

Allelopathic potential of rhizobacteria against (Leptochloa chinensis (L.) Nees) in rice under gnotobiotic conditions

Iram Afzal, Zahir Ahmad Zahir, Muhaimen Ayyub, Qasim Ali

Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Pakistan







Results

Result 1: Characterization of cyanogenic isolates

	Characteristics	IR5-13	IR7-11	IR7-6	IR4-10	IR8-1	IR3-1	IR3-4	IR7-7
	Gram reaction	-	-	_	-	-	_	-	_
	Catalase	+	+	+	+	+	+	+	+
	Oxidase	++	+	+	++	++	-	-	+
	Inorganic P solubilization	+	-	+	+	+	+	-	+
	Siderophore	+	+	+	+	+	+	+	+
	EPS	-	+	+	-	+	+	+	+
	ACC-deaminase	+	-	+	-	-	-	-	+
	IAA (µg/ml) without L-	25.64	11.85	26	13	17.44	12.94	19.85	11.6
	TRP								1
	IAA (µg/ml) with L-TRP	90.44	31.73	40.91	29.55	27.17	22.58	28.79	22.3
									5





Methodology





HCN production assay



IR4-10 IR7-6 IR5-13 IR7-7 IR8-1 IR3-4 IR3-1 IR7-11

Isolates

-Fresh biomass (mg) weed

-Root fresh biomas (mg) rice

-Shoot fresh biomass (mg) rice

Result 2: Effect of cyanogenic isolates on fresh biomass of weed and rice

14 12





Characterization



Lettuce seedling bioassay



Rice growth trial Leptochloa chinensis suppression trial (8 selected cyanogenic bacterial isolates named as IR)



Conclusion

- Four isolates suppressed weed growth and had neutral/promoting effect on rice as exhibited in results.
- These isolates can be further screened to assess efficacy under direct seeded conditions in fields Acknowledgement

Supported by Punjab Agricultural research board, Government of Punjab, Pakistan, under project ID 1093

Root length (cm) Shoot length (cm) Spad value Tips no. **Result 4: Different parameters of rice**



Fig 1: Rice and weed experiment

Tropentag, 2021, University of Hohenheim, Germany, September, 15-17