# APPENDIX

## 1. Composition of media

1.1. Composition of yeast extract mannitol agar media (pH 6.8)

| Composition | Amount |
|---|---|
| Yeast Extract | 1g |
| Mannitol | 10g |
| Dipotassium phosphate | 0.5g |
| Magnesium sulphate | 0.2g |
| Sodium chloride | 0.1g |
| Agar | 15 g |
| Distilled water | 1l |

1.2 Composition of yeast extract mannitol broth media (pH 6.8)

| Composition | Amount |
|---|---|
| Yeast Extract | 1g |
| Mannitol | 10g |
| Dipotassium phosphate | 0.5g |
| Magnesium sulphate | 0.2g |
| Sodium chloride | 0.1g |
| Distilled water | 1 l |

1.3. Composition of ketolactose media

| Composition | Amount |
|---|---|
| Lactose | 50 g |
| Yeast extract | 1 g |
| Agar | 20 g |
| Distilled water | 1L |

1.4. Composition of yeast extract mannitol agar – congo red media

| Composition | Amount |
|---|---|
| Yeast Extract | 1 g |
| Mannitol | 10 g |
| Dipotassium phosphate | 0.5 g |
| Magnesium sulphate | 0.2 g |
| Sodium chloride | 0.1 g |
| Congo Red | 0.025 g |
| Agar | 15 g |
| Distilled water | 1 l |

1.5.Composition of nitrate broth

| Composition | Amount |
|---|---|
| Potassium Nitrate | 1 g |
| Peptone | 5 g |
| Beef extract | 1 g |

1.6. Composition of starch agar media

| Composition | Amount |
|---|---|
| Starch | 20 g |
| Beef extract | 3 g |
| Peptone | 5 g |
| Agar | 15 g |
| Distilled water | 1 l |

1.7 Composition of urea broth

| Composition | Amount |
|---|---|
| Urea | 20 g |
| Yeast extract | 0.1 g |
| Potassium diphosphate | 9 g |
| Dipotassium phosphate | 9.5 g |
| Phenol red | 0.01 g |
| Distilled water | 1 l |
| pH | 6.8 |

1.8 Composition of gelatin medium

| Composition | Amount |
|---|---|
| Gelatin | 120 g |
| Beef extract | 3 g |
| Peptone | 5 g |
| Distilled water | 1 l |
| Agar (if required) | 15 g |

1.9.Simmon's Citrate agar medium

| Composition | Amount |
|---|---|
| Sodium citrate | 2.0g |
| $MgSO_4$ | 0.2g |
| (NH4) $H_2PO_4$ | 1.0 g |
| $K_2HPO_4$ | 1.0 g |
| NaCL | 5.0 g |
| Bromthymol blue | 0.008 g |
| Agar | G |
| Distilled water | 1 L |
| pH | 7.0 |

1.10.Composition of Pikovskaya's medium

| Composition | Amount |
|---|---|
| Glucose | 10.0 g |
| $Ca_3(PO_4)_2$ | 5.0g |
| (NH4)2SO4 | 0.5 g |
| KCL | 0.2g |
| $MgSO_4.7H_2O$ | 0.1g |
| $MnSO_4$ | 0.006 g |
| $FeSO_4$ | 0.006 g |
| Yeast extract | 0.5 g |
| Agar | 15.0 g |
| Water | 1l |

**2. Composition of reagents**

2.1. Composition of nitrate test reagent

| Composition | Amount |
|---|---|
| Zinc Chloride | 20 g |
| Starch | 4 g |
| Potassium Iodide | 2 g |
| Distilled water | 1 l |

2.2.Composition of Nessler's reagent

| Composition | Amount |
|---|---|
| $HgCl_3$ | 10.0 g |
| KI | 7.0 g |
| NaOH | 16.0 |
| Distilled water | 100 ml |

2.3. Composition of salkowski reagent

| Composition | Amount |
|---|---|
| 0.5M $FeCl_3$ | 1 ml |
| 35% $HClO_4$ | 49 ml |

2.4. Composition of TE buffer (pH 8.0)

| Composition | Amount |
|---|---|
| Tris-Cl | 2ml (10mM) |
| EDTA | 400µl (10mM) |
| Molecular biology grade water | 200ml |

2.5. Composition of TAE buffer (50X) (pH 8.0)

| Composition | Amount |
|---|---|
| Tris base | 242 g |
| Glacial acetic acid | 57.1ml |
| EDTA (0.5M) | 100ml |
| Molecular biology grade water | 1000ml |

2.6. Composition of nitrogen free nutrient solution

| Composition | Amount |
|---|---|
| MgSO4.7H2O | 61.5 g |
| CaCl2.2H2O | 73.5 g |
| K2HPO4 | 34 g |
| K2SO4 | 55 g |
| FeCl3.6H2O | 2.45 g |
| Micronutrients | |
| H3BO3 | 0.071 g |
| MnSO4.H2O | 0.0385 g |
| ZnSO4.7H2O | 0.0862 g |
| CuSO4.5H2O | 0.185 g |
| NaMoO4.2H2O | 0.012 g |
| CoCl2.6H2O | 0.00125 g |
| NiSO4 | 0.0005 g |
| | |
| Distilled water | 1000 ml |

## 3. 16S r DNA sequences of identified isolates

### 3.1. 16S r DNA sequences ofisolates obtained from *L. purpureus*

**>*Bradyrhizobium elkanii* DDL2 (GenBank accession number: KT 900890)**

TACGCAAGCTTACCATGCGAGTCGAGCGGGCATAGCAATATGTCAGCGGCAGACGGGTGAGTAA
CGCGTGGGAACGTAGCTTTTGGTTCGGAACAACTGAGGGAAACTTCAGCTAATACCGGATAAGC
CCTTACGGGGAAAGATTTATCGCCGAAAGATCGGCCCGCGTCTGATTAGCTAGTTGGTGAGGTAA
TGGCTCACCAAGGCGACGATCAGTAGCTGGTCTGAGAGGATGATCAGCCACATTGGGACTGAGA
CACGGCCCAAACTCCTACGGGAGGCAGCAGTGGGGAATATTGGACAATGGGCGCAAGCCTGATC
CAGCCATGCCGCGTGAGTGATGAAGGCCCTAGGGTTGTAAAGCTCTTTTGTGCGGGAAGATAAT
GACGGTACCGCAAGAATAAGCCCCGGCTAACTTCGTGCCAGCAGCCGCGGTAATACGAAGGGGG
CTAGCGTTGCTCGGAATCACTGGGCGTAAAGGGTGCGTAGGCGGGTCTTTAAGTCAGGGGTGAA
ATCCTGGAGCTCAACTCCAGAACTGCCTTTGATACTGAAGATCTTGAGTTCGGGAGAGGTGAGTG
GAACTGCGAGTGTAGAGGTGAAATTCGTAGATATTCGCAAGAACACCAGTGGCGAAGGCGGCTC
ACTGGCCCGATACTGACGCTGAGGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGT
AGTCCACGCCGTAAACGATGAATGCCAGCCGTTAGTGGGTTTACTCACTAGTGGCGCAGCTAACG
CTTTAAGCATTCCGCCTGGGGAGTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGGCC
CGCACAAGCGGTGGAGCATGTGGTTTAATTCGACGCAACGCGCAGAACCTTACCAGCCCTTGACA
TCCCGGTCGCGGACTCCAGAGACGGAGTTCTTCAGTTCGGCTGGACCGGAGACAGGTGCTGCAT
GGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCCCGTCCT
TAGTTGCTACCATTTAGTGAGCACTCTAAGGAGACTGCCGGTGATAAGCCGCGAGGAAGGTGGG
GATGACGTCAAGTCCTCATGGCCCTTACGGGCTGGGCTACACACGTGCTACAATGGCGGTGACAA
TGGGATGCTAAGGGGCGACCCTTCGCAAATCTCAAAAAGCCGTCTCAGTTCGGATTGGGCTCTGC
AACTCGAGCCCATGAAGTTGGAATCGCTAGTAATCGTGGATCAGCACGCCACGGTGAATACGTTC
CCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTTGGTTTTACCTGAAGACGGTGCGCTAA
CCGAAAGGGGGCAGCCGCCACGTAGGTACCGAG

**>*Bradyrhizobium elkanii* HIDL1 (GenBank accession number: KT 900891)**

AAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGGTAGGTCCACGCCGTAAACGATGAATGCC
AGCCGTTAGTGGGTTTACTCACTAGTGGCGCAGCTAACGCTTTAAGCATTCCGCCTGGGGAGTAC
GGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTT
AATTGGACGCAACGCGCAGAACCTTACCAGCCCTTGACATCCCGGTCGCGGACTCCAGAGACGG
AGTTCTTCAGTTTGGCTGGACCGGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTGAGA
TGTTGGGTTAAGTCCCGCAACGAGCGCAACCCCCGTCCTTAGTTGCTACCATTTAGTTGAGCACTC
TAAGGAGACTGCCGGTGATAAGCCGCGAGGAAGGTGGGGATGACGTCAAGTCCTCATGGCCCTT
ACGGGCTGGGCTACACACGTGCTACAATGGCGGTGACAATGGGATGCTAAGGGGCGACCCTTCG
CAAATCTCAAAAAGCCGTCTCAGTTCGGATTGGGCTCTGCAACTCGAGCCCATGAAGTTGGAATC
GCTAGTAATCGTGGATCAGCAGCCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCA
CACCATGGGAGTTGGTTTTACCTGAAGACGGTGCGCTAACCGAAAGGGGGCAGCCGGCCCCGGA
AGTTACGT

**>*Bradyrhizobium lablabi* SDL1 (GenBank accession number: KT 900892)**

TCGGCAAGCTTTAACATGCAAGTCGAGCGGGCATAGCAATATGTCAGCGGCAGACGGGTGAGT
AACGCGTGGGAACGTACCTTTTGGTTCGGAACAACTGAGGGAAACTTCAGCTAATACCGGATA
AGCCCTTACGGGGAAAGATTTATCGCCGAAAGATCGGCCCGCGTCTGATTAGCTAGTTGGTGA
GGTAATGGCTCACCAAGGCGACGATCAGTAGCTGGTCTGAGAGGATGATCAGCCACATTGGGA
CTGAGACACGGCCCAAACTCCTACGGGAGGCAGCAGTGGGGAATATTGGACAATGGGCGCAA
GCCTGATCCAGCCATGCCGCGTGAGTGATGAAGGCCCTAAGGGTGAGTGAAAATTTCTTTTGTG
CGGGAAGATAATGACGGTACCGCAAGAATAAGCCCCGGGCTAACTTTGTGCCAGCAAGCGGCG
GGGATACGAAGGGGCTAGCGTTGCTCGGAATCCACTGGGCGAAAGGGGTGCGAGGGCGGGTC
TTTAAGTCAGGGGTGAAATCCTGGAGCTCTACTCCAGAACTGCCTTTGATACTGAAGATCTTGA
GTTCGGGAGAGGGTGAGTGGAACTGCGAGTGTAGAGGTGAAATTTGTAGATATTCGCAAGAA
CACCAGTGGCGAAGGCGGCTCACTGGCCCGATACTGACGCTGAGGCACGAAAGCGTGGGGAG
CAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAATGCCAGCCGTTAGTGGGTT
TACTCACTAGTGGCGCAGCTAACGCTTTAAGCATTCCGCCTGGGGAGTACGGTCGCAAGATTAA
AACTCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTYGACGCAAC
GCGCAGAACCTTACCAGCCCTTGACATCCCGGTCGCGGACTCCAGAGACGGAGTTCTTCAGTTT
GGCTGGACCGGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAA
GTCCCGCAACGAGCGCAACCCCCGTCCTTAGTTGCTACCATTTAGTTGAGCACTCTAAGGAGACT
GCCGGTGATAAGCCGCGAGGAAGGTGGGGATGACGTCAAGTCCTCATGGCCCTTACGGGCTG
GGCTACACACGTGCTACAATGGCGGTGACAATGGGATGCTAAGGGGCGACCCTTCGCAAATCT
CAAAAAGCCGTCTCAGTTCGGATTGGGCTCTGCAACTCGAGCCCATGAAGTTGGAATCGCTAGT
AATCGTGGATCAGCACGCCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACC
ATGGGAGTTGGTTTTACCTGAAGACGGTGCGCTAACCGAAAGGGGGCAGCCGGCCTCGAGTAG
G

**>*Bradyrhizobium pachyrhizi* SIDL1 (GenBank accession number: KT 900893)**

TCGGCAAGCTTTAACATGCAAGTCGAGCGGGCATAGCAATATGTCAGCGGCAGACGGGTGAGT
AACGCGTGGGAACGTACCTTTTGGTTCGGAACAACTGAGGGAAACTTCAGCTAATACCGGATA
AGCCCTTACGGGGAAAGATTTATCGCCGAAAGATCGGCCCGCGTCTGATTAGCTAGTTGGTGA
GGTAATGGCTCACCAAGGCGACGATCAGTAGCTGGTCTGAGAGGATGATCAGCCACATTGGGA
CTGAGACACGGCCCAAACTCCTACGGGAGGCAGCAGTGGGGAATATTGGACAATGGGCGCAA
GCCTGATCCAGCCATGCCGCGTGAGTGATGAAGGCCCTAAGGGTGAGTGAAAATTTCTTTTGTG
CGGGAAGATAATGACGGTACCGCAAGAATAAGCCCCGGGCTAACTTTGTGCCAGCAAGCGGCG
GGGATACGAAGGGGCTAGCGTTGCTCGGAATCCACTGGGCGAAAGGGGTGCGAGGGCGGGT
CTTTAAGTCAGGGGTGAAATCCTGGAGCTCTACTCCAGAACTGCCTTTGATACTGAAGATCTTG
AGTTCGGGAGAGGGTGAGTGGAACTGCGAGTGTAGAGGTGAAATTTGTAGATATTCGCAAGA
ACACCAGTGGCGAAGGCGGCTCACTGGCCCGATACTGACGCTGAGGCACGAAAGCGTGGGGA
GCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAATGCCAGCCGTTAGTGGG
TTTACTCACTAGTGGCGCAGCTAACGCTTTAAGCATTCCGCCTGGGGAGTACGGTCGCAAGATT
AAAACTCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTYGACGCA
ACGCGCAGAACCTTACCAGCCCTTGACATCCCGGTCGCGGACTCCAGAGACGGAGTTCTTCAGT
TTGGCTGGACCGGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTT
AAGTCCCGCAACGAGCGCAACCCCCGTCCTTAGTTGCTACCATTTAGTTGAGCACTCTAAGGAG
ACTGCCGGTGATAAGCCGCGAGGAAGGTGGGGATGACGTCAAGTCCTCATGGCCCTTACGGGC
TGGGCTACACACGTGCTACAATGGCGGTGACAATGGGATGCTAAGGGGCGACCCTTCGCAAAT
CTCAAAAAGCCGTCTCAGTTCGGATTGGGCTCTGCAACTCGAGCCCATGAAGTTGGAATCGCTA
GTAATCGTGGATCAGCACGCCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACA
CCATGGGAGTTGGTTTTACCTGAAGACGGTGCGCTAACCGAAAGGGGGCAGCCGGCCTCGAGT
AGG

### 3.2. 16S r DNA sequences ofisolates obtained from *C. cajan* isolates

**>*Rhizobium mayense* DCC2 (GenBank accession n number: KR_107936)**

ATGCGGTTAGCGCACTACCTTCGGGTAAAACCAACTCCCATGGTGTGACGGGCGGTGTGTACAA
GGCCCGGGAACGTATTCACCGCGGCATGCTGATCCGCGATTACTAGCGATTCCAACTTCATGCAC
TCGAGTTGCAGAGTGCAATCCGAACTGAGATGGCTTTTGGAGATTAGCTCACACTCGCGTGCTCG
CTGCCCACTGTCACCACCATTGTAGCACGTGTGTAGCCCAGCCCGTAAGGGCCATGAGGACTTGA
CGTCATCCCCACCTTCCTCTCGGCTTATCACCGGCAGTCCCCTTAGAGTGCCCAACTTAATGCTGG
CAACTAAGGGCGAGGGTTGCGCTCGTTGCGGGACTTAACCCAACATCTCACGACACGAGCTGAC
GACAGCCATGCAGCACCTGTCTCTGAGCCACCGAAGTGGAAAGTGCATCTCTGCACCGGTCCCAG
GATGTCAAGGGCTGGTAAGGTTCTGCGCGTTGCTTCGAATTAAACCACATGCTCCACCGCTTGTG
CGGGCCCCCGTCAATTCCTTTGAGTTTTAATCTTGCGACCGTACTCCCCAGGCGGAATGTTTAATG
CGTTAGCTGCGCCACCGAACAGTATACTGCCCGACGGCTAACATTCATCGTTTACGGCGTGGACT
ACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCACCTCAGCGTCAGTAATGGACCAGTGA
GCCGCCTTCGCCACTGGTGTTCCTCCGAATATCTACGAATTTCACCTCTACACTCGGAATTCCACTC
ACCTCTTCCATACTCCAGATCGACAGTATCAAAGGCAGTTCCAGGGTTGAGCCCTGGGATTTCACC
CCTGACTGATCGATCCGCCTACGTGCGCTTTACGCCCAGTAATTCCGAACAACGCTAGCCCCCTTC
GTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGGGCTTCTTCTCCGGATACCGTCATTATCTTCT
CCGGTGAAAGAGCTTTACACCCTAGGCCTTCATCACTCACGCGGCATGGCTGGATCAAGCTGCGC
CATTGTCCATATTCC

**>*Burkholderia anthina* SICC1 (GenBank accession number: KR_107937)**

CATTTGGCGCCCGTCTCAACTGAAGAGGGTGTGTACAAGACCCGGGAACGTATTCACCGCGGCA
TGCTGATCCGCGATTACTAGCGATTCCAGCTTCATGCACTCGAGTTGCAGAGTGCAATCCGGACT
ACGATCGGTTTTCTGGGATTAGCTCCCCCTCGCGGGTTGGCAACCCTCTGTTCCGACCATTGTATG
ACGTGTGAAGCCCTACCCATAAGGGCCATGAGGACTTGACGTCATCCCCACCTTCCTCCGGTTTGT
CACCGGCAGTCTCCTTAGAGTGCTCTTGCGTAGCAACTAAGGACAAGGGTTGCGCTCGTTGCGGG
ACTTAACCCAACATCTCACGACACGAGCTGACGACAGCCATGCAGCACCTGTGCGCCGGTTCTCT
TTCGAGCACTCCCACCTCTCAGGAGGATTCCGACCATGTCAAGGGTAGGTAAGGTTTTTCGCGTT
GCATCGAATTAATCCACATCATCCACCGCTTGTGCGGTCCCCGGTCAATTCCTTTGAGGTTTTAAT
CTTGGGACCGTACCTCCCCGTGGCGGTCAACTTCACGCGTTAGCTACAT

**>*Mesorhizobium loti* ICC1 (GenBank accession number: KR_611429)**

TCCTTGCGGTTAGCACAGCGCCTTCGGGTAAAACCAACTCCCATGGTGTGACGGGCGGTGTGT
ACAAGGCCCGGGAACGTATTCACCGCGGCATGCTGATCCGCGATTACTAGCGATTCCAACTTC
ATGCACTCGAGTTGCAGAGTGCAATCCGAACTGAGATGGCTTTTGGAGATTAGCTCGACCTCG
CGGTCTCGCTGCCCACTGTCACCACCATTGTAGCACGTGTGTAGCCCAGCCCGTAAGGGCCAT
GAGGACTTGACGTCATCCCCACCTTCCTCTCGGCTTATCACCGGCAGTCCCCTTAGAGTGCCCA
ACTGAATGATGGCAACTAAGGGCGAGGGTTGCGCTCGTTGCGGGACTTAACCCAACATCTCAC
GACACGAGCTGACGACAGCCATGCAGCACCTGTCACCGGTCCAGCCGAACTGAAGGGATCCA
TCTCTGGAAACCGCGACCGGGATGTCAAGGGCTGGTAAGGTTCTGCGCGTTGCTTCAAATTAA
ACCACATGCTCCACCGCTTGTGCGGGCCCCCGTCAATTCCTTTGAGTTTTAATCTTGCGACCGTA
CTCCCCAGGCGGGAAGCTTAATGCGTTAGCTGCGCCACCGACAGGTAAACCTGCCAACGGCTA
GCTTCCATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCA
CCTCAGCGTCAGTACCGGACCAGTGAGCCGCCTTCGCCACTGGTGTTCCTCCGAATATCTACGA
ATTTCACCTCTACACTCGGAATTCCACTCACCTCTTCCGGACTCGAGACTACCAGTATCAAAGGC
AGTTCCGGGGTTGAGCCCCGGGATTTCACCCCTGACTTAATAGTCCGCCTACGTGCGCTTTACG
CCCAGTAAATCCGAACAACGCTAGCCCCCTTCGTATTACCGCGGCTGCTGGCACGAAGTTAGC
CGGGGCTTCTTCTACGGTTACCGTCATTATCTTCACCGTTGAAAGAGCTTTACAACCCTAGGCC
TTCATCACTCACGCGGCATGCTGGATCAGGCTTGCGCCCATTGTCCAATATTCCCCACT

**>*Burkholderia cenocepacia* ICC3 (GenBank accession number: KR_107938)**

AAAACCCTCCCGTGGTGACGTCCTCCTTGCGGTTAGACTAGCCACTTCTGGTAAAACCCACTCC
CATGGTGTGACGGGCGGTGTGTACAAGACCCGGGAACGTATTCACCGCGGCATGCTGATCCG
CGATTACTAGCGATTCCAGCTTCATGCACTCGAGTTGCAGAGTGCAATCCGGACTACGATCGG
TTTTCTGGGATTAGCTCCCCCTCGCGGGTTGGCAACCCTCTGTTCCGACCATTGTATGACGTGT
GAAGCCCTACCCATAAGGGCCATGAGGACTTGACGTCATCCCCACCTTCCTCCGGTTTGTCAC
CGGCAGTCTCCTTAGAGTGCTCTTGCGTAGCAACTAAGGACAAGGGTTGCGCTCGTTGCGGG
ACTTAACCCAACATCTCACGACACGAGCTGACGACAGCCATGCAGCACCTGTGCGCCGGTTCT
CTTTCGAGCACTCCCACCTCTCAGCAGGATTCCGACCATGTCAAGGGTAGGTAAGGTTTTTCG
CGTTGCATCGAATTAATCCACATCATCCACCGCTTGTGCGGGTCCCCGTCAATTCCTTTGAGTT
TTAATCTTGCGACCGTACTCCCCAGGCGGTCAACTTCACGCGTTAGCTACGTTACTAAGGAAA
TGAATCCCCAACAACTAGTTGACATCGTTTAGGGCGTGGACTACCAGGGTATCTAATCCTGTT
TGCTCCCCACGCTTTCGTGCATGAGCGTCAGTATTGGCCCAGGGGGCTGCCTTCGCCATCGGT
ATTCCTCCACATCTCTACGCATTTCACTGCTACACGTGGAATTCTACCCCCCTCTGCCATACTCT
AGCCTGCCAGTCACCAATGCAGTTCCCAGGTTGAGCCCGGGGATTTCACATCGGTCTTAGCAA
ACCGCCTGCGCACGCTTTACGCCCAGTAATTCCGATTAACGCTCGCACCCTACGTATTACCGCG
GCTGCTGGCACGTAGTTAGCCGGTGCTTATTCTTCCGGTACCGTCATCCCCCGACTGTATAGA
GCCAAGGATTCTTTCCGGACAAGTGCTTTACAACCCGA

### 3.3. 16S r DNA sequences ofisolates obtained from *C. pallida* isolates

**>*Bacillus megaterium* DCP1 (GenBank accession number: KX774273)**

GCCGCTATACATGCAGTCGAGCGAACTGAGTAGGAAGCTTGCTTCTATGACGTTAGCGGCGGA
CGGGTGAGTAACACGTGGGCAACCTGCCTGATAAGATTGGGATAACTTCGGGAAACCGGGGC
TAATACCGGATAGGATCTTCTCCCTCATGGGGGATGATTGAAAGATGGTTTCGGCTGTCACTTA
CAGATGGGCCCGCGGTGCATTAGCTAGTTGGTGAGGTAACGGCTCACCAAGGCAACGATGCA
TAGCCGACCTGAGAGGGTGATCGGCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGG
AGGCAGCAGTAGGGAATCTTCCGCAATGGACGAAAGTCTGACGGAGCAACGCCGCGTGAGTG
ATGAAGGCTTTCGGGTCGTAAAACTCTGTTGTTAGGGAAGAACAAGTACAAGAGTAACTGCTT
GTACCTTGACGGTACCTAACCAGAAAGCCACGGCTAACTACGTGCCAGCAGCCGCGGTAATAC
GTAGGTGGCAAGCGTTATCCGGAATTATTGGGCGTAAAGCGCGCGCAGGCGGTTTCTTAAGTC
TGATGTGAAAGCCCACGGCTCAACCGTGGAGGGTCATTGGAAACTGGGGAAACTTGAGTGCA
GAAGAGGAAGAGCGGAATTTCCACGTGTAGCGGTGAAATGCGTAGAGATGTGGAGGAACAC
CAGTGGCGAAGGCGACTGTTTGGTCTGTAACTGACGCTGAGGCGCGAAAGCGTGGGGAGCAA
ACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAGTGCTAAGTGTTAGAGGGTTTC
CGCCCCTTAGTGCTGCAGCTAACGCATTAAGCACTCCGCCTGGGGGAGTACGGTCGCAAGACT
GAAACTCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAGCA
CGCGAAGAACCTTACCAGGTCTTGACATCCTGTGGCACCTCTAGAGATAGAGCGTTCCCCTTCG
GGGGACAGAGTGACAGGTGGTGCATGGTTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAA
GTCCCGCAACGAGCGCAACCCTTGATCTTAGTTGCCATCATTTAGTTGGGCACTCTAAGGTGAC
TGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAATCATCATGCCCCTTATGACCTG
GGCTACACACGTGCTACAATGGATGGTACAAAGGGCTGCAAGATCGCGAGGTCAAGCCAATC
CGATAAAGTCATTCTCAGTTCGGATTGTAGGCTGCAACTCGCCTACATGAAGCCGGAATCGCTA
GTAATCGCGGATCAGCATGCCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCAC
ACCACGAGAGTTTGTAACACCCGAAGTGCGGTGGAGTAACCGTAAGGAGCTAGCCGCCGAAC
GTGGAACCG

**>*Mesorhizobium jarvisii* KACP2 (GenBank accession number: KX_774271)**

TGATACTGGGTATCTCGAGTCCGGAAGAGGTGAGTGGAATTCCGAGTGTAGAGCCGTGAAAT
TTGTAGATATTCGGAGGTAACACCAGTGGCGAAGGCGGCTCAGGCTGGTACCGGTACTGACG
CTGAGGTGCGAAAGCGTGGGGAGCAAAGGCCAGGATTAGATACCCTGGTAGTCCACGCCGTA
AACGATGGAAGCTAGCCGTTGGCAGGTTTTACCTGTCGGAGTGGCGCAGCTAACGCATTAAGC
TTCCCGCCTGGGGAGTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGGCCCGCACA
AGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGCAGAACCTTACCAGCCCTTGACATCCC
GGTCGCGGTTTCCAGAGATGGATCCCTTCAGTTCGGCTGGACCGGTGACAGGTGCTGCATGGC
TGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTACAGTCCCGCAACGAGCGCAACCCTCGCCCTT
AGTTGCCATCATTCAGTTGGGCACTCTAAGGGGACTGCCGGTGATAAGCCGAGAGGAAGGTG
GGGATGGGACGTCAAGTCCTCATGGCCCTTACGGGCTGGGCTACACACGTGCTACAATGGTG
GTGACAGTGGGCAGCGAGACCGCGAGGTCGAGTCTAATCTCCAAAAGCACATCTCAGTTCGG
ATTGCACTCTGCAACTCGAGTGCATGAAGTTGGAATCGCTAGTAATCGCGGATCAGCATGCCG
CGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTTGGTTTTACCGA
GTACGAAGGCGCTGTGCTAACCGCAAGGA

**>*Bacillus koreensis* NCP1 (GenBank accession number: KX_774274)**

AACGGCGGCTAATACATGCAGTCGAGCGGATCTGTGGGAGCTTGCTCCCAAAGGTGAGCGGC
GGACGGGTGAGTAACACGTGGGCAACCTGCCTATGAGACTGGGATAACTCCGGGAAACCGGG
GCTAATACCGGATAATTCTTTTCTACACATGTAGAAAAGCTGAAAGATGGTTTCGGCTATCACTC
ATAGATGGGCCCGCGGCGCATTATCTAGTTGGTGAGGTAACGGCTCACCAAGGCGACGATGCG
TAGCCGACCTGAGAGGGTGATCGGCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGG
AGGCAGCAGTAGGGAATCTTCCGCAATGGACGAAAGTCTGACGGAGCAACGCCGCGTGAGTG
ATGAAGGTTTTCGGATCGTAAAACTCTGTTGTTAAGGGAAGAACAAGTACCGGAGTAACTGCC
GGTACCTTGACGGTACCTAACCAGAAAGCCACGGCTAACTACGTGCCAGCAGCCGCGGTAATA
CGTAGGTGGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGCGCGCGCAGGTGGTCTCTTAAGT
CTGATGTGAAAGCCCCCGGCTCAACCGGGGAGGGTCATTGGAAACTGGGAGACTTGAGTGCA
GGAGAGAAGAGTGGAATTCCACGTGTAGCGGTGAAATGCGTAGAGATGTGGAGGAACACCAG
TGGCGAAGGCGACTCTTTGGCCTGTAACTGACACTGAGGCGCGAAAGCGTGGGGAGCAAACA
GGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAGTGCTAAGTGTTAGAGGGTTTCCGCC
CTTTAGTGCTGCAGCAAACGCATTAAGCACTCCGCCTGGGGAGTACGGCCGCAAGGCTGAAAC
TCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGC
GAAGAACCTTACCAGGTCTTGACATTCTGACAACCCTAGAGATAGGGCGTTCCCCTTCGCGGGA
CAGAGTGACATGTCATGGTTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACG
AGCGCAACCCTTGATCTTAGTTGCCAGCATTCAGTTGGGCACTCTAAGGTGACTGCCGGTGACA
AACCGGAGGAAGGTGGGGATGACGTCAAATCATCATGCCCCTTATGACCTGGGCTACACACGT
GCTACAATGGGTGGTACAAAGGGCAGCAAAACCGCGAGGTCGAGCCAATCCCATAAAACCACT
CTCAGTTCGGATTGTAGGCTGCAACTCGCCTACATGAAGCTGGAATCGCTAGTAATCGCGGATC
AGCATGCCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCCCGAGAGTTTG
TAACACCCGAAGTCGGTGGGGTAACCGTAAGGAGCCAGCCGCCTATAGTGGAACAT

**>*Mesorhizobium jarvisii* RCP2 (GenBank accession number: KX_964648)**

GCGCCTTCGTAAAACCAACTCCCATGGTGTGACGGGCGGTGTGTACAAGGCCCGGGAACGTA
TTCACCGCGGCATGCTGATCCGCGATTACTAGCGATTCCAACTTCATGCACTCGAGTTGCAGAG
TGCAATCCGAACTGAGATGGCTTTTGGAGATTAGCTTCGACCTCGCGGTCTCGCTGCCCACTGT
CACCACCATTGTAGCACGTTGTAGCCCAGCCCGTAAGGGCCATGAGGACTTGACGTCATCCCC
ACCTTCTCTCGGCTTATCACCGGCAGTCCCCTTAGAGTGCCCAACCTGAATGATGGCAACTAAG
GGCGAGGGTTGCGCTCGTTGGGGACTTAACCCAACACTCACGACACGAGCTGACGACAGCCA
TGCAGCACCTGTCACCGGTCCAGCCGAACTGAAGGGATCCATCTCTGGAAACCGCGACCGGG
ATGTCAAGGGCTGGTAAGGTTCTGCGCGTTGCTTCAAATTAAACCACATGCTCCACCGCTTGTG
CGGGACCCCCGTCAATTCCTTTGAGTTTTAATCTTGCGACCTACTCCCCAGGCGGGAAGCTTAA
TGCGTTAGCTGCGCCACCGACAGGTAAACCTGCCAACGGCTAGCTTCCATCGTTTACGGCGTG
GACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCACCTCAGCGTCAGTACCGGAC
CAGTGAGCCGCCTTGCCACTGGTGTTCCTCCGAATATCTACGAATTTCACCTCTACACTCGGAA
TTCCACTCACCTCTTCCGGACTCGAGACTACCAGTATCAAAGGCATTTGGGGTTGAGCCCCGG
GATTTCACCCTGACTTAATAGTCCGCCTACGTTTGCGCTTTACGCCCAGTAAATCCGAACAACG
CTAGCCCCCTTCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGGGCTTCTTCTACGGTTAC
CGTCATTATCTTCACCGTTGAAAGAGCTTTACAACCCTAGGCCTTCATCACT

### 3.4. 16S r DNA sequences ofisolates obtained from *M. pudica* isolates

**>*Burkholderia mimosarum* DMP2 (GenBank accession number: KJ_939619)**

CGCAAGCCTGATCCAGCGATGCCGCGTGTGTGAAGAAGGCCTTCGGGTTGTAAAGCACTTTTGT
CCGGAAAGAAATCCTCTGGGTTAAAACCCCGGGGGGATGACGGTACCGGAAGAATAAAGCACC
GGGCTAAACTACGTGCCAAGCCAGCCGGCGGTAATACGTAGGGGTGCGAGCGTTAATCGGAAA
TTACTGGGCGTAAAAGCGTGCGCAGGCGGTGATGTAAGACCGATGTGAAATCCCCGGGCTTTAA
CCCTGGGAACTGCATTGGTGACTGCATCGCTGGAGTATGGCAGAGGGGGGTAGAATTCCACGT
GTAGCAGTGAAATGCGTAGAGATGTGGAGGAATACCGATGGCGAAGGCAGCCCCCTGGGCCAA
TACTGACGCTCATGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCC
CTAAACGATGTCAACTGGTTGTCGGGCCTTCATTGGCTTGGTAACGTAGCTAACGCGTGAAGTTG
ACCGCCTGGGGAGTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGACCCGCACAAGC
GGTGGATGATGTGGATTAATTCGATGCAACGCGAAAAACCTTACCTACCCTTGACATGGACGGA
ATCCTGGTGAGAGCCGGGAGTGCCCGAAAGGGAGCCGTCACACAGGTGCTGCATGGCTGTCGT
CAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTCCCTAGTTGCTA
CGCAAGAGCACTCCAGGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAG
TCCTCATGGCCCTTATGGGTAGGGCTTCACACGTCATACAATGGTCGGAACAGAGGGTTGCCAA
GCCGCGAGGTGGAGCCAATCCCAGAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACT
GCGTGAAGCTGGAATCGCTAGTAATCGCGGATCAGCATGCCGCGGTGAATACGTTCCCGGGTCT
TGTACACACCGCCCGTCACACCATGGGAGTGGGTTTTGCCAGAAGTGGCTAGTCTAACCGCAAG
GAGGACGGTCACCACGGCAGGATT

**>*Burkholderia mimosarum* HMP1 (GenBank accession number: KJ_939618)**

CCCAGACTCCTACGGGAGGCAGCCGTGGGGAATTTTGGACAATGGGCGCAAGCCTGATCCAGC
AATGGCGGGTGTTTGAAGAGGCCTTCGGGTTGTAAAGCACTTTGTTCCGGAAGAAATCTTTGGG
CTAATACCCCAGGGGGATGACGGTACCGGAAGAATAAGCACCGGCTAACTACGTGCCCAGCAG
CCGCGGTAATACGTAGGGTGCGAGCGTTAATCGGAATTTACTGGGCGTAAAGCGTGCGCAGGC
GGTGATGTAAGACCGATGTGAAATCCCCGGGCTTAACCTGGGAACTGCATTGGTGACTGCATCG
CTGGAGTATGGCAGAGGGGGGTAGAATTTCCACGTGTAGCAGTGAAATGCGTAGAGATGTGGA
GGAATACCGATGGCGAAGGCAGCCCCCTGGGCCAATACTGACGCTCATGCACGAAAGCGTGGG
GAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCCTAAACGATGTCAACTGGTTGTCGGGCC
TTCATTGGCTTGGTAACGTAGCTAACGCGTGAAGTTGACCGCCTGGGGAGTACGGTCGCAAGAT
TAAAACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGATGATGTGGATTAATTCGATGC
AACGCGAAAAACCTTACCTACCCTTGACATGGACGGAATCCTGGTGAGAGCCGGGAGTGCCCGA
AAGGGAGCCGTCACACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAA
GTCCCGCAACGAGCGCAACCCTTGTCCCTAGTTGCTACGCAAGAGCACTCCAGGGAGACTGCCG
GTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCCTCATGGCCCTTATGGGTAGGGCTTC
ACACGTCATACAATGGTCGGAACAGAGGGTTGCCAAGCCGCGAGGTGGAGCCAATCCCAGAAA
ACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGCTGGAATCGCTAGTAATCG
CGGATCAGCATGCCGCGGTGAATACGTTCCCGGGTCTTGTACACACCGCCCGTCACACCATGGG
AGTGGGTTTTGCCAGAAGTGGCTAGTCTAACCGCAAGGAGGACGGTC

**>*Mesorhizobium loti* KMP1 (GenBank accession number: KJ_939617)**

TGATACTGGGTATCTCGAGTCCGGAAGAGGTGAGTGGAATTCCGAGTGTAGAGGTGAAATTTGT
AGATATTCGGAGGAACACCAGTGGCGAAGGCGGCTCACTGGTCCGGTACTGACGCTGAGGTGC
GAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGGAAGCT
AGCCGTTGGCAGGTTTTACCTGTCGGTGGCGCAGCTAACGCATTAAGCTTCCCGCCTGGGGAGT
ACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGG
TTTAATTCGAAGCAACGCGCAGAACCTTACCAGCCCTTGACATCCCGGTCGCGGTTTCCAGAGAT
GGATCCCTTCAGTTCGGCTGGACCGGTGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTG
AGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTCGCCCTTAGTTGCCATCATTCAGTTGGGC
ACTCTAAGGGGACTGCCGGTGATAAGCCGAGAGGAAGGTGGGGATGACGTCAAGTCCTCATGG
CCCTTACGGGCTGGGCTACACACGTGCTACAATGGTGGTGACAGTGGGCAGCGAGACCGCGAG
GTCGAGCTAATCTCCAAAAGCCATCTCAGTTCGGATTGCACTCTGCAACTCGAGTGCATGAAGTT
GGAATCGCTAGTAATCGCGGATCAGCATGCCGCGGTGAATACGTTCCCGGGCCTTGTACACACC
GCCCGTCACACCATGGGAGTTGGTTTTACCCGAAGGCGCTGTGCTAACCGCAAGGA

**>*Burkholderia mimosarum* SMP2 (GenBank accession number: KJ_939616)**

CCTGGGAACTGCATTGGTGACTGCATCGCTGGAGTATGGCAGAGGGGGGTAGAATTCCACGTG
TAGCAGTGAAATGCGTAGAGATGTGGAGGAATACCGATGGGCGAAGGCAGCCCCCTGGGCCCA
ATTCTGACGCTTCATGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACG
CCCTAAACGATGTCAACTGGTTGTCGGGCCTTTCATTGGCTTGGTAACGTAGCTAACGCGTGAAG
TTGACCGCCTGGGGAGTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGACCCGCACA
AGCGGTGGATGATGTGGATTAATTCGATGCAACGCGAAAAACCTTACCTACCCTTGACATGGAC
GGAATCCTGGTGAGAGCCGGGAGTGCCCGAAAGGGAGCCGTCACACAGGTGCTGCATGGCTGT
CGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTCCCTAGTTG
CTACGCAAGAGCACTCCAGGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCA
AGTCCTCATGGCCCTTATGGGTAGGGCTTCACACGTCATACAATGGTCGGAACAGAGGGTTGCC
AAGCCGCGAGGTGGAGCCAATCCCAGAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGA
CTGCGTGAAGCTGGAATCGCTAGTAATCGCGGATCAGCAGGCCGCGGTGAATACGTTCCCGGGT