

- 1 Supplementary Table 1. Laboratory level evaluation of the formulations and coated seeds used in cotton crop at CICR, Nagpur in terms of IAA, fungicidal
2 activity, germination attributes and CFU/g carrier

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Treatments	IAA ($\mu\text{g g}^{-1}$ formulation)	CFU g^{-1} formulation		Seed vigour index in water agar
		BG11 medium	NA medium	
T1 IARI <i>Azotobacter</i> inoculant	-	-	4.1×10^{11}	324.4
T2 <i>Anabaena</i> sp. based formulation	-	1.2×10^4	-	371.9
T3 <i>Providencia</i> sp. based formulation	-	-	7.0×10^{11}	171.1
T4 <i>Anabaena-Providencia</i> sp. based formulation	-	1.6×10^4	7.6×10^{11}	302.3
T5 <i>Anabaena-Azotobacter</i> sp. biofilm based formulation	59.13 ± 2.0	1.4×10^4	5.3×10^{11}	157.3
T6 <i>Anabaena-Pseudomonas</i> biofilm based formulation	73.70 ± 3.7	1.7×10^4	4.1×10^{11}	433.8
T7 <i>Anabaena +Nostoc</i> consortia based formulation	77.55 ± 4.8	1.6×10^4	-	415.7
T8 <i>Anabaena variabilis</i> based formulation	78.31 ± 4.3	1.9×10^4	-	358.7
T9 <i>Calothrix</i> sp.	97.82 ± 5.7	2.1×10^2	-	433.5
T10 50% N+PK	-	-	-	244.1

4 Supplementary Table 2. Effect of microbial formulations on biometric parameters of cotton crop at CICR, Nagpur

Treatments	Plant fresh weight (g)	Plant height (cm)
T1 50% N + PK+ IARI <i>Azotobacter</i> inoculant	8.96 ^c	36.15 ^b
T2 50% N+ PK+ <i>Anabaena</i> sp.(CW1) based formulation	11.53 ^d	28.62 ^d
T3 50% N+PK+ <i>Providencia</i> sp. based formulation	11.94 ^d	33.02 ^c
T4 50% N+PK+ <i>Anabaena</i> sp.(CW1) + <i>Providencia</i> sp. based formulation	16.60 ^b	41.74 ^a
T5 50% N+PK+ <i>Anabaena</i> sp.- <i>Azotobacter</i> biofilm based formulation	16.33 ^b	40.13 ^a
T6 50% N+PK+ <i>Anabaena</i> sp.- <i>Pseudomonas</i> biofilm based formulation	14.43 ^c	32.51 ^c
T7 50% N+PK+ <i>Anabaena</i> + <i>Nostoc</i> consortia based formulation	11.77 ^d	35.56 ^b
T8 50% N+PK+ <i>Anabaena</i> sp. (RPAN59) based formulation	17.80 ^a	40.98 ^a
T9 50% N+PK+ <i>Calothrix</i> sp. based formulation	16.57 ^b	40.05 ^a
T10 50% N+PK	15.10 ^c	26.58 ^d
T11 Recommended NPK	15.00 ^c	26.92 ^d
SEM	0.31	0.843
CD (5%)	0.85	2.32

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12 Supplementary Table 3. Influence of inoculants on soil microbiological parameters wilting of cotton plants at CICR, Nagpur
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Treatments	Activity of PPO in root tissues (IU g ⁻¹ fresh weight)	Soil Chlorophyll (µg g ⁻¹ soil)	MBC (µg C g ⁻¹ soil)	Wilting (out of 120 plants)
T1 50% N + PK+ IARI <i>Azotobacter</i> inoculant	0.002 ^e	1.52 ^e	903.83 ^b	11.33 ^a
T2 50% N+ PK+ <i>Anabaena</i> sp.(CW1) based formulation	0.013 ^c	1.70 ^d	475.18 ^d	11.33 ^a
T3 50% N+PK+ <i>Providencia</i> sp. based formulation	0.034 ^b	1.79 ^d	963.11 ^b	13.67 ^a
T4 50% N+PK+ <i>Anabaena</i> sp.(CW1) <i>Providencia</i> sp. based formulation	0.007 ^d	2.18 ^c	743.00 ^c	12.67 ^a
T5 50% N+PK+ <i>Anabaena</i> sp.- <i>Azotobacter</i> biofilm based formulation	0.009 ^d	1.76 ^d	253.72 ^e	10.33 ^a
T6 50% N+PK+ <i>Anabaena</i> sp.- <i>Pseudomonas</i> biofilm based formulation	0.002 ^e	1.70 ^d	526.30 ^d	9.00 ^a
T7 50% N+PK+ <i>Anabaena</i> + <i>Nostoc</i> consortia based formulation	0.001 ^e	2.56 ^b	534.76 ^d	12.33 ^a
T8 50% N+PK+ <i>Anabaena</i> sp. (RPAN59) based formulation	0.039 ^a	2.51 ^b	529.36 ^d	11.00 ^a
T9 50% N+PK+ <i>Calothrix</i> sp. based formulation	0.001 ^e	3.05 ^a	1228.89 ^a	13.00 ^a
T10 50% N+PK	0.001 ^e	0.84 ^f	102.01 ^f	16.67 ^a
T11 Recommended NPK	0.001 ^e	1.54 ^e	792.76 ^c	9.00 ^a
SEM	0.001	0.04	28.12	2.93
CD (5%)	0.002	0.11	77.71	8.08

Supplementary Table 4. Effect of inoculants on plant weight and mortality of cotton crop in *Rhizoctonia* sick plots at CICR Farm, Sirsa

Treatments	Plant fresh weight (g)	% mortality
T1 <i>Anabaena laxa</i> (RP8) based formulation	4.51 ^d	35.2
T2 <i>Calothrix sp.</i> based formulation	8.46 ^b	33.3
T3 <i>Anabaena-T. viride</i> biofilm based formulation	9.09 ^a	24.8
T4 <i>Anabaena-B. subtilis</i> biofilm based formulation	4.60 ^d	41.5
T5 Vitavax	6.93 ^c	22.2
T6 <i>Trichoderma</i> commercial formulation	3.42 ^e	35.9
T7 Uninoculated carrier	2.31 ^f	37.5
SEM	0.08	-
CD (5%)	0.22	-

Supplementary Table 5. Influence of inoculants on enzyme activity of plant tissues of cotton crop in *Rhizoctonia* sick plots at CICR Farm, Sirsa

Treatments	Roots		Shoots	
	β -1,3 Endoglucanase (IU g ⁻¹ fresh weight)	β -1,4 Endoglucanase (IU g ⁻¹ fresh weight)	β -1,3 Endoglucanase (IU g ⁻¹ fresh weight)	β -1,4 Endoglucanase (IU g ⁻¹ fresh weight)
T1 <i>Anabaena laxa</i> (RP8)	50.69 ^b	63.48 ^c	677.70 ^a	489.14 ^c
T2 <i>Calothrix sp.</i>	49.06 ^c	87.85 ^a	680.55 ^a	571.65 ^a
T3 <i>Anabaena-T.viride</i> biofilm	46.01 ^c	63.53 ^c	642.30 ^b	471.01 ^{de}
T4 <i>Anabaena-B.subtilis</i> biofilm	71.27 ^a	68.42 ^b	676.35 ^a	537.07 ^b
T5 Vitavax	16.64 ^d	54.16 ^d	631.65 ^b	473.48 ^d
T6 <i>Trichoderma</i>	15.76 ^d	21.59 ^f	329.58 ^d	263.05 ^f
T7 Uninoculated carrier	8.99 ^e	50.18 ^e	506.70 ^c	459.52 ^e
SEM	1.47	1.33	7.19	4.71
CD (5%)	4.06	3.67	19.87	13.02