Comparative Analysis of Plant Growth-Promoting Rhizobacteria (PGPR) and Chemical Fertilizers on Quantitative and Qualitative Characteristics of Rainfed Wheat

Supplementary Materials

Table S1. Combined analysis of variance of the effects applied plant growth-promoting rhizobacteria and their combinations with need-based chemical fertilizers on yield components of Azar-2 rainfed wheat cultivar in open field experiments during three cropping seasons.

Source of Variation	Df[a]	Biological Yield	Grain Yield	Straw Yield	Harvest Index	1000-Seed Weight
		Mean Squares				
Year	2	66700000 **	16272165**	15400000**	0.159**	13.81**
Replication	9	5144379**	660328**	2402988ns	0.003ns	15.34**
Treatment	14	149300000**	2312531**	1874841**	0.002ns	24.03**
Year × Treatment	28	1613781ns	207086ns	2723626**	0.003ns	7.36**
Error	126	1235426	156146	626301	0.01	2.83
Total	176					
CV (%)		18.26	17.11	20.95	10.18	4.15

[a] degree of freedom; ns – not significant; * and ** – significant at 1% and 5% probability level, respectively.

Table S2. Means comparison analysis of yield components of Azar-2 rainfed wheat cultivar under the effects of PGPR and PGPR + chemical fertilizers during 2016-2017, 2017-2018, and 2018-2019 growing seasons.

Year	Biological Yield (kg/ha)	Grain Yield (kg/ha)	Straw Yield (kg/ha)	Harvest Index	1000-Seed Weight (g)
2016-2017	5932 b	2395 b	3537 b	0.41 b	40.89 a
2017-2018	4060 c	1751 c	2310 c	0.44 a	40.70 a
2018-2019	8269 a	2781 a	5488 a	0.34 c	39.98 b
LSD 5%	401.59	142.77	377.9	0.019	0.608

Means followed by the same letters within columns are not significantly different at the 5% level.

Table S3. Combined analysis of variance of the effects applied plant growth-promoting rhizobacteria and their combinations with soil test need-based chemical fertilizers on qualitative characteristics of Azar-2 rainfed wheat cultivar in open field experiments during three cropping seasons.

Source of Variation	Df[a]	Concentration in grain (%)			Concentration in flag leaves (%)			Grain protein (%)
		N	P	K	N	P	K	
		Mean Squares						
Year	2	0.008 n.s	0.153 **	0.862 **	0.633 n.s	0.118 **	38.239 **	0.25 n.s
Replication	9	0.078 n.s	0.002 n.s	0.004 n.s	0.373 n.s	0.006 n.s	0.203 **	2.655 n.s
Treatment	14	0.043 n.s	0.005 n.s	0.002 n.s	0.541 n.s	0.008 *	0.056 *	1.453 n.s
Year ×Treatment	28	0.062 n.s	0.003 *	0.004 n.s	0.876 n.s	0.007 n.s	0.513 n.s	2.079 n.s
Error	126	0.094	0.002	0.002	0.515	0.004	0.031	3.166
Total	176							
CV (%)		16.323	18.39	13.02	21.60	22.74	9.75	16.25

[a] degree of freedom; n.s – not significant; * and ** – significant at 1% and 5% probability level, respectively.