coccobacilli	+	+	-	-	+	6.28