

Table S1: The tested 16 rhizobacteria isolates

Original Strain code no.	Abbreviation used in the study	Species	Family	Source*
Azt B4	A1	<i>Azotobacter chroococcum</i>	<i>Pseudomonadaceae</i>	(2)
B43	B1	<i>Bacillus circulans</i>	<i>Bacillaceae</i>	(1)
3B	B2	<i>Bacillus circulans</i>	<i>Bacillaceae</i>	(2)
En 71/3	B3	<i>Bacillus licheniformis</i>	<i>Bacillaceae</i>	(3)
21B	B4	<i>Bacillus macerans</i>	<i>Bacillaceae</i>	(1)
1E	B5	<i>Bacillus polymyxa</i>	<i>Bacillaceae</i>	(2)
30B	B6	<i>Bacillus polymyxa</i>	<i>Bacillaceae</i>	(1)
NA 20	B7	<i>Bacillus subtilis</i>	<i>Bacillaceae</i>	(3)
K4	E1	<i>Enterobacter agglomerans</i>	<i>Enterobacteriaceae</i>	(2)
K3	E2	<i>Enterobacter agglomerans</i>	<i>Enterobacteriaceae</i>	(2)
31Sh	K1	<i>Klebsiella</i> sp.	<i>Enterobacteriaceae</i>	(1)
En 5/1	P1	<i>Pantoea</i> sp.	<i>Enterobacteriaceae</i>	(3)
Arbo 17	Ps1	<i>Pseudomonas aeruginosa</i>	<i>Pseudomonadaceae</i>	(3)
34Sh	Ps2	<i>Pseudomonas cepacia</i>	<i>Pseudomonadaceae</i>	(1)
Arbo 4	Ps3	<i>Pseudomonas fluorescens</i>	<i>Pseudomonadaceae</i>	(3)
Pseu. B6	Ps4	<i>Pseudomonas</i> sp.	<i>Pseudomonadaceae</i>	(2)

*** For more information on the source of isolates and their characterization, please refer to the following references:**

1. Othman, A.A., W.M. Amer, M. Fayez, and N.A. Hegazi. 2004. Rhizosphere of Sinai desert plants is a potential repository for associative diazotrophs. *Microbiol. Res.* 159:285–293.
2. Othman, A.A., W.M. Amer, M. Fayez, M. Monib, and N.A. Hegazi. 2003. Biodiversity of diazotrophs associated to the plant cover of north Sinai deserts. *Arch. Agron. Soil Sci.* 49:683–705.
3. Youssef, H.H., M.A. Hamza, M. Fayez, *et al.* 2016. Plant-based culture media: Efficiently support culturing rhizobacteria and correctly mirror their *in-situ* diversity. *J. Adv. Res.* 7:305–316.

Table S2: OTUs Richness (S'), Shannon-Wiener index (H'), and Dominance (D') of rhizobacterial populations associated to barley roots and CFUs harvested on various culture media based on DGGE analysis.

Media	Richness Taxa (S')	Shannon (H')	Dominance (D')
Barley root	27	3.296 ±0.159	0.037 ±0.011
Nutrient agar	22	3.091 ±0.168	0.045 ±0.015
CCM	18	2.890 ±0.177	0.056 ±0.018
Soil extract	17	2.833 ±0.178	0.059 ±0.020
Grass powder	28	3.332 ±0.156	0.036 ±0.011
Clover powder	30	3.401 ±0.153	0.033 ±0.010
Clover slurry	31	3.434 ±0.156	0.032 ±0.010
Cactus powder	31	3.434 ±0.153	0.032 ±0.010

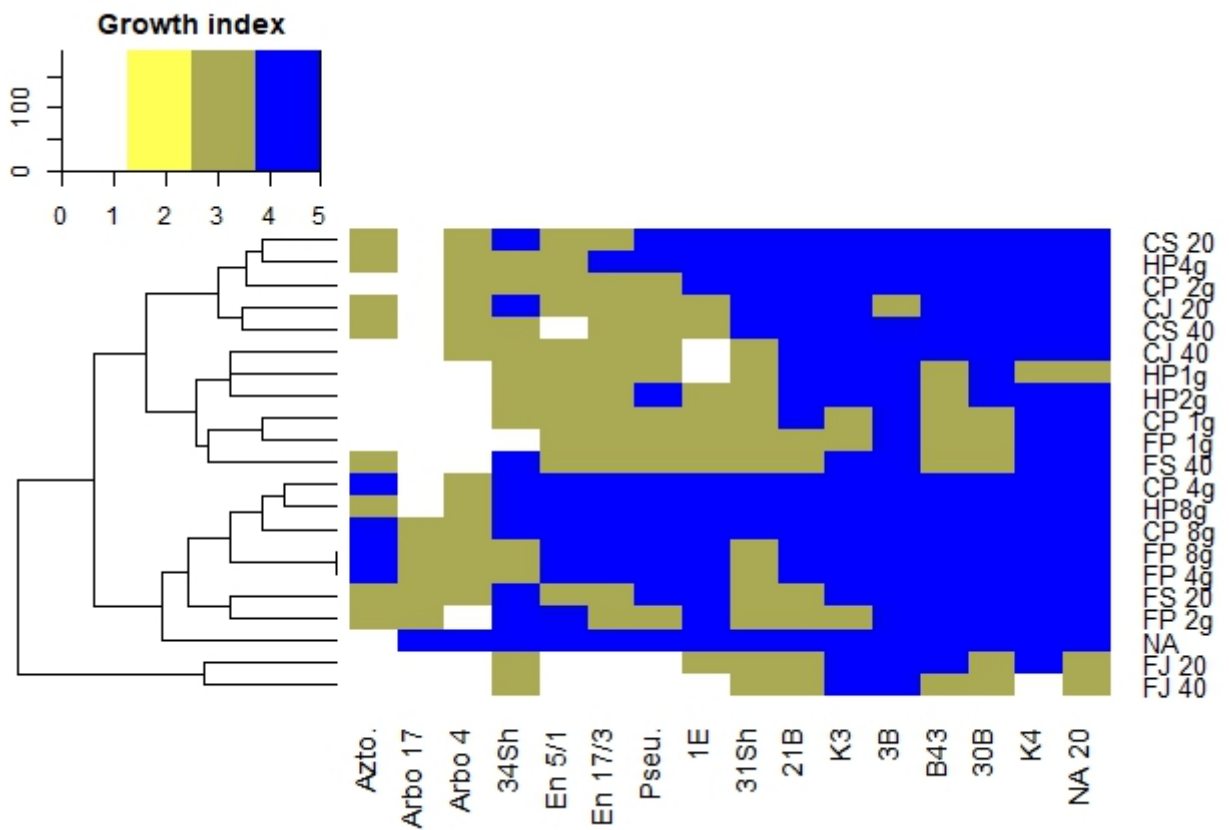


Fig. S1: Heatmap showing the growth indices [0, no growth; 1, scant (discontinued bacterial lawn, with scattered colonies); 2-3, good (continued bacterial lawn), and 4-5, very good (continued and very dense bacterial lawn)] of all tested isolates grown on 20 different formulations of plant-only culture media based on plant juices and slurries dilutions (1:20 or 1:40, v/v) as well as weights of dehydrated plant powders (1, 2, 4, or 8 g L⁻¹).

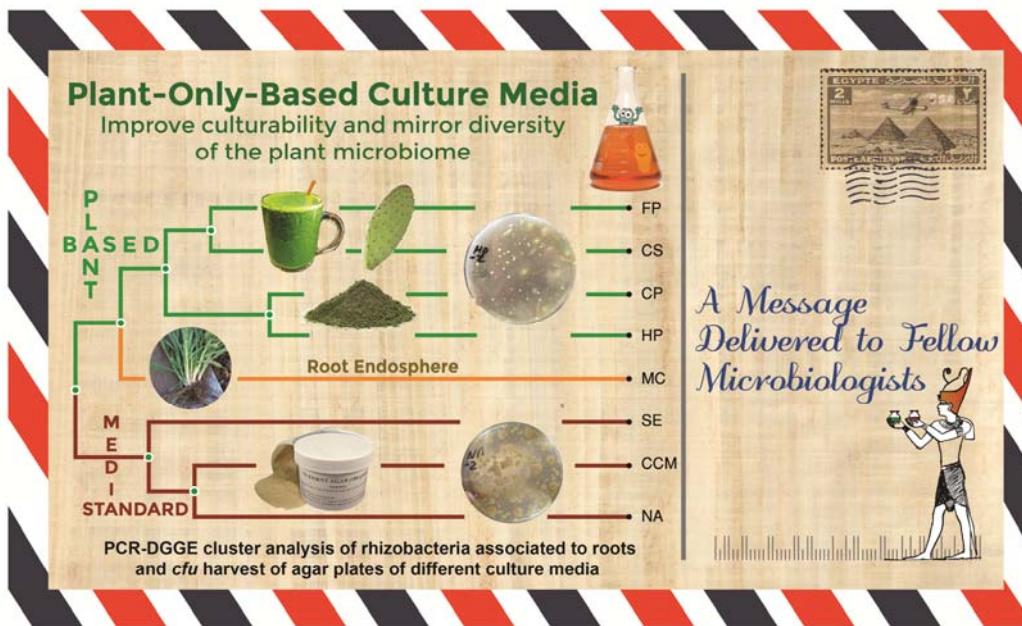


Fig. S2: Graphical abstract

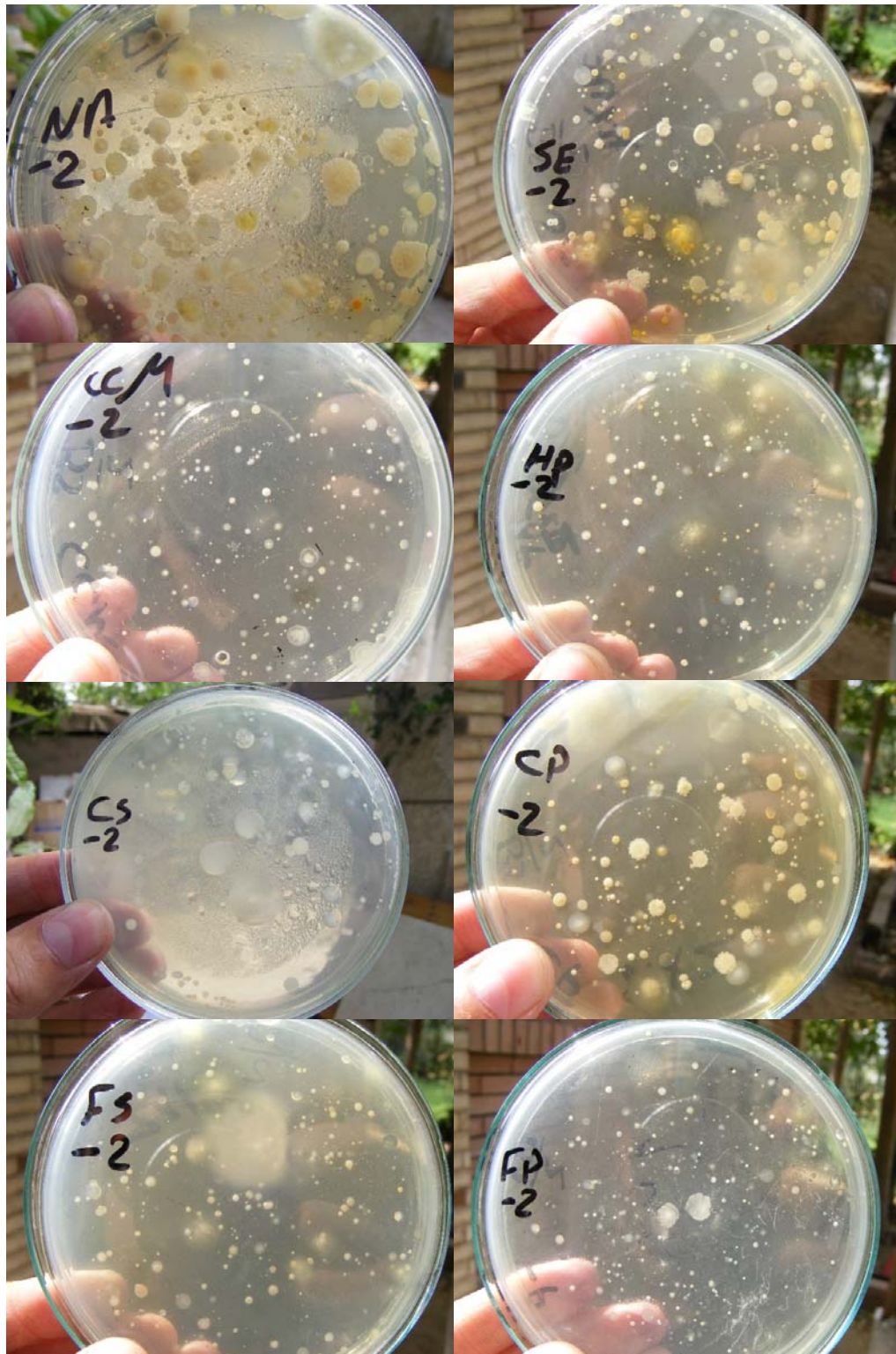


Fig. S3: CFU of endo-rhizobacteria as developed on the different tested culture media (comparing the same root dilution of 10^{-2}): **NA**, nutrient agar; **SE**, soil extract agar; **CCM**, N-deficient combined carbon sources medium; **HP**, turfgrass powder, **CS**, clover slurry; **CP**, clover powder; **FS**, cactus slurry; **FP**, cactus powder.