

### Supplementary

**Table S1. Physico-chemical characteristics of Groundnut shell biochar**

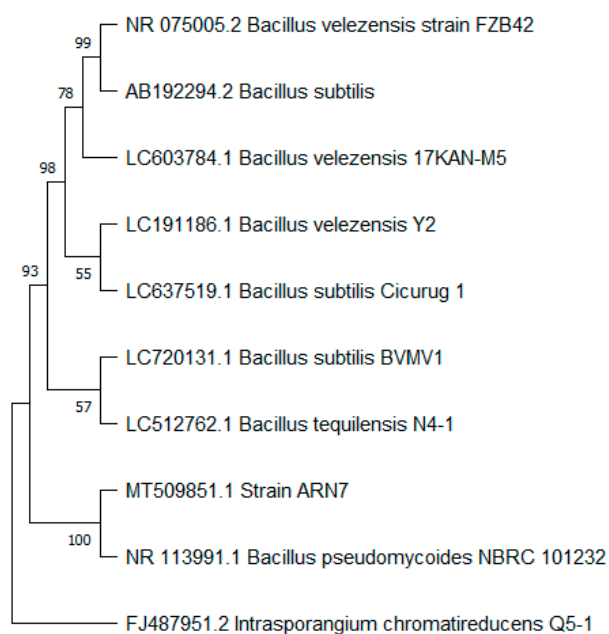
Parameters	GS-BC
pH	7.77
Conductivity (mS cm <sup>-1</sup> )	2.61
CEC (Cmol Kg <sup>-1</sup> )	7.9
Moisture Content (%)	2.73 ± 1.93
Organic Matter (%)	95 ± 0.34
Volatile matter (%)	39.1 ± 0.1
Ash (%)	9.3 ± 0.1
Yield %	43 ± 1.7
Surface area (m <sup>2</sup> /gm)	3.54
Elemental Compostion(%)	
C	60.3
N	2.1
H	3.3
O	21.5
Nutrient contents (mg kg <sup>-1</sup> )	
P	1489.81 ± 4.93
K	17145.41 ± 21.38
Na	195.30 ± 0.71
Mg	1224.72 ± 3.21
Al	930.7 ± 5.23
Cu	0.51 ± 0.06
Fe	1053 ± 2.51
Mn	52.07 ± 0.13
Zn	20.71 ± 0.11
Cd	BDL
Cr	BDL
Ni	1.53 ± 0.17
As	1.10 ± 0.02

Values are means ± standard deviations of three samples. BDL- below detection limits.

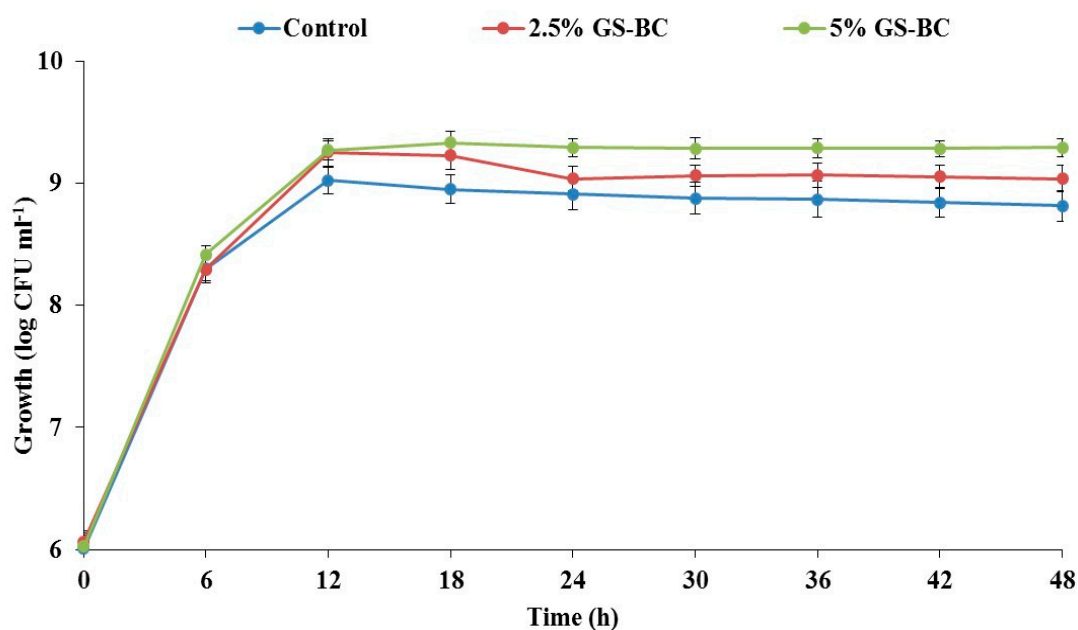
**Table S2.** Heavy metal stress tolerance and plant growth-promoting features of ARN7.

Characteristics	ARN7					
<u>Metal tolerance level (mg L<sup>-1</sup>)</u>						
Ni	200					
Cu	100					
Zn	400					
Cr	200					
Cd	100					
<u>In vitro plant growth promotion</u>						
Shoot length (cm)	2.97 ± 0.25					
Root length (cm)	14.23 ± 0.25					
Fresh weight (g plant <sup>-1</sup> )	0.024 ± 0.001					
	<b>Treatment</b>					
<b>PGP traits</b>	Control	PEG 15%	PEG 30%	HM	PEG 15% + HM	PEG 30% + HM
IAA production (µg mL <sup>-1</sup> )	2.6 ± 0.19	2.3 ± 0.08	2.4 ± 0.08	1.9 ± 0.04	1.9 ± 0.07	2.0 ± 0.15
Siderophore production (%)	13.8 ± 1.78	14.6 ± 0.60	5.2 ± 1.03	10.9 ± 0.59	6.8 ± 2.16	3.2 ± 0.87
Catechol (µg mL <sup>-1</sup> )	-	-	-	-	-	-
Hydroxamate (µg mL <sup>-1</sup> )	41.0 ± 1.01	37.0 ± 2.13	27.0 ± 1.04	12.7 ± 2.06	10.0 ± 1.21	5.0 ± 0.09
P solubilization (mg mL <sup>-1</sup> )	90.9 ± 3.83	58.3 ± 1.49	29.7 ± 5.95	80.6 ± 3.25	47.6 ± 4.36	25.0 ± 2.99
Exopolysaccharides production (mg mL <sup>-1</sup> )	2.1 ± 0.01	4.0 ± 0.01	4.4 ± 0.03	4.3 ± 0.04	7.8 ± 0.05	9.1 ± 0.05

HM – heavy metal (Nickel -150 mg L<sup>-1</sup>+ Zinc 300 mg L<sup>-1</sup>); PEG – Polyethylene Glycol 6000; Values are means ± standard deviations of three samples.



**Figure S1.** Phylogenetic tree showing the relationship of partial 16S rRNA gene sequences of ARN7 with other related sequences obtained from NCBI database. The tree was clustered with the neighbor-joining method using MEGA 11 package



**Figure S2.** Growth pattern of ARN7 in tryptone soy broth medium supplemented with 0, 2.5 or 5% biochar.