

**UREIDES COMPARISON AND SYMBIOTIC
EFFECTIVENESS OF RHIZOBIAL
ISOLATES OF MANANG
AND KATHMANDU**

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Abstract

The relationships between the relative abundance of ureides N in the shoot-bleeding sap and the proportion of plant N derived from nitrogen fixation was quantified. Additional experiments were the different parameters like shoot length, Root length, nodules number, nodules weight and so forth. In each of the different experiments, different treatment combinations for two different rhizobial isolates were employed. The experiments were carried out in entirely two sets; one for ureide estimation and next set of experiment for other different parameters.

Pots were inoculated at sowing with *Rhizobium leguminosarum* bv. *viceae* and *R. leguminosarum* bv. *phaseoli*, urea and with controls. R₁ was isolated from *Pisum sativum* L. of Kathmandu valley whereas the R₂ was isolated from *Phaseolus vulgaris* from Manang. On each run of the experiment for the allantoin equivalent, standard curves were obtained for the shifts in the composition of N solutes of xylem saps. Therefore, assessment of nitrogen fixation by *Vicia faba* L. using the ureides method was possible with the standard curve presented. Both the isolates were authenticated by using a test plant test plant *Vicia faba* L. by sterile sand and growth pouch method.

The effectiveness of R₁ and R₂ was determined on the basis of the total nitrogen content of shoot, leaves and nodules was revealed that R₂ was more effective than R₁. The ureides concentration (average) for R₁ and R₂ was found to be 335.854 mg l⁻¹ and 338.575 mg l⁻¹ respectively. The statistical examination of allantoin equivalent also revealed that there was a positive correlation between the two rhizobial isolates on different treatment combinations and the blocks.

CONTENTS

<i>LIST OF TABLES</i>	
<i>LIST OF FIGURES</i>	
<i>LIST OF PHOTOGRAPHS</i>	
<i>ACRONYMS</i>	
<i>EXECUTIVE SUMMARY</i>	
<i>ABSTRACT</i>	

CHAPTER ONE: INTRODUCTION

1.1 Biological Nitrogen Fixation (BNF).....	2
1.1.1 Symbiosis and Symbiotic Nitrogen Fixation.....	3
1.2 <i>Phaseolus vulgaris</i> L.cv. Trishuli (Field bean)	10
1.3 <i>Pisum sativum</i> L.....	10
1.4 <i>Vicia faba</i> L. (Broad bean).....	10
1.5 Source of Nitrogen.....	10
1.6 Rationale.....	11
1.7 Hypothesis.....	12
1.8 Objectives.....	12
1.9 Limitations.....	1

CHAPTER TWO: LITERATURE REVIEW

2.1 <i>Rhizobium</i>	15
2.2 <i>Rhizobium</i> Classification.....	15
2.3 Symbiotic Properties.....	17
2.4 Enzymatic Effect.....	19
2.5 Ureides (allantoin and allantoic acid).....	20

CHAPTER THREE: MATERIALS AND METHODS

3. Materials	
3.1 Sources of <i>Vicia faba</i> L.....	24
3.2 Laboratory facilities.....	24
3.3 Rhizobial isolation and their analysis.....	24
3.3.1 General.....	24
3.3.2 Collection of Nodules.....	24
3.4 Preparation of Stock Solution.....	24
3.4.1 Congo Red (CR) Stock Solution.....	24
3.4.2 Bromothymol blue (BTB) stock solution.....	25
3.4.3 Preparation of the Culture Medium.....	25
3.4.4 Isolation of <i>Rhizobium</i> (Pure Culture).....	25
3.4.5 Maintenance of Pure Culture.....	26
3.4.6 Characterization of rhizobial isolates.....	26

3.4.6.1 Gram Staining.....	26
3.4.6.2 Component of the Bacterial Cell Wall.....	26
3.4.6.3 Staining Mechanism.....	27
3.4.6.4 Steps followed on Gram-Staining.....	28
3.4.7 Authentication of rhizobial isolates by infection test.....	28
3.4.8 Acid/Alkali production characteristics.....	30
3.4.9 Mean generation time.....	30
3.4.10 Growth Rate Constant (μ).....	32
3.4.11 Experimentation.....	33
3.4.11.1 Laboratory Experimentation.....	33
3.4.11.2 Experimental layout.....	33
3.4.11.3 Study parameters.....	34
3.4.11.3 Ureides	
Analysis.....	35
3.4.11.4 Total Nitrogen Content (%).....	38
3.5 Statistical Analysis.....	39
3.5.1 Analysis of Variance (ANOVA).....	39
3.5.2 Correlation of Variance.....	41

CHAPTER FOUR: RESULTS

4.1 Isolation of Rhizobial Isolates.....	42
4.2 Characteristics of Rhizobial Isolates.....	42
4.2.1 Colony Characteristics and Growth Response on YMA-CR Medium.....	42
4.2.2 Growth-response on YMA-BTB Medium.....	42
4.2.3 Acid/Alkali Production in Liquid Medium.....	42
4.2.4 Gram Staining.....	43
4.2.5 Mean Generation Time.....	43
4.3 Authentication of the Rhizobial Isolates.....	44
4.4 Study Parameters.....	44
4.4.1 General.....	44
4.4.2 Nodules Induction.....	44
4.4.3 Shoot Length.....	45
4.4.4 Roots Length.....	46
4.4.5 Biomass.....	47
4.4.5.1 Nodules.....	47
4.4.5.2 Shoot Biomass.....	48
4.4.6 Total Nitrogen.....	49
4.4.6.1 Nodules N (%).....	49
4.4.6.2 Stem N (%).....	50
4.4.6.3 Leaf N (%).....	50
4.4.7 Total Ureides (Allantoin and Allantoic Acid) Content.....	51
4.4.8 Symbiotic Effectiveness.....	52

CHAPTER FIVE: DISCUSSION AND CONCLUSION

5.1 Discussion.....	53
5.2 Concluding Remarks.....	59
5.3 Recommendations.....	60

LITERATURES
INTERNET SURFED
ANNEXES

ACRONYMS

AICAR	→	Aminoimidazole carboxamide ribonucleotide.
ANOVA	→	Analysis of Variance
ATP	→	Adenosine Triphosphate
BNF	→	Biological Nitrogen Fixation.
BTB	→	Bromo Thymol Blue
bv	→	Biovar
CDB	→	Central Department of Botany
CR	→	Congo Red
DAS	→	Days After Seed Sown
FAO	→	Food and Agriculture Organization
FGAR	→	Formyl glycinamide ribonucleotide
g ⁻¹	→	Per gram
GOGAT	→	Glutamine-2-oxo-glutarate aminotransferase
GS	→	Glutamine Synthetase
Ha	→	Hectare
I	→	Rhizobial inoculum
IAA	→	Indole Acetic Acid
IARI	→	Indian Agriculture Research Institute
Log 10	→	Logarithm
mg	→	Milligram
N	→	Nitrogen
NARC	→	Nepal Agriculture Research Council
No.	→	Number
QC		Test sample
PCARR	→	Philippine Council for Agriculture and Resources Research
p ^H	→	Negative logarithm of Hydrogen ion concentration
PVC	→	Polyvinyl chloride
PvUPS1	→	Putative Allantoin Transporter
R ₁	→	<i>Rhizobium leguminosarum</i> bv. viceae
R ₂	→	<i>R. leguminosarum</i> bv. phaseoli
vs	→	Versus
YMA	→	Yeast Mannitol Agar
YMB	→	Yeast Mannitol Broth

LIST OF TABLES

- Table 1: Experimental layout.
- Table 2: General Table for Analysis of Variance.
- Table 3: Mean generation time.
- Table 4: Change in p^H of the broth of Rhizobia in different time intervals.
- Table 5: Shoots length (in cm) at 20 DAS.
- Table 6: Shoots length (in cm) at 30 DAS.
- Table 7: Shoots length (in cm) at 40 DAS.
- Table 8: Roots length (in cm) at 20 DAS.
- Table 9: Roots length (in cm) at 30 DAS.
- Table 10: Roots length (in cm) at 40 DAS.
- Table 11: Nodules induction at 20 DAS.
- Table 12: Nodules induction at 30 DAS.
- Table 13: Nodules induction at 40 DAS.
- Table 14: Nodules biomass (in g) at 20 DAS.
- Table 15: Nodules biomass (in g) at 30 DAS.
- Table 16: Nodules biomass (in g) at 40 DAS.
- Table 17: Plant biomass (in g) at 20 DAS.
- Table 18: Plant biomass (in g) at 30 DAS.
- Table 19: Plant biomass (in g) at 40 DAS.
- Table 20: Total leaf N (%) at 20, 30 and 40 DAS.
- Table 21: Total stem N (%) at 20, 30 and 40 DAS.
- Table 22: Total nodules N (%) at 20, 30 and 40 DAS.
- Table 23: Influence of time of incubation on the absorbance readings in the allantoin assay.

ANNEXES

(Data's not shown, consult author for overall data.)

- Annex 1: 1.1 Metabolic pathway for the utilization of the product of *de novo* Purine synthesis.
1.2 Metabolic pathway for the utilization of allantoin.
- Annex 2: 2.1 Constituents of media.
2.2 Modified Jensen's N-free medium (Roughley, 1984).
- Annex 3: Reagents (Constituents of Gram stain).
- Annex 4: Constituents for Nitrogen analysis (Micro-Kjeldahl method).
- Annex 5: F-ratio between the Rhizobial isolates.
- Annex 6: Analysis of correlation coefficient between variables.
- Annex 7: ANOVA (Analysis of Variance).
- Annex 8: Determination of Ureides in *Vicia faba* L.

LIST OF FIGURES

- Fig. 1: Change in p^H of broth of rhizobia in different time intervals.
- Fig. 2: Multiplication of bacterial cells in different time intervals.
- Fig. 3: Effect of rhizobial isolate (R_1) on nodules number.
- Fig. 4: Effect of rhizobial isolate (R_2) on nodules number.
- Fig. 5: Effect of R_1 on shoot length.
- Fig. 6: Effect of R_2 on shoot length.
- Fig. 7: Effect of R_1 on roots length at different time interval.
- Fig. 8: Effect of R_2 on roots length at different time interval.
- Fig. 9: Effect of R_1 on nodules biomass.
- Fig.10: Effect of R_2 on nodules biomass.
- Fig. 11: Effect of R_1 on shoot biomass.
- Fig. 12: Effect of R_2 on shoot biomass.
- Fig. 13: Estimate of nodules N (%).
- Fig. 14: Estimate of stem N (%).
- Fig. 15: Estimate of leaf N (%).
- Fig. 16: Total allantoin equivalent of rhizobial isolates (R_1 and R_2).

LIST OF PHOTOGRAPHS

PHOTOPLATE 1

- Photo 1: Test plant (*Vicia faba* L.) with nodules.
- Photo 2: Nodules formed by the inoculum of *R. leguminosarum* bv. *viceae* .
- Photo 3: *Rhizobium* colonies on YMA-CR placed in an incubator.
- Photo 4: Nodules formed by the inoculum of *R. leguminosarum* bv. *phaseoli*.
- Photo 5: Authentication of *Rhizobium* on sterile sand.
- Photo 6: *Rhizobium* colonies preserved in slants.
- Photo 7: Researcher working on laboratory.
- Photo 8: Preserving the rhizobial isolates and chemicals on fridge.
- Photo 9: Authentication of *Rhizobium* on growth pouch.

PHOTO PLATE 2

- Photo 1: Arrangement of pots during experimentation.
- Photo 2: Broth cultures of the rhizobial isolates.
- Photo 3: Isolated rhizobial colonies on YMA-CR plate.
- Photo 4: Calculation of the mean generation time.
- Photo 5: Acid production test on YMA-CR plate.
- Photo 6: Gram staining.
- Photo 7: Transverse section of Nodule.
- Photo 8: Plant showing positive result during growth pouch experimentation.
- Photo 9: Micro-Kjeldahl for Nitrogen estimation.