

SICULTUSE

Survival of Rhizobacteria (RMT₂NF4) with Cyantraniliprole on Agar Medium

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Graphical abstracts





• The survival rate and efficiency of rhizobacteria (RMT_2NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient agar

Concentration of Cyantraniliprole



Objective

To study the survival rate of rhizobacteria (RMT_2NF4) in combination with cyantraniliprole on nutrient agar and nutrient broth.



- Fig 1. The survival rate of the rhizobacteria (RMT₂NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient agar
- Fig 2. The efficiency of survival rate of the rhizobacteria (RMT_2NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient agar
- The survival rate and efficiency of rhizobacteria (RMT_2NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient broth



Materials and Methods

- Preparation of rhizobacteria (RMT₂NF4)
 Selected isolate *Priestia aryabhattai* (RMT₂NF4) (Pidnoi, 2019).
- The survival rate of rhizobacteria (RMT₂NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient agar



• The survival rate of rhizobacteria (RMT₂NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient broth



- 0 ml/l 3 ml/l 5 ml/l 10 ml/l 15 ml/l 20 ml/l 25 ml/l Concentration of Cyantraniliprole
- Fig 3. The survival rate of the rhizobacteria (RMT₂NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient broth
- 0 ml/l 3 ml/l 5 ml/l 10 ml/l 15 ml/l 20 ml/l 25 ml/l

Concentration of Cyantraniliprole

Fig 4. The efficiency of survival rate of the rhizobacteria (RMT₂NF4) with cyantraniliprole at 0, 3, 5, 10, 15, 20 and 25 ml/l on nutrient broth

Conclusions

- On nutrient agar, the highest RMT₂NF4 of $(3.4 \times 10^7 \text{ cfu/ml})$ at a cyantraniliprole concentration of 3 ml/l.
- On nutrient broth, the highest RMT_2NF4 of (8.6 x 10⁶ cfu/ml) at a cyantraniliprole concentration of 25 ml/l.
- These findings indicated that RMT_2NF4 could coexist with cyantraniliprole, suggesting compatibility between this bacterial strain and the insecticide.
- Next step, to study effect of rhizobacteria (RMT₂NF4) in combination with cyantraniliprole on sweet corn seedling vigor.

• Calculate the population

Microbial population (cfu/ml) =
$$\frac{\text{Number of colonies} \times \text{Dilution factor}}{\text{Volume plated (ml)}}$$

• Efficiency percentage

Efficiency (%) = $\left(\frac{\text{Number of colonies in treatment - Number of colonies in control}}{\text{Number of colonies in control}}\right) \times 100$

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Reference

Pidnoi, A. 2019. Screening and Efficiency Assessment of Rhizobacteria for Growth Enhancement of Rice Seedling. Thesis. Chiang Mai University. 54 p.