IECAG 2024 Conference

The 4th International Electronic Conference on Agronomy

02–05 December 2024 | Online

Beyond a Pathogen: *Chromobacterium violaceum*, a Rhizobacterium with Plant Growth Promoting Potential

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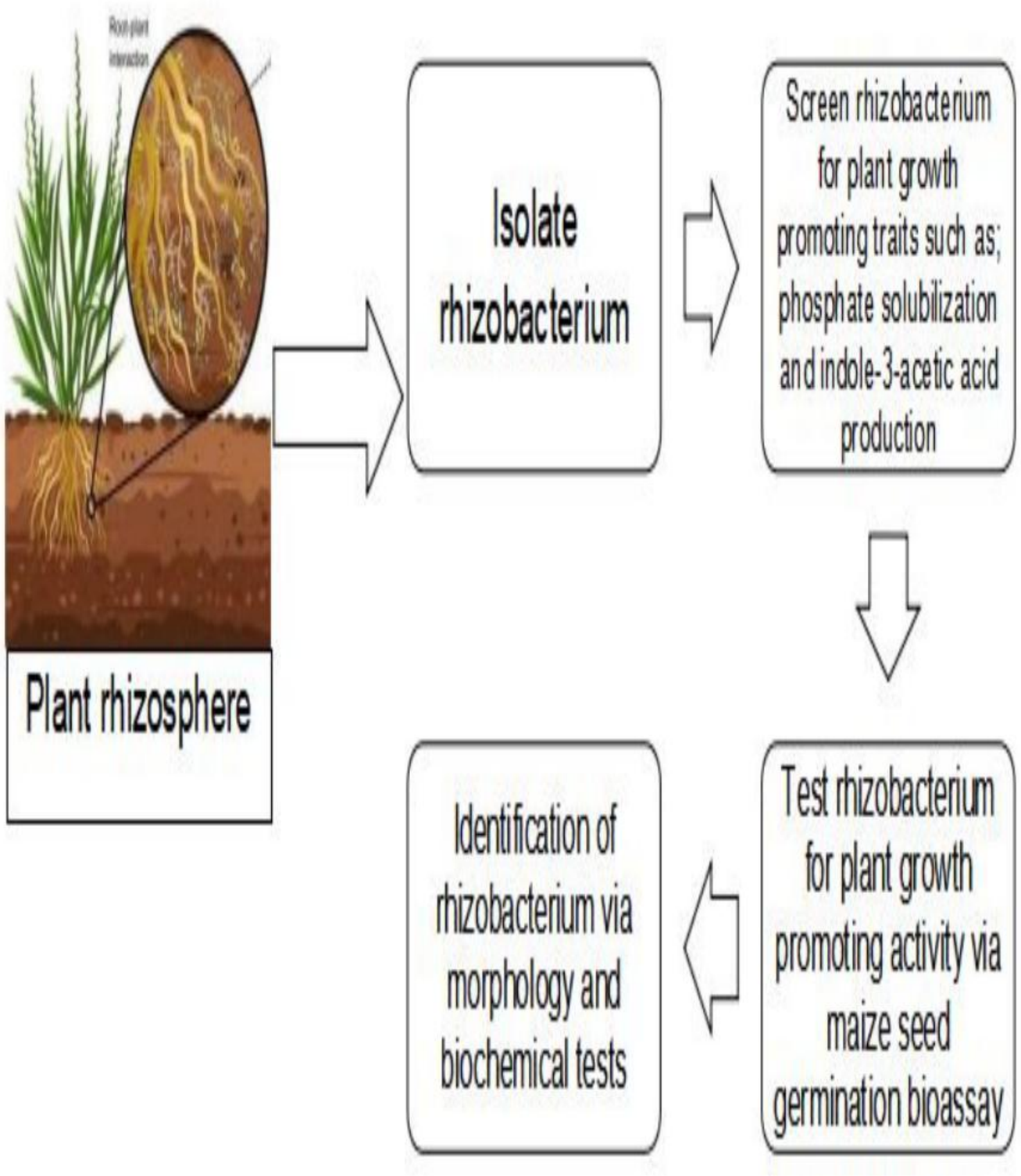
INTRODUCTION & AIM

- *C. violaceum* is a scientifically reported pathogen.
- Bioprospecting for eco-friendly microbe-based fertilizers, to combat the challenges of climate change and sustainable agriculture resulted to;
- The tentative identification of *C. violaceum* as a rhizobacterium with plant growth promoting potential.

METHOD



RESULTS & DISCUSSION

Table 1: Morphological characteristics of the rhizobacterium on Starch casein agar

Isolate code	Colour	Elevation	Shape	Margin	Size
RS PUR	Purple	Raised	Circular	Entire	Small

Table 2: Biochemical characterization of the rhizobacterium

Isolate code	Gram reaction	Catalase	Citrate	TSI				MIU			Tentative identity of organism
				Slant	Butt	Gas	H_2S	Motility	Indole	Urease	
RS PUR	—ve rods	+	-	Y	Y	-	-	+	-	+	*Chromobacterium violaceum*

* —ve: negative; +: positive; Y: Yellow; TSI: Triple sugar iron

Table 3: Plant growth promoting traits and activity of the rhizobacterium

Plant growth promoting (PGP) traits			Seed germination bioassay		
Isolate Identity	Phosphate solubilisation	Indole-3-acetic acid production	Treatment	Mean Radicle length	Mean Hypocotyl length
Chromobacterium violaceum	Negative	Negative	Maize seeds + *Chromobacterium violaceum* inoculum	6.6 cm	0.7 cm
			Control (maize + sterile distilled water)	5.7 cm	0.3 cm

Plate 1: Plant growth promting activity of *C. violaceum* during seed germination bioassay relative to control

Statistical analysis
Student's t-test showed $P<0.05$, indicating there is a significant difference between the *Chromobacterium violaceum* treated seeds and the control.

CONCLUSION

This research thus, show the significance of bioprospecting studies, and the plant growth promoting potential of this unidentified strain of *C. violaceum*. Screening for more PGP traits, strain level identification (16s rDNA sequencing) of this rhizobacterium, and further trials in pot experiments are recommended.

REFERENCES

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