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Microbes Biosciences

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Report of Analysis

For: External use by

Endogenous Dynamics

Compatibility Testing & Sequencing Results

For Endogenous Dynamics unknown sample.

Summary:

The following report encompasses the Compatibility Testing and Sequencing results from 2 Endogenous Dynamics samples. Sequencing results found the samples contained bacteria from the following families Roseomonas, Pseudomonas and Achromobacter. The results of the compatibility testing have shown that Endogenous Dynamics are compatible with bacteria found in SoilCure and SoilCure Endo. The compatibility test was carried out for 1 month and 3 months of storage and growth. Unknown is the remaining ingredients in the formulation of Endogenous Dynamics sample. Microbes Biosciences has shown that a 1:1 mixing of Endogenous Dynamics sample and SoilCure Endo was compatible.

Compatibility Study:

The following results of a compatibility study conducted with Endogenous Dynamics fluid grown in Luria Broth with Soilcure Endo. A second compatibility study was conducted with Endogenous Dynamics fluid and the individual strains comprising Soilcure Endo. The cfu/mL counts are averages from 3 CFU counting plates for each data point.

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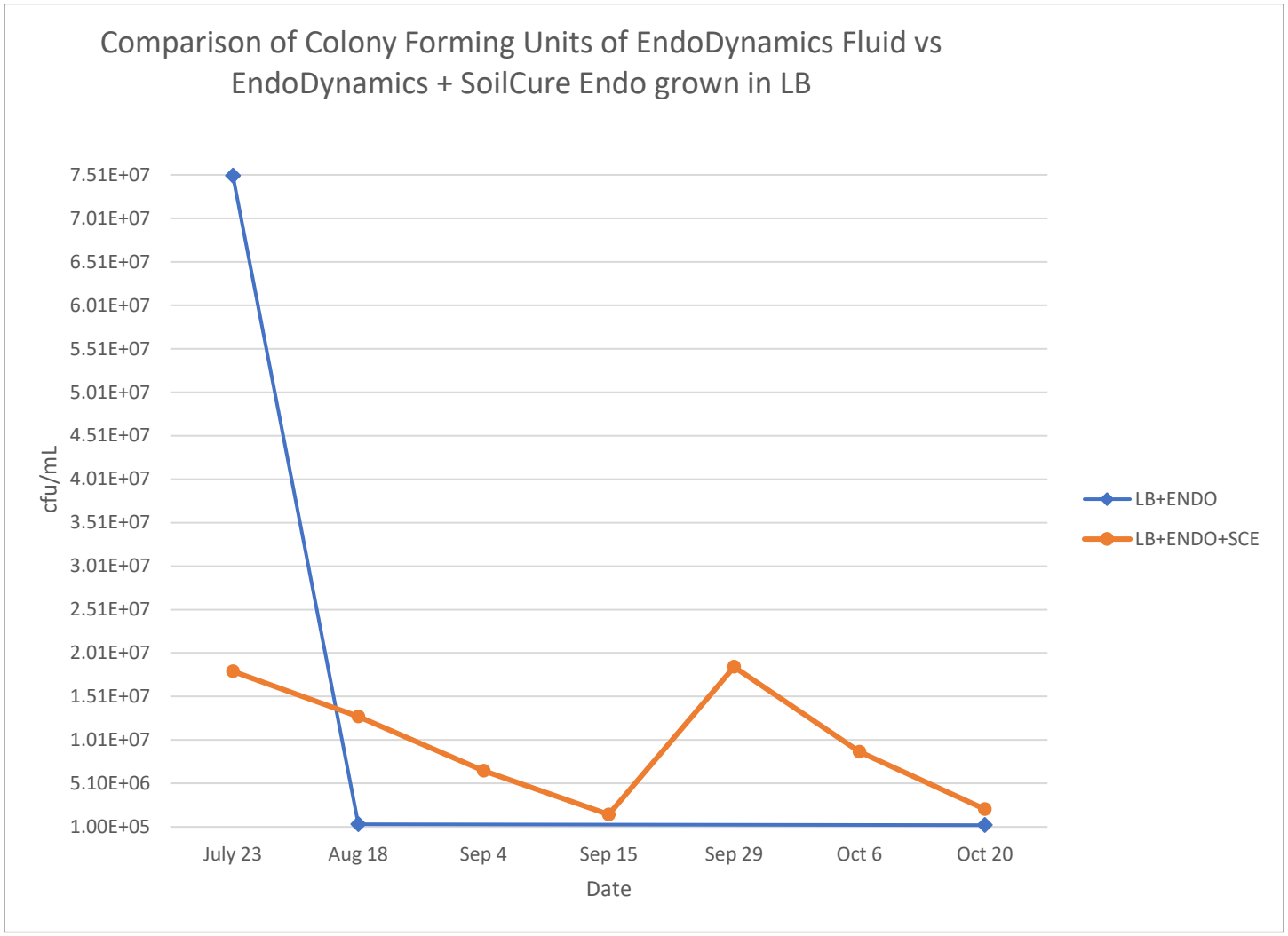
Graph 1. A comparison of Endogenous Dynamics fluid vs Endogenous Dynamics fluid + Soilcure Endo grown in Luria Broth.



Graph 2. A comparison of Endogenous Dynamics fluid with individual Soilcure Endo strains grown in Luria Broth.

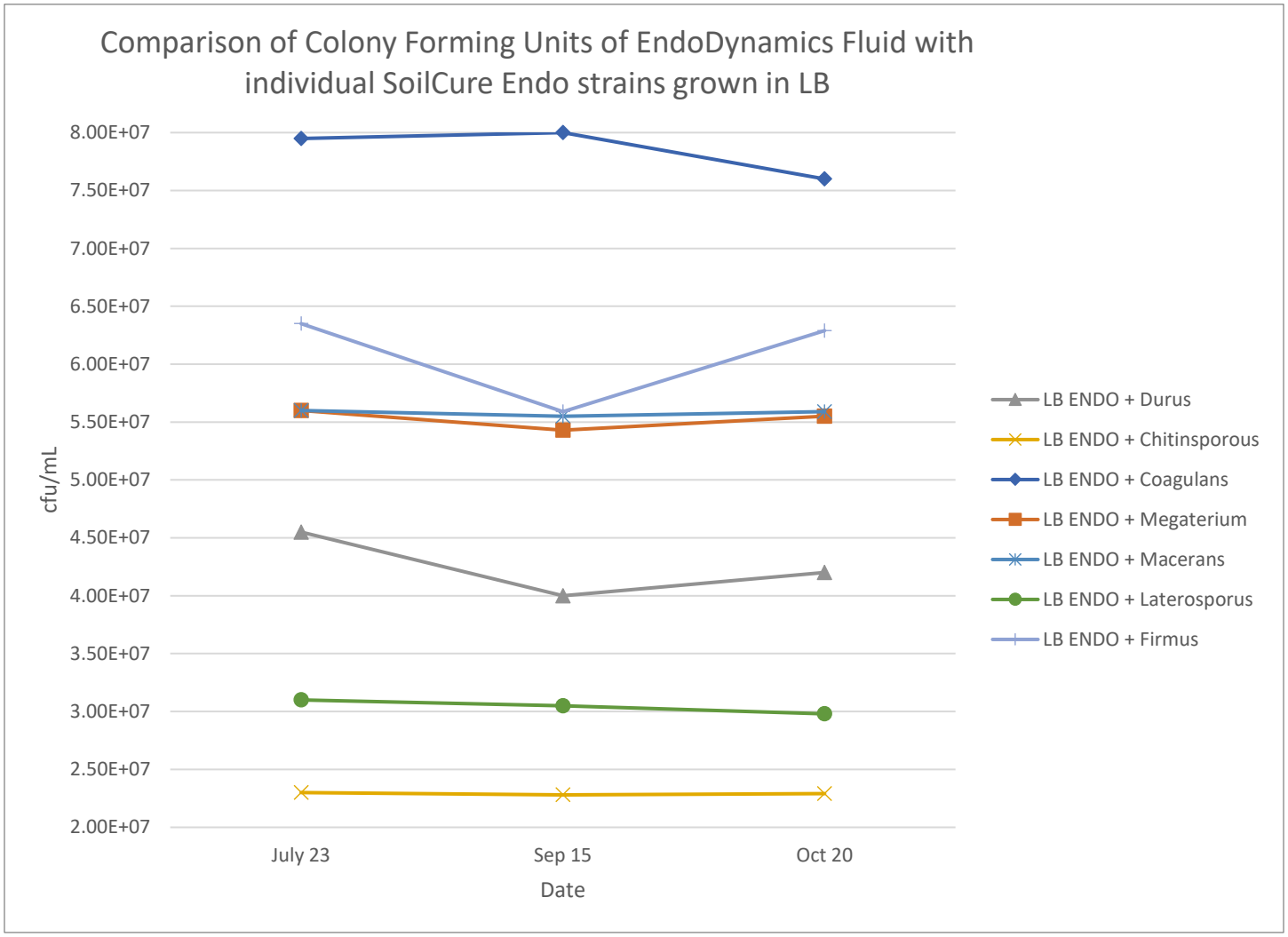


Table 1. Average cfu/mL of individual strain with Endogenous Dynamics fluid

Strain	Average cfu/mL
LB ENDO + Durus	4.25E+07
LB ENDO + Chitinsporous	2.29E+07
LB ENDO + Coagulans	7.85E+07
LB ENDO + Megaterium	5.53E+07
LB ENDO + Macerans	5.58E+07
LB ENDO + Laterosporus	3.04E+07
LB ENDO + Firmus	6.08E+07

Compatibility Study Analysis:

A review of the data shows a slight decrease in colony forming units over a 3-month period. The overall cfu/ml does not however drop below Microbes BioSciences stated cfu/mL counts. The Endogenous Dynamics averaged a 2.52x10^7 cfu/ml during the trial. The combination of Endogenous Dynamics fluid and Soilcure Endo averaged 9.75x10^6 cfu/mL during the same trial period. The combination of Endogenous Dynamics fluid and Soilcure Endo remained above Microbes Biosciences stated cfu/Gallon of 5.6x10^9 of SoilCure Endo averaging 3.69x10^10 cfu/Gallon final average.

To ensure compatibility of Endogenous Dynamics fluid and Soilcure Endo individual strains a compatibility trial was undertaken. Individual strains were grown with Endogenous Dynamics fluid in Luria Broth. The was no deterioration of the viability of the individual strains with the Endogenous Dynamics fluid.

Compatibility of Endogenous Dynamics fluid and Soilcure Endo are compatible based upon the 3-month trial. The average cfu/mL did decrease slightly over time. This decrease is natural and expected. The decrease however never dropped below Soilcure Endo stated label concentrations. After reviewing individual strains of Soilcure Endo for compatibility with Endogenous Dynamics fluid no instances of incompatibility were found. It is Microbes Biosciences conclusion that Endogenous Dynamics fluid at a 1:1 ratio or less is compatible with Soilcure Endo.

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Sequencing Results:

The following information contains the raw sequencing data and analysis. Here we also summarize the properties of the top bacteria candidates likely in the sample.

Table 2. Raw sequence data provided to Microbes Biosciences for GeneWiz.

Endogenous Dynamics			
Source:	Fluid Sample provided by Endogenous Dynamics		
	a) Isolation conducted with Lysogeny Broth (LB), Tryptic Soy (TS), Potato Dextrose (PD), Nutrient Broth Plates (NB): sample was streaked for isolation and placed at 30C for 24-72hrs.		
	b) Isolated colony plates were sent directly to GeneWiz for 16S sequence identification.		
1st Isolation			
Source	**Date**	**Blast Results Organism Name**	GeneWiz Raw Data
TS plate 6/19 A Lopez	7/9/2020	Pseudomonas inefficsax	GNNNNNNNNNCNNNNCGGATTNNGGGCGNNNGCGCGCGTANGNGNNNNNGTTNNGNNGGATGNGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGGA GTGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGANTGGGGTG ANTNNNNNNNNNNNAAAAAAAAAANNNNGGGGGGGGGNGNTTCTNNNNNNNNNNAAANNAANNNNNGN GGGNNNGNTNTNNNNNNNCNNNNNNNNNNNNNNNGNNGGGNNTTANTCTNNNNAACAGANNNNNNNN NNNNNCNNNNNNNNGNGGNNNGNNNGNNNNNGNNNNNCNNCCNNNNNNNNNNNNNNNNNNNNCTAN NNNNNNNAGANNNNNNNNNNNNNNGNGNNN
		Pseudomonas asiatica	NNNNNNNNNNNCGGCCGTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGATT CCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCAC CTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTAC ACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGGC TTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGTA TTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAGCTTA CTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGCT TTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTGA TCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGCT CATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTANGACGTATGCGGTATTAGCGTTCCTTTCGAA ACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCCC GTCATCCGCTCGACTTGCATGTGTTANGCCTGCCGCCAGCGTCATNNNNNNNNNNNNNNAAAAAAAANNNNNT NNNNCGGNNGTTTTTTNNNCCCCANANNNNNNAANNANNTNNNCNNNCCCCGTGNTNTAAAAGNATTNNTT NTTNAAAAANANGNNGGNNNNGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNGGNGNNNNNNCNNNNN NNNNGNTNNNGNNNNNTNNNNNNNNNNNNNANNNNNNNNNNNNNNNNNTNNNCNNNNACNGNNCAGG NNNNNNNGNTNNTNCNCNNNNGNNNNNNNCCNNNNNNNNNNNNNNNNNGNNNNNNNNNNNNNNNNN NNNNGNNNNNNNNNAANNNNNNNANNNNNN

LB 6/22 Lopez	7/9/2020	Pseudomonas inefficax	NNNNNNNNNNNCNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGCCC CGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGT AGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGA GGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGCCG TTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGTTA AAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAAC CTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGCTG CATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTAC CAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTC ATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGGTG GAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAG TAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGGAGT GGGTTGCACCAGAANTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTNAN NNNNNGNNNNNNNAAAAAAAAAAAAGGNNNNNNTTGNNCCTCTGCCCCANANNNAAAANANANANNNNN GTAANNNNNNNNNCANTTNNGCNNCNNNCCNNNNNNNNTNNNNNNCNNNNNNANNCNNNNNNNNNNNC NNNNNNGNNNNNNNCGNGNNNNNTNGTNNNGNNNNNNCNNNNNNNNNNNNNNNNNCCGTNNNNNNNN NNNNNNGANNN
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PD 6/22 Lopez	7/9/2020	Pseudomonas inefficax	NNNNNNNNNNNNNNNTCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGCCCC GGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTATGGTAGAGGGTGGTGGAATTTCCTGTGTA GCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGAG GTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGCCGTT GGAATCCTTGAGGTTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGTTAAA ACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACCT TACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGCTGCA TGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACCA GCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGGAGTGG GTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTGANNN NNNNNNNNNNNAAAAAAAAAANNNNNNNNNNNGGGNNTTNCNCGNNGANNNCANANNNNNANCNGGA NANNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNANNNNANNNNNNANNNNNANNNNNNN ANNNNNNGNNNNGCNGNNNNNNNNNNCNCCNNNNNNNNNNNNNNNNCNNNNNNNNNNNNNNNNAGNN GGNNNNNNNNNN

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		Pseudomonas asiatica	NNNNNNNNNNTGCGGCGTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGATT CCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCAC CTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTAC ACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGGC TTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGTA TTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAACTTA CTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGCT TTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTGA TCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGCT CATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTANGACGTATGCGGTATTAGCGTTCCTTTCGAA ACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCCC GTCATCCGCTCGACTTGCATGTGTTAGGCCTGCCGCCAGCGTCAATNNNNNNNNNNNNNNNAAAAANAANAAA ANNNNNCCNNNNTTTTTTTTTCCCCCNNNCNNNCNCCANNNANNNNNNNNTNNAANCNNNNNNNNGNNNN NNGNTTNTNCNNAAAAANNNTTGGNGTGGNNNNNANNNNANANNNNNNNNNNNNNGNNNNNNNNNGT ANNNNNTCNGCNGGNNNNNNNNNNNANNNNANGNNNNNTTNNNNNNNNNNNNNNNNNNNNTNNNN CNNNNNNNNNNNGNNNGNNNGGGNNNNNCNCTNNNNNNNNNNNNNNCNNNNNNNANNNNNNNNNNNN NNNNNNNNNANNNNNNGNNNNNNNNNNN
6/19 NB plate A Lopez	7/9/2020	Pseudomonas inefficax	NNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGCCCC GGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGTA GCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGAG GTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGCCGTT GGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGTTAAA ACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACCT TACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGCTGCA TGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACCA GCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGGAGTGG GTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTNANNN NNNGNNNNAAAAAAAAAAAANNNNGNNNNNNNTNNNNCNANNANCANACANANAGANCGCNNNNNNNA NNANNNNNNNNCNCNNGCNNANNNNNNNTNNNNTNNTNNNANGNNNNANNCNNNNNNNNTNACNNGN NGNNNNGGANNNNNNTNNNCGNNNNNCNNNNNNNNNNNNNNN

		Pseudomonas asiatica	NNNNNNNNANNTGCNNNNTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGAT TCCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCA CCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTA CACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGG CTTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGT ATTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAACTT ACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGC TTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTG ATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGC TCATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTANGACGTATGCGGTATTAGCGTTCCTTTCGA AACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCC CGTCATCCGCTCGACTTGCATGTGTTAGGCCTGCCGCCAGCGTCAATNNNNNNNNNNAAAAAAANNNANANN NNNAANNNGGGNNNGCGGNTNNNTNTNTTTNNCNNNNTNNGNNGNNCCCNGGGANCNACCCNNNNANNT TNNNTTNNGGGTTTNNNNTTTNACNNNANNTNANNGNNNNNCNNGNNNCAAAANTNNNNNNTNTANCNG GGNNNNNNGTTNNNNNGNNNNNNNNNNNNNCCGGGNANNGNNNNNNNANNNNNNNNNNNNNNNNNN NNNNNNNTGNNNTNNNTTNNCNNNNNNNNNNNATNNNNNNTANNNNNNNNNNNTTNNNNNNNNNNNNN CANCNNNNNNN
2nd Isolation			
TS plate Endo A2	7/29/2020	Roseomonas rhizosphaerae	NNNNNNNNNNNGNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTG TAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTG AGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCC GTTGGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTA CCAGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGT CATCATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTG GAGCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAG TAATCGTGAATCAGAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTG GGTTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANN NNNN
		Pseudomonas aeruginosa	NNNNNNNNNNNGNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTG TAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTG AGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCC GTTGGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTA CCAGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGT CATCATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTG GAGCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAG TAATCGTGAATCAGAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTG GGTTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANN NNNN
		Pseudomonas otitidis	NNNNNNNNNNNGNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTG TAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTG AGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCC GTTGGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTA CCAGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGT CATCATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTG GAGCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAG TAATCGTGAATCAGAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTG GGTTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANN NNNN

TS plate Endo A2		Roseomonas rhizosphaerae	NNNNNNNNNNNNNNNNCGGNNGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTTCATCNNNNNNNNNNNAAAAANANNNN ANNNNNNGGGNNGGTTCCGNNTGNTNNNNACTTNNGNGNNCCNNNNNNCNACNTNCTACCNTGTNNNNN NNGGTTNCNNNNNNNCNNANNTANNGNNAGCNNGAGTNCNNNNNTCNANCNNNTNANNNNNGTNNNNN GCTNCACGNNNNNNNNNNNNNCNNGNNACCNNNNNCNACNNNNNNNNNNGNTNNNNNTNNNNNNNNCNN NTCNTTNNNNNTNNCNNGNGNNNNNGNNNNGNNNNGNNNNNNNNNANGNNNANNNNCNNNCNANNNNNNNG NNNNNNNNNNNNNNNNGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
		Pseudomonas aeruginosa	NNNNNNNNNNNNNNNNCGGNNGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTTCATCNNNNNNNNNNNAAAAANANNNN ANNNNNNGGGNNGGTTCCGNNTGNTNNNNACTTNNGNGNNCCNNNNNNCNACNTNCTACCNTGTNNNNN NNGGTTNCNNNNNNNCNNANNTANNGNNAGCNNGAGTNCNNNNNTCNANCNNNTNANNNNNGTNNNNN GCTNCACGNNNNNNNNNNNNNCNNGNNACCNNNNNCNACNNNNNNNNNNGNTNNNNNTNNNNNNNNCNN NTCNTTNNNNNTNNCNNGNGNNNNNGNNNNGNNNNGNNNNNNNNNANGNNNANNNNCNNNCNANNNNNNNG NNNNNNNNNNNNNNNNGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
		Pseudomonas otitidis	NNNNNNNNNNNNNNNNCGGNNGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTTCATCNNNNNNNNNNNAAAAANANNNN ANNNNNNGGGNNGGTTCCGNNTGNTNNNNACTTNNGNGNNCCNNNNNNCNACNTNCTACCNTGTNNNNN NNGGTTNCNNNNNNNCNNANNTANNGNNAGCNNGAGTNCNNNNNTCNANCNNNTNANNNNNGTNNNNN GCTNCACGNNNNNNNNNNNNNCNNGNNACCNNNNNCNACNNNNNNNNNNGNTNNNNNTNNNNNNNNCNN NTCNTTNNNNNTNNCNNGNGNNNNNGNNNNGNNNNGNNNNNNNNNANGNNNANNNNCNNNCNANNNNNNNG NNNNNNNNNNNNNNNNGNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN

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		Pseudomonas aeruginosa	NNNNNNNNNNNNNNNATCGGANTACTGGGCGTAAGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATCC CCGGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGT AGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGA GGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCCG TTGGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGTTA AAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAAC CTTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCTGC ATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACC AGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGTGAATCANAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGG TTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANNNN NNGGGGGGNNNNNNNNNNNNNNNNNNNNNNNNNNTCNNGGGNTCTCNNTGGGNGANNCAAAACNNNNA GCCNNNAGGNTTNNNNCNNCCCCNNNCTCNCCCNNNAAANATNNNNTNTATNTNANNNNAANNAGACNNN NTNCTNNNNNNNNAGGNGNNAGGANNNNNNNNGNNNNNNNNNNCCNNNATNNNNNAANNNNCNNNCC CNNNNNNCGTNNNNNNNNNNNNGGGGGNNNNNGNNNNCNNNTNNNNNNNNGGGNNNNNNNNANNAN NNACCNACNNGNCNCCAAANNNNGNNANNNNNNNGNNNNNNNNNNANGGNGGGGNNTNNNNNNNNNN CNNNNNNNNNNNNNNNANNNNNNNNNNTNNNNNNNNNNNNN
		Pseudomonas otitidis	NNNNNNNNNNNNNNNATCGGANTACTGGGCGTAAGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATCC CCGGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGT AGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGA GGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCCG TTGGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGTTA AAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAAC CTTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCTGC ATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACC AGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGTGAATCANAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGG TTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANNNN NNGGGGGGNNNNNNNNNNNNNNNNNNNNNNNNNNTCNNGGGNTCTCNNTGGGNGANNCAAAACNNNNA GCCNNNAGGNTTNNNNCNNCCCCNNNCTCNCCCNNNAAANATNNNNTNTATNTNANNNNAANNAGACNNN NTNCTNNNNNNNNAGGNGNNAGGANNNNNNNNGNNNNNNNNNNCCNNNATNNNNNAANNNNCNNNCC CNNNNNNCGTNNNNNNNNNNNNGGGGGNNNNNGNNNNCNNNTNNNNNNNNGGGNNNNNNNNANNAN NNACCNACNNGNCNCCAAANNNNGNNANNNNNNNGNNNNNNNNNNANGGNGGGGNNTNNNNNNNNNN CNNNNNNNNNNNNNNNANNNNNNNNNNTNNNNNNNNNNNNN

TS plate Endo A3		Roseomonas rhizosphaerae	NNNNNNNTANNNGCNNNNTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAAGGAT CCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCA CCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTA CACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGG ATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTTCGT ATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTAACTT ACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGC TTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTG ATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCTAGGC TCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTTTCCG GACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAGCTCC CCTTCATCCGCTCGACTTGCATGTGTTAGGCCTGCCGCCAGCGTTCAATCTGNNNNNNNAAAAAAAANNNNNN NANNGNNNAANGGTTTACNNTTGNTTNCNNACTTNNCNGNNCCATGNTCNNNNNTCNANNNNNNNNNNNNN GCTNNCCNTNNNANNNNNNCNNANNNNNNGACNNNGATNCANNTTNTAANNNNNNANNNGNNNNNNNN NTGANGGGNNTNNCNNNNNNNNNNNNNCCNNNNNAAGNNNGNANCTNANTTCANNNNNNNANNNNNAN NNNNNNNNNCNNANNNNN
		Pseudomonas aeruginosa	NNNNNNNTANNNGCNNNNTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAAGGAT CCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCA CCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTA CACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGG ATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTTCGT ATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTAACTT ACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGC TTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTG ATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCTAGGC TCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTTTCCG GACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAGCTCC CCTTCATCCGCTCGACTTGCATGTGTTAGGCCTGCCGCCAGCGTTCAATCTGNNNNNNNAAAAAAAANNNNNN NANNGNNNAANGGTTTACNNTTGNTTNCNNACTTNNCNGNNCCATGNTCNNNNNTCNANNNNNNNNNNNNN GCTNNCCNTNNNANNNNNNCNNANNNNNNGACNNNGATNCANNTTNTAANNNNNNANNNGNNNNNNNN NTGANGGGNNTNNCNNNNNNNNNNNNNCCNNNNNAAGNNNGNANCTNANTTCANNNNNNNANNNNNAN NNNNNNNNNCNNANNNNN
		Pseudomonas otitidis	NNNNNNNTANNNGCNNNNTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAAGGAT CCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCA CCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTA CACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGG ATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTTCGT ATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTAACTT ACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGC TTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTG ATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCTAGGC TCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTTTCCG GACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAGCTCC CCTTCATCCGCTCGACTTGCATGTGTTAGGCCTGCCGCCAGCGTTCAATCTGNNNNNNNAAAAAAAANNNNNN NANNGNNNAANGGTTTACNNTTGNTTNCNNACTTNNCNGNNCCATGNTCNNNNNTCNANNNNNNNNNNNNN GCTNNCCNTNNNANNNNNNCNNANNNNNNGACNNNGATNCANNTTNTAANNNNNNANNNGNNNNNNNN NTGANGGGNNTNNCNNNNNNNNNNNNNCCNNNNNAAGNNNGNANCTNANTTCANNNNNNNANNNNNAN NNNNNNNNNCNNANNNNN
TS plate Endo D1	7/29/2020	Pseudomonas inefficax	NNNNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAG TGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTGAN NNNNN

		Pseudomonas inefficax	NNNNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAG TGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTGAN NNNNN
		Pseudomonas asiatica	NNNNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAG TGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGACGGTTACCACGGTGTGATTCATGACTGGGGTGAN NNNNN
TS plate Endo D1		Pseudomonas asiatica	NNNNNNNNANNNNCNNNNNTACTCCCCNGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGG ATTCCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCG CACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGC TACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGG GGCTTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCT GTATTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAG CTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCA GGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGA CTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTA GGCTCATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTT CGAAACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGC TCCCGTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTCANCTGACNNNAANNNNNNNNNAANNN NGNNNGGGTTNCNTTTTNNNNANCNNNNNNNCCCAGTGATACAAANNTCTANCTNTGNTNNNGGNTNNNN NNNNNNNNNNNNNNNANTNNCNNNGNNNNNNNNNANNNNNGACNNCGGNNNNNNNTGANNNNNNNN NNNNNNNNNNNNNCNGNNNANNNNNNNNNGNTNNNNNNNNAGNNNNCTCNNNNNNNNNNCNNNNNNA NGNNNGNNNNNNNNTNNNNNANANNGNNCANNNANNNNNNNNNNNNNNNNGNNNACNNNNNNNNNN TNNCNNNNNNNN

		Pseudomonas plecoglossicida	NNNNNNNNANNNNCNNNNNTACTCCCCNGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGG ATTCCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCG CACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGC TACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGG GGCTTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCT GTATTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAG CTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCA GGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGA CTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTA GGCTCATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTT CGAAACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGC TCCCGTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTCANCTGACNNNAANNNNNNNNNAANNN NGNNNGGGTTNCNTTTTNNNNANCNNNNNNNCCCAGTGATACAAANNTCTANCTNTGNTNNNGGNTNNNN NNNNNNNNNNNNNNNNANTNNCNNNGNNNNNNNNNANNNNNGACNNCGGNNNNNNNTGANNNNNNNN NNNNNNNNNNNNNCNGNNNANNNNNNNNNNGNTNNNNNNNNAGNNNNCTCNNNNNNNNNNCNNNNNNA NGNNNGNNNNNNNNTNNNNNANANNGNNCANNNANNNNNNNNNNNNNNNNNGNNNACNNNNNNNNNN TNNCNNNNNNNN
		Pseudomonas asiatica	NNNNNNNNANNNNCNNNNNTACTCCCCNGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGG ATTCCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCG CACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGC TACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGG GGCTTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCT GTATTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAG CTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCA GGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGA CTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTA GGCTCATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTT CGAAACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGC TCCCGTCATCCGCTCGACTTGCATGTGTTNNCCTGCCGCCAGCGTCANCTGACNNNAANNNNNNNNNAANNN NGNNNGGGTTNCNTTTTNNNNANCNNNNNNNCCCAGTGATACAAANNTCTANCTNTGNTNNNGGNTNNNN NNNNNNNNNNNNNNNNANTNNCNNNGNNNNNNNNNANNNNNGACNNCGGNNNNNNNTGANNNNNNNN NNNNNNNNNNNNNCNGNNNANNNNNNNNNNGNTNNNNNNNNAGNNNNCTCNNNNNNNNNNCNNNNNNA NGNNNGNNNNNNNNTNNNNNANANNGNNCANNNANNNNNNNNNNNNNNNNNGNNNACNNNNNNNNNN TNNCNNNNNNNN
LB plate Endo A1	7/29/2020	Roseomonas rhizosphaerae	NNNNNNNNNNNNNNATCGGATTACTGGGCGTANGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATCCCC GGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGTAG CGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGAGG TGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCCGTT GGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGTTAA AACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACC TTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCTGC ATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACC AGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGTGAATCANAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGG TTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANNNN NNGGGNNNNNNAAAAAANNNNNNNNNNNNNNNNNNGNNGNNNNANNNNNGGNNGGNNGNNTNTNNN NNCCNNCNNNCNCNAANATTTTGAGNNNNNNNNNNANANNNNANNNNNTTCCTTNNCCNNGNANNNNGNN NNGNGGNGNNNNCCNNNNNNNNNNNNNNNNNTNNNNNNNNNNNCNNNNNANNGNANGGGNNNNGAGG NNNNTNNNNNNTNGNNNNGNNNNGNNNNANNNNNCANNNNNNNNNNAANGGNNNNNNNNNNNGNNNN GNGNNNGNNGNNNNNNNCNNNNNNNNCNNGNNNNNNNNNNNANNNNNTNNNANNNNNNANNNNNN NNANTNNNNNNN

		Pseudomonas aeruginosa	NNNNNNNNNNNNNNNATCGGATTACTGGGCGTANGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATCCCC GGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGTAG CGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGAGG TGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCCGTT GGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGTTAA AACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACC TTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCTGC ATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACC AGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGTGAATCANAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGG TTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANNNN NNGGGNNNNNNAAAAAANNNNNNNNNNNNNNNNNGNNGNNNNANNNNNGGNNGGNNGNNTNTNNN NNCCNNCNNNCNCNAANATTTTGAGNNNNNNNNNNANANNNNANNNNNTTCCTTNNCCNNGNANNNNGNN NNGNGGNGNNNNCCNNNNNNNNNNNNNNNNTNNNNNNNNNNNCNNNNNANNGNANGGGNNNNGAGG NNNNTNNNNNNTNGNNNNGNNNNGNNNNANNNNNCANNNNNNNNNAANGGNNNNNNNNNNNGNNNN GNGNNNGNNGNNNNNNNCNNNNNNNNCNNGNNNNNNNNNNNANNNNNTNNNANNNNNNANNNNNN NNANTNNNNNNN
		Pseudomonas otitidis	NNNNNNNNNNNNNNNATCGGATTACTGGGCGTANGCGCGCGTAGGTGGTTCAGCAAGTTGGATGTGAAATCCCC GGGCTCAACCTGGGAACTGCATCCAAAACTACTGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGTGTAG CGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACTGAGG TGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCGACTAGCCGTT GGGATCCTTGAGATCTTAGTGGCGCAGCTAACGCGATAAGTCGACCGCCTGGGGAGTACGGCCGCAAGGTTAA AACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGAACC TTACCTGGCCTTGACATGCTGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCAGACACAGGTGCTGC ATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACC AGCACCTCGGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCAT CATGGCCCTTACGGCCAGGGCTACACACGTGCTACAATGGTCGGTACAAAGGGTTGCCAAGCCGCGAGGTGGA GCTAATCCCATAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTA ATCGTGAATCANAATGTCACGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGG TTGCTCCAGAAGTAGCTAGTCTAACCGCAAGGGGGACGGTTACCACGGAGTGATTCATGACTGGGGTGANNNN NNGGGNNNNNNAAAAAANNNNNNNNNNNNNNNNNGNNGNNNNANNNNNGGNNGGNNGNNTNTNNN NNCCNNCNNNCNCNAANATTTTGAGNNNNNNNNNNANANNNNANNNNNTTCCTTNNCCNNGNANNNNGNN NNGNGGNGNNNNCCNNNNNNNNNNNNNNNNTNNNNNNNNNNNCNNNNNANNGNANGGGNNNNGAGG NNNNTNNNNNNTNGNNNNGNNNNGNNNNANNNNNCANNNNNNNNNAANGGNNNNNNNNNNNGNNNN GNGNNNGNNGNNNNNNNCNNNNNNNNCNNGNNNNNNNNNNNANNNNNTNNNANNNNNNANNNNNN NNANTNNNNNNN
LB plate Endo A1		Roseomonas rhizosphaerae	NNNNNNNNNNNNNNNGCGGCCGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTANNCTGCCGCCAGCGTTCATCTGANNNNNNAAAAAAACNNNNNN ANNAANNNNNCGGGTTTNCCTTNTTTNCCNNCNNAANGGGNCCCNGGANCNAANNTNNNANNNNNGANTN NNNTTANNNNNNNNNNNNNNNANNGNNNNNNNNGNTNNNNNTNTNNANNNNCNNNNNNNGGTANNN NTNNNNNGNNNNNNCNNNNNNNNGNNNNCNNGANCNAANNTTGANNNNNNTNNNNNNNNNNNGNNCN TTCNNTNCACNTNANNNNNNNNGANCNNNNNNNNNNNCCNNNNNNNNNNNNNNNNNNNCNNNNNNNGNN NNNNGNNNNNNNNNANNNNNNNNNNNNNNNNGNNANNCNNCNNNNNGNNTNNNNNCNNGNNNACNNG NNNNN

		Pseudomonas aeruginosa	NNNNNNNNNNNNNNNGCGGCCGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTANNCTGCCGCCAGCGTTCATCTGANNNNNNAAAAAAACNNNNNN ANNAANNNNNCGGGTTTNCCTTNTTTNCCNNCNNAANGGGNCCCNGGANCNAANNTNNNANNNNNGANTN NNNTTANNNNNNNNNNNNNNNNANNGNNNNNNNNGNTNNNNNTNTNNANNNNCNNNNNNNGGTANNN NTNNNNNGNNNNNNCNNNNNNNNGNNNNCNNGANCNAANNTTGANNNNNNTNNNNNNNNNNNGNNCN TTCNNTNCACNTNANNNNNNNGANCNNNNNNNNNNCCNNNNNNNNNNNNNNNNNNNCNNNNNNNGNN NNNNGNNNNNNNNNANNNNNNNNNNNNNNNNGNNANNCNNCNNNNNGNNTNNNNNCNNGNNNACNNG NNNNN
		Pseudomonas otitidis	NNNNNNNNNNNNNNNGCGGCCGTACTCCCCNGGCGGTCGACTTATCGCGTTAGCTGCGCCACTAAGATCTCAA GGATCCCAACGGCTAGTCGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTT TCGCACCTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCAC CGCTACACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCAGTAGTTTTGGATGCAGTTCCCAGGTTGAGCCC GGGGATTTCACATCCAACTTGCTGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCT TCGTATTACCGCGGCTGCTGGCACGAAGTTAGCCGGTGCTTATTCTGTTGGTAACGTCAAAACAGCAAGGTATTA ACTTACTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATC AGGCTTTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTG ACTGATCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTAGGCCTTTACCCCACCAACTAGCTAATCCGACCT AGGCTCATCTGATAGCGTGAGGTCCGAAGATCCCCCACTTTCTCCCTCAGGACGTATGCGGTATTAGCGCCCGTT TCCGGACGTTATCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCCAGGAGCAAG CTCCCTTCATCCGCTCGACTTGCATGTGTTANNCTGCCGCCAGCGTTCATCTGANNNNNNAAAAAAACNNNNNN ANNAANNNNNCGGGTTTNCCTTNTTTNCCNNCNNAANGGGNCCCNGGANCNAANNTNNNANNNNNGANTN NNNTTANNNNNNNNNNNNNNNNANNGNNNNNNNNGNTNNNNNTNTNNANNNNCNNNNNNNGGTANNN NTNNNNNGNNNNNNCNNNNNNNNGNNNNCNNGANCNAANNTTGANNNNNNTNNNNNNNNNNNGNNCN TTCNNTNCACNTNANNNNNNNGANCNNNNNNNNNNCCNNNNNNNNNNNNNNNNNNNCNNNNNNNGNN NNNNGNNNNNNNNNANNNNNNNNNNNNNNNNGNNANNCNNCNNNNNGNNTNNNNNCNNGNNNACNNG NNNNN
LB plate Endo A2	7/29/2020	Achromobacter denitrificans	NNNNNNNNNNCNNNATCGGATTACTGGGCGTAAGCGTGCGCAGGCGGTTCGGAAAGAAAGATGTGAAATCC CAGAGCTTAACTTTGGAACTGCATTTTTAACTACCGGGCTAGAGTGTGTCAGAGGGAGGTGGAATTCCGCGTGT AGCAGTGAAATGCGTAGATATGCGGAGGAACACCGATGGCGAAGGCAGCCTCCTGGGATAACACTGACGCTCA TGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCCTAAACGATGTCAACTAGCTGT TGGGGCCTTCGGGCCTTGGTAGCGCAGCTAACGCGTGAAGTTGACCGCCTGGGGAGTACGGTCGCAAGATTAA AACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGATGATGTGGATTAATTCGATGCAACGCGAAAAACC TTACCTACCCTTGACATGTCTGGAATCCTGAAGAGATTTAGGAGTGCTCGCAAGAGAACCGGAACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTCATTAGTTG CTACGAAAGGGCACTCTAATGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCCTCATG GCCCTTATGGGTAGGGCTTCACACGTCATACAATGGTCGGGACAGAGGGTCGCCAACCCGCGAGGGGGAGCCA ATCCCAGAAACCCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTAATCG CGGATCANCATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACACNGCCCGTCACACCATGGGAGTGGGTTTT ACCAGAAGTAGTTAGCCTAACCGTANGGGGGCNATTACCACGGTNGATTCATGACTGGGTNANNNNGNNNNN NNNNNNAAAAANAAAANNNNNNNNNNNNNTNNANNNNNANNNNACNNNNNNNGNNGNANNNNNNNN CNNNTNTTTNNNNTGCNNNNNNNNNNNNNNNTNNNNNNNNNNNNNNCGCNNNNNNNNNNNNNGGGNNNN NNNGGNNNNANNNNNNNNNNNNNNNNGTNNNCNNNNANNNNNNCCNNCNNNNNNNNNNNNNNNNNN NGNNNNNNNNNNTNNNNNNNNNGNNNNGNNGNTTGNNNCNCNNNNCNNNNNNNNNNNNNGNNNNNNNN NNNNNNNCNNNGANANTNNNNTNNNNNANNNNNNGNNNNNNNNGNNNN

		Achromobacter agilis	NNNNNNNNNNCNNNATCGGATTACTGGGCGTAAGCGTGCGCAGGCGGTTCGGAAAGAAAGATGTGAAATCC CAGAGCTTAACTTTGGAACTGCATTTTTAACTACCGGGCTAGAGTGTGTCAGAGGGAGGTGGAATTCCGCGTGT AGCAGTGAAATGCGTAGATATGCGGAGGAACACCGATGGCGAAGGCAGCCTCCTGGGATAACACTGACGCTCA TGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCCTAAACGATGTCAACTAGCTGT TGGGGCCTTCGGGCCTTGGTAGCGCAGCTAACGCGTGAAGTTGACCGCCTGGGGAGTACGGTCGCAAGATTAA AACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGATGATGTGGATTAATTCGATGCAACGCGAAAAACC TTACCTACCCTTGACATGTCTGGAATCCTGAAGAGATTTAGGAGTGCTCGCAAGAGAACCGGAACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTCATTAGTTG CTACGAAAGGGCACTCTAATGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCCTCATG GCCCTTATGGGTAGGGCTTCACACGTCATACAATGGTCGGGACAGAGGGTCGCCAACCCGCGAGGGGGAGCCA ATCCCAGAAACCCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTAATCG CGGATCANCATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACACNGCCCGTCACACCATGGGAGTGGGTTTT ACCAGAAGTAGTTAGCCTAACCGTANGGGGGCNATTACCACGGTNGATTCATGACTGGGTNANNNNGNNNNN NNNNNNAAAAANAAAANNNNNNNNNNNNNTNNANNNNNANNNNACNNNNNNNGNNGNANNNNNNNN CNNNTNTTTNNNNTGCNNNNNNNNNNNNNNNTNNNNNNNNNNNNNNCGCNNNNNNNNNNNNNGGGNNNN NNNGGNNNNANNNNNNNNNNNNNNNNGTNNNCNNNNANNNNNNCCNNCNNNNNNNNNNNNNNNNNNN NGNNNNNNNNNNTNNNNNNNNGNNNNGNNGNTTGNNNCNCNNNNCNNNNNNNNNNNNGNNNNNNNN NNNNNNNCNNNGANANTNNNNTNNNNNANNNNNNGNNNNNNNNGNNNN
		Achromobacter insolitus	NNNNNNNNNNCNNNATCGGATTACTGGGCGTAAGCGTGCGCAGGCGGTTCGGAAAGAAAGATGTGAAATCC CAGAGCTTAACTTTGGAACTGCATTTTTAACTACCGGGCTAGAGTGTGTCAGAGGGAGGTGGAATTCCGCGTGT AGCAGTGAAATGCGTAGATATGCGGAGGAACACCGATGGCGAAGGCAGCCTCCTGGGATAACACTGACGCTCA TGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCCTAAACGATGTCAACTAGCTGT TGGGGCCTTCGGGCCTTGGTAGCGCAGCTAACGCGTGAAGTTGACCGCCTGGGGAGTACGGTCGCAAGATTAA AACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGATGATGTGGATTAATTCGATGCAACGCGAAAAACC TTACCTACCCTTGACATGTCTGGAATCCTGAAGAGATTTAGGAGTGCTCGCAAGAGAACCGGAACACAGGTGCT GCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGAGCGCAACCCTTGTCATTAGTTG CTACGAAAGGGCACTCTAATGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAGTCCTCATG GCCCTTATGGGTAGGGCTTCACACGTCATACAATGGTCGGGACAGAGGGTCGCCAACCCGCGAGGGGGAGCCA ATCCCAGAAACCCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCTAGTAATCG CGGATCANCATGTCGCGGTGAATACGTTCCCGGGTCTTGTACACACNGCCCGTCACACCATGGGAGTGGGTTTT ACCAGAAGTAGTTAGCCTAACCGTANGGGGGCNATTACCACGGTNGATTCATGACTGGGTNANNNNGNNNNN NNNNNNAAAAANAAAANNNNNNNNNNNNNTNNANNNNNANNNNACNNNNNNNGNNGNANNNNNNNN CNNNTNTTTNNNNTGCNNNNNNNNNNNNNNNTNNNNNNNNNNNNNNCGCNNNNNNNNNNNNNGGGNNNN NNNGGNNNNANNNNNNNNNNNNNNNNGTNNNCNNNNANNNNNNCCNNCNNNNNNNNNNNNNNNNNNN NGNNNNNNNNNNTNNNNNNNNGNNNNGNNGNTTGNNNCNCNNNNCNNNNNNNNNNNNGNNNNNNNN NNNNNNNCNNNGANANTNNNNTNNNNNANNNNNNGNNNNNNNNGNNNN
LB plate Endo A2		Achromobacter insuavis	CNNNNNNNANCTTGCNANNGTACTCCCCAGGCGGTCAACTTCACGCGTTAGCTGCGCTACCAAGGCCCGAAGG CCCCAACAGCTAGTTGACATCGTTTAGGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGT GCATGAGCGTCAGTGTTATCCCAGGAGGCTGCCTTCGCCATCGGTGTTCCTCCGCATATCTACGCATTTCACTGCT ACACGCGGAATTCCACCTCCCTCTGACACACTCTAGCCCGGTAGTTAAAAATGCAGTTCCAAAGTTAAGCTCTGG GATTTCACATCTTTCTTTCCGAACCGCCTGCGCACGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTACGT ATTACCGCGGCTGCTGGCACGTAGTTAGCCGGTGCTTATTCTGCAGGTACCGTCAGTTTCACGGGGTATTAACCC ATGACGTTTCTTTCCTGCCAAAAGTGCTTTACAACCCGAAGGCCTTCATCGCACACGCGGGATGGCTGGATCAGG GTTTCCCCCATTGTCCAAAATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCT GGTCGTCCTCTCAAACCAGCTACGGATCGTCGCCTTGGTGAGCCGTTACCCCACCAACTAGCTAATCCGATATCG GCCGCTCCAATAGTGCAAGGTCTTGCGATCCCCTGCTTTCCCCCGTAGGGCGTATGCGGTATTAGCTACGCTTTC GCGTAGTTATCCCCCGCTACTGNNCACGTTCCGATACATTACTCACCCGTTCGCCACTCGCCACCAGACCGAAGT CCGTGCTGCCGTTCGACTTGCATGTGTAAGGNATCCCGCTAGCGTCATNNNNNNNNNAAAAANNNNANANAA AAANNGGGGGGGGGGNTTNTNTTTNCCGNGGCCCCCGNGAAANACNNTTACCNNCCCTNNGANTTGTCGGG GNNCCCNNNNANAANNNNTANGNAGTGGNNNNGCANANNAANNNGNAANNNCNGGNGNCTGCATGGNG TGTCGNCANNCTCGNNNCNNGGNNATGNTNGGNNNANNCCCNNNNACNNNCNNNNANCNNNNNNNTTNN NTGCNNNNNAANGNANNCNNNNNNNCNNGCCNNNGNNNAACCNNNNANGNNGGGNANNANGNNNNNN NNNNNNGNNNNNNTNNNNNGGNNNNCGANGTNNNNNNNNNNNNNNNNNGGNNNNANCCNNNGGGG NNNNNNNCNNNNNNNNNNNNNN

		Achromobacter ruhlandii	CNNNNNNNANCTTGCNANNGTACTCCCCAGGCGGTCAACTTCACGCGTTAGCTGCGCTACCAAGGCCCGAAGG CCCCAACAGCTAGTTGACATCGTTTAGGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGT GCATGAGCGTCAGTGTTATCCCAGGAGGCTGCCTTCGCCATCGGTGTTCCTCCGCATATCTACGCATTTCACTGCT ACACGCGGAATTCCACCTCCCTCTGACACACTCTAGCCCGGTAGTTAAAAATGCAGTTCCAAAGTTAAGCTCTGG GATTTCACATCTTTCTTTCCGAACCGCCTGCGCACGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTACGT ATTACCGCGGCTGCTGGCACGTAGTTAGCCGGTGCTTATTCTGCAGGTACCGTCAGTTTCACGGGGTATTAACCC ATGACGTTTCTTTCCTGCCAAAAGTGCTTTACAACCCGAAGGCCTTCATCGCACACGCGGGATGGCTGGATCAGG GTTTCCCCCATTGTCCAAAATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCT GGTCGTCCTCTCAAACCAGCTACGGATCGTCGCCTTGGTGAGCCGTTACCCCACCAACTAGCTAATCCGATATCG GCCGCTCCAATAGTGCAAGGTCTTGCGATCCCCTGCTTTCCCCCGTAGGGCGTATGCGGTATTAGCTACGCTTTC GCGTAGTTATCCCCCGCTACTGNNCACGTTCCGATACATTACTCACCCGTTCGCCACTCGCCACCAGACCGAAGT CCGTGCTGCCGTTCGACTTGCATGTGTAAGGNATCCCGCTAGCGTCATNNNNNNNNNAAAAANNNNANANAA AAANNGGGGGGGGGGNTTNTNTTTNCCGNGGCCCCCGNGAAANACNNTTACCNNCCCTNNGANTTGTCGGG GNNCCCNNNNANAANNNNTANGNAGTGGNNNNGCANANNAANNNGNAANNNCNGGNGNCTGCATGGNG TGTCGNCANNCTCGNNNCNNGGNNATGNTNGGNNNANNCCCNNNNACNNNCNNNNANCNNNNNNNTTNN NTGCNNNNNAANGNANNCNNNNNNNCNNGCCNNNGNNNAACCNNNNANGNNGGGNANNANGNNNNNN NNNNNNGNNNNNNTNNNNNGGNNNNCGANGTNNNNNNNNNNNNNNNNNGGNNNNNANCCNNNGGGG NNNNNNNCNNNNNNNNNNNNNN
		Achromobacter arsenitoxydans	CNNNNNNNANCTTGCNANNGTACTCCCCAGGCGGTCAACTTCACGCGTTAGCTGCGCTACCAAGGCCCGAAGG CCCCAACAGCTAGTTGACATCGTTTAGGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGT GCATGAGCGTCAGTGTTATCCCAGGAGGCTGCCTTCGCCATCGGTGTTCCTCCGCATATCTACGCATTTCACTGCT ACACGCGGAATTCCACCTCCCTCTGACACACTCTAGCCCGGTAGTTAAAAATGCAGTTCCAAAGTTAAGCTCTGG GATTTCACATCTTTCTTTCCGAACCGCCTGCGCACGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTACGT ATTACCGCGGCTGCTGGCACGTAGTTAGCCGGTGCTTATTCTGCAGGTACCGTCAGTTTCACGGGGTATTAACCC ATGACGTTTCTTTCCTGCCAAAAGTGCTTTACAACCCGAAGGCCTTCATCGCACACGCGGGATGGCTGGATCAGG GTTTCCCCCATTGTCCAAAATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCT GGTCGTCCTCTCAAACCAGCTACGGATCGTCGCCTTGGTGAGCCGTTACCCCACCAACTAGCTAATCCGATATCG GCCGCTCCAATAGTGCAAGGTCTTGCGATCCCCTGCTTTCCCCCGTAGGGCGTATGCGGTATTAGCTACGCTTTC GCGTAGTTATCCCCCGCTACTGNNCACGTTCCGATACATTACTCACCCGTTCGCCACTCGCCACCAGACCGAAGT CCGTGCTGCCGTTCGACTTGCATGTGTAAGGNATCCCGCTAGCGTCATNNNNNNNNNAAAAANNNNANANAA AAANNGGGGGGGGGGNTTNTNTTTNCCGNGGCCCCCGNGAAANACNNTTACCNNCCCTNNGANTTGTCGGG GNNCCCNNNNANAANNNNTANGNAGTGGNNNNGCANANNAANNNGNAANNNCNGGNGNCTGCATGGNG TGTCGNCANNCTCGNNNCNNGGNNATGNTNGGNNNANNCCCNNNNACNNNCNNNNANCNNNNNNNTTNN NTGCNNNNNAANGNANNCNNNNNNNCNNGCCNNNGNNNAACCNNNNANGNNGGGNANNANGNNNNNN NNNNNNGNNNNNNTNNNNNGGNNNNCGANGTNNNNNNNNNNNNNNNNNGGNNNNNANCCNNNGGGG NNNNNNNCNNNNNNNNNNNNNN
LB plate Endo D2	7/29/2020	Pseudomonas inefficax	NNNNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGNG TGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGANGGTTACCACGGTGTGATTCATGACTGGGGTNA NNNNNNNNNNNNNNAAAAAAAANNNNNNNNNNNNNCNTNNGNNNNNNNNANNNAGNGNAGGNTNNNN NNNNNNNNNNNNCNNNNNTANNNNNNNTNNNNTTANNAANNNANNNNNNNCNNCNNCNNNCNNNNNN NGNCNGGGGNNNNNTNNNNNNTTNCCNCNNNTNNNGNANNNNNNTNNNCNTNNNNNNCNNNNNNNNN NGGGNNNNNNNNNNNNNNTNNNTNNNGNNNNNGNNGNNCNNNNNNNNNTNNNGNNNNNNNNNNNNN GNNNANNTNNNNNNNCNGN

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		Pseudomonas asiatica	NNNNNNNNNNNNNNNNATCGGATTACTGGGCGTAAGCGCGCGTAGGTGGTTCGTTAAGTTGGATGTGAAAGC CCCGGGCTCAACCTGGGAACTGCATCCAAAACTGGCGAGCTAGAGTACGGTAGAGGGTGGTGGAATTTCCTGT GTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCGACCACCTGGACTGATACTGACACT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGC CGTTGGAATCCTTGAGATTTTAGTGGCGCAGCTAACGCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGT TAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAGCAACGCGAAGA ACCTTACCAGGCCTTGACATGCAGAGAACTTTCCAGAGATGGATTGGTGCCTTCGGGAACTCTGACACAGGTGC TGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTAGTT ACCAGCACGTTATGGTGGGCACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAA GTCATCATGGCCCTTACGGCCTGGGCTACACACGTGCTACAATGGTCGGTACAGAGGGTTGCCAAGCCGCGAGG TGGAGCTAATCTCACAAAACCGATCGTAGTCCGGATCGCAGTCTGCAACTCGACTGCGTGAAGTCGGAATCGCT AGTAATCGCGAATCANAATGTCGCGGTGAATACGTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGNG TGGGTTGCACCAGAAGTAGCTAGTCTAACCTTCGGGAGGANGGTTACCACGGTGTGATTCATGACTGGGGTNA NNNNNNNNNNNNNNAAAAAAAANNNNNNNNNNNNNCNTNNGNNNNNNNNANNNAGNGNAGGNTNNNN NNNNNNNNNNNNNCNNNNNTANNNNNNNTNNNNTTANNAANNNANNNNNNNCNNCNNCNNNCNNNNNN NGNCNGGGGNNNNNTNNNNNNTTNCCNCNNNTNNNGNANNNNNNTNNNCNTNNNNNNCNNNNNNNNN NGGGNNNNNNNNNNNNNNTNNNTNNNGNNNNNGNNGNNCNNNNNNNNNTNNNGNNNNNNNNNNNNN GNNNANNTNNNNNNNCNGN
LB plate Endo D2		Pseudomonas asiatica	NNNNNNNNNNNNCGNCGTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGATT CCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCAC CTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTAC ACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGGC TTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGTA TTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAGCTTA CTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGCT TTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTGA TCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGCT CATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTTCGAA ACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCCC GTCATCCGCTCGACTTGCATGTGTTNNNCTGCCGCCAGCGTCANNNNNNNNANNNAANANAAANNNNNNAG NGTTCNNTTTTTCCNNNNNNANGNNACCCANNGANNNANNNTCNNNNCNNTGTNTNNNNGATANNNNNNN NNNNNNNNAANNNNNGACNNNNNNNNNNNNNNNANNNNNNANNNCNNNNAANANNNTNNNNNGGGN TNNNNNTNACNNNNNNNNCNNNNNAANNNTNNNNNNNNNNCNNANNCNNNANNNNNNNNNNNNNCNN NNNNNNNANNNNNNNGGNNNANGGNNNNNNNNNNNNGNCNNNNNNNNNNNNNNNNGNNNNNNNNNN ANNNNGNNNNTNNNNN

		Pseudomonas asiatica	NNNNNNNNNNNNNCGNCGTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGATT CCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCAC CTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTAC ACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGGC TTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGTA TTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAGCTTA CTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGCT TTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTGA TCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGCT CATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTTCGAA ACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCCC GTCATCCGCTCGACTTGCATGTGTTNNNCTGCCGCCAGCGTCANNNNNNNNANNNAANANAAANNNNNNAG NGTTCNNTTTTTCCNNNNNNANGNNACCCANNGANNNANNNTCNNNNCNNTGTNTNNNNGATANNNNNNN NNNNNNNNAANNNNNGACNNNNNNNNNNNNNNNANNNNNNANNNCNNNNAANANNNTNNNNNGGGN TNNNNNTNACNNNNNNNNCNNNNNAANNNTNNNNNNNNNNCNNANNCNNNANNNNNNNNNNNNNCNN NNNNNNNANNNNNNNGGNNNANGGNNNNNNNNNNNNGNCNNNNNNNNNNNNNNNNGNNNNNNNNNN ANNNNGNNNNTNNNNN
		Pseudomonas asiatica	NNNNNNNNNNNNNCGNCGTACTCCCCAGGCGGTCAACTTAATGCGTTAGCTGCGCCACTAAAATCTCAAGGATT CCAACGGCTAGTTGACATCGTTTACGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTCCCCACGCTTTCGCAC CTCAGTGTCAGTATCAGTCCAGGTGGTCGCCTTCGCCACTGGTGTTCCTTCCTATATCTACGCATTTCACCGCTAC ACAGGAAATTCCACCACCCTCTACCGTACTCTAGCTCGCCAGTTTTGGATGCAGTTCCCAGGTTGAGCCCGGGGC TTTCACATCCAACTTAACGAACCACCTACGCGCGCTTTACGCCCAGTAATTCCGATTAACGCTTGCACCCTCTGTA TTACCGCGGCTGCTGGCACAGAGTTAGCCGGTGCTTATTCTGTCGGTAACGTCAAAACAGCAAGGTATTAGCTTA CTGCCCTTCCTCCCAACTTAAAGTGCTTTACAATCCGAAGACCTTCTTCACACACGCGGCATGGCTGGATCAGGCT TTCGCCCATTGTCCAATATTCCCCACTGCTGCCTCCCGTAGGAGTCTGGACCGTGTCTCAGTTCCAGTGTGACTGA TCATCCTCTCAGACCAGTTACGGATCGTCGCCTTGGTGAGCCATTACCTCACCAACTAGCTAATCCGACCTAGGCT CATCTGATAGCGCAAGGCCCGAAGGTCCCCTGCTTTCTCCCGTAGGACGTATGCGGTATTAGCGTTCCTTTCGAA ACGTTGTCCCCCACTACCAGGCAGATTCCTAGGCATTACTCACCCGTCCGCCGCTGAATCAAGGAGCAAGCTCCC GTCATCCGCTCGACTTGCATGTGTTNNNCTGCCGCCAGCGTCANNNNNNNNANNNAANANAAANNNNNNAG NGTTCNNTTTTTCCNNNNNNANGNNACCCANNGANNNANNNTCNNNNCNNTGTNTNNNNGATANNNNNNN NNNNNNNNAANNNNNGACNNNNNNNNNNNNNNNANNNNNNANNNCNNNNAANANNNTNNNNNGGGN TNNNNNTNACNNNNNNNNCNNNNNAANNNTNNNNNNNNNNCNNANNCNNNANNNNNNNNNNNNNCNN NNNNNNNANNNNNNNGGNNNANGGNNNNNNNNNNNNGNCNNNNNNNNNNNNNNNNGNNNNNNNNNN ANNNNGNNNNTNNNNN

Table 3: The following table displays the results from the Blast Program offered by NCBI for the identification of bacteria based on 16S gene sequences. Expect (E) value parameter that describes the number of hits one can "expect" to see by chance when searching a database of a particular size. The lower the E-value, or the closer it is to zero, the more "significant" the match is. Identity percentage is the extent to which two aligned sequences have the same exact nucleotides or amino acids in the same positions, or how similar they are qualitatively.

Endogenous Dynamics					
Source:	Fluid Sample provided by Endogenous Dynamics				
	a) Isolation conducted with LB, TS, PD, NB Plates: sample was streaked for isolation and placed at 30C for 24-72hrs.				
	b) Isolated colony plates were sent directly to GeneWiz for 16S sequence identification.				
	c) Compatibility study conducted with E.D fluid and SoilCure. Fluid and SoilCure combined and placed at 30C, 150rpm for 1 day-7day. Growth was recorded using Optical Density 600nm and CFU plate counts.				
Suspected Organism	**Source**	**Date**	**Blast Results Organism Name**	**eValue**	**% Identity**
1st Isolation					
Unknown	TS plate 6/19 A Lopez	7/9/2020	Pseudomonas inefficax	0	99.55%
			Pseudomonas asiatica	0	99.77%

Unknown	LB 6/22 Lopez	7/9/2020	Pseudomonas inefficax	0	99.47%
			Pseudomonas asiatica	0	99.77%
Unknown	PD 6/22 Lopez	7/9/2020	Pseudomonas inefficax	0	99.36%
			Pseudomonas guariconensis	0	99.65%
Unknown	PD plate 6/19 A. lopez	7/9/2020	Pseudomonas inefficax	0	99.47%
			Pseudomonas asiatica	0	99.65%
Unknown	LB 6/19 A lopez	7/9/2020	Pseudomonas inefficax	0	98.83%
			Pseudomonas asiatica	0	99.65%
Unknown	6/19 NB plate A Lopez	7/9/2020	Pseudomonas inefficax	0	99.57%
			Pseudomonas asiatica	0	99.77%
2nd Isolation					
Unknown	TS plate Endo A2	7/29/2020	Roseomonas rhizosphaerae	0	99.79%
			Pseudomonas aeruginosa	0	99.79%
			Pseudomonas otitidis	0	99.25%
Unknown	TS plate Endo A2		Roseomonas rhizosphaerae	0	99.53%
			Pseudomonas aeruginosa	0	99.53%
			Pseudomonas otitidis	0	97.67%
Unknown	TS plate Endo A3	7/29/2020	Roseomonas rhizosphaerae	0	99.57%
			Pseudomonas aeruginosa	0	99.57%
			Pseudomonas otitidis	0	99.04%
Unknown	TS plate Endo A3		Roseomonas rhizosphaerae	0	99.77%
			Pseudomonas aeruginosa	0	99.77%
			Pseudomonas otitidis	0	98.03%
Unknown	TS plate Endo D1	7/29/2020	Pseudomonas inefficax	0	99.68%
			Pseudomonas inefficax	0	99.68%
			Pseudomonas asiatica	0	99.68%
Unknown	TS plate Endo D1		Pseudomonas asiatica	0	99.53%
			Pseudomonas plecoglossicida	0	99.41%
			Pseudomonas asiatica	0	99.41%
Unknown	LB plate Endo A1	7/29/2020	Roseomonas rhizosphaerae	0	99.57%
			Pseudomonas aeruginosa	0	99.57%
			Pseudomonas otitidis	0	99.04%
Unknown	LB plate Endo A1		Roseomonas rhizosphaerae	0	99.43%
			Pseudomonas aeruginosa	0	99.43%
			Pseudomonas otitidis	0	97.59%
Unknown	LB plate Endo A2	7/29/2020	Achromobacter denitrificans	0	99.03%
			Achromobacter agilis	0	98.92%
			Achromobacter insolitus	0	98.92%
Unknown	LB plate Endo A2		Achromobacter insuavis	0	99.30%
			Achromobacter ruhlandii	0	99.19%
			Achromobacter arsenitoxydans	0	99.07%
Unknown	LB plate Endo D2	7/29/2020	Pseudomonas inefficax	0	99.47%

			Pseudomonas inefficax	0	99.47%
			Pseudomonas asiatica	0	99.47%
Unknown	LB plate Endo D2		Pseudomonas asiatica	0	99.53%
			Pseudomonas asiatica	0	99.42%
			Pseudomonas asiatica	0	99.42%

Sequencing Analysis:

The following descriptions are for the likely bacterial strains within the Endogenous Dynamics sample. Listed are the top candidates for each unknown isolated bacterium strains. The bacteria in position (a) under each unknown sample are the primary candidate for each isolate. The subsequent bacteria for each unknown sample are the alternative candidates.

1) Unknown Sequencing Sample #1
    a. Roseomonas rhizosphaerae - A novel aerobic, non-spore-forming, non-motile, catalase- and oxidase-positive, Gram-stain negative, coccoid to short-rod-shaped bacterial strain. Research has shown an ability to degrade organophosphate. (1)
    b. Pseudomonas aeruginosa - Known as a pathogen and likely a contaminate in the sample. It is not recognized as an important rhizosphere bacterium although it is frequently found in soils and has been found to colonize cucumber roots, lettuce leaves, sweet basil roots, sugar beet roots, wheat roots and *Arabidopsis* roots (2).
    c. Pseudomonas otitidis - Gram-negative bacterium that causes otitis. Closely related to Pseudomonas aeruginosa. Likely not a bacterium in the sample but rather the bacteria in the sample is highly related.
2) Unknown Sequencing Sample #2
    a. Pseudomonas inefficax - The bacteria that can convert atmospheric nitrogen into ammonia via the enzyme nitrogenase, a process known as nitrogen fixation. They do this while living in root nodules on actinorhizal plants. The bacteria can supply most or all the nitrogen requirements of the host plant.
    b. Pseudomonas asiatica – Previous sources of isolates were obtained from urine samples of patients hospitalized in Myanmar (4). Unlikely the sample contained this strain of bacteria.
    c. Pseudomonas plecoglossicida - Gram-negative, rod-shaped, motile bacterium that causes hemorrhagic ascites in the ayu fish. Based on 16S rRNA analysis, P. plecoglossicida has been placed in the P. putida group. The pesticide degrading properties of this strain is currently being researched in academia. (3)
    d. Pseudomonas guariconensis - Previous isolates for phosphate-solubilizing bacteria occurring in the rhizosphere of cowpea conducted were found to be P. guariconensis(5).
3) Unknown Sequencing Sample #3
    a. Achromobacter denitrificans - mechanism of NO_2^- tolerance. a novel bacterium efficiently degrades hazardous DEHP. (6)(7). isolated from soil and can cause human infections.
    b. Achromobacter agilis - which occurs in lake water and Antarctic sea ice. Arthrobacter agilis produces dimethylhexadecylamine and carotenoid.
    c. Achromobacter insolitus - isolated from various human clinical samples. Not a likely bacterium in sample. This strain may share high similarity with strains in sample.
4) Unknown Sequencing Sample #4

a. Achromobacter insuavis - isolated from various human clinical samples. Not a likely bacterium in sample. This strain may share high similarity with strains in sample.
b. Achromobacter ruhlandii - isolated from various human clinical samples. Not a likely bacterium in sample. This strain may share high similarity with strains in sample.
c. Achromobacter arsenitoxydans - Achromobacter which was isolated from soil of an arsenic-contaminated pig farm. Achromobacter arsenitoxydans can oxidize arsenite to arsenate (8)

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2022 ENDO REQUID REPORT

INTRODUCTION

Below is the detailed report on endo liquid solution and AG3 solution

AG3 and endo liquids are soil microbe for soil amendment

Soil have microbes which help in conversion of nutrient from soils and making them available to plants roots, these microbes include bacteria, fungi protozoa and viruses

Bacteria are the main microbes that helps the soil in many ways, for years now our soil seems to be dead that is without existing soil microorganism due to harmful inputs we are using

We have done several test with endo and AG3 with different crops i.e. cereals, leafy vegetables, fruits vegetables, perennial fresh fruits and perennial berry trees

We have also done the test on different type of soil and different climates

Endo liquid and AG3 has proved to be the best microbe for soil treatment here in east Africa

Use of the AG3 and endo liquids microbes in the right way at the right time and with the right methods and application modes will give positive result

We used the test for endo and AG3 microbes with the following crops: -

1). Cereals, we used beans

2) Leafy fresh vegetables we used lettuce

3) Fruit vegetables we used tomatoes

4) Perennial fresh fruits we used avocado

5) Perennial berry fruits we used coffee

BEANS

We decided to use beans to represent cereals crop because of the following reasons

A) Beans are the only cereal crops that takes short period to mature
B) We were aiming for short term crops so that we could achieve the results within shortest period possible
C) Beans and other cereal crops have same feeding and nutrient uptake method hence to represent other cereals
D) Beans have also root nodules which helps in fixing nitrogen in the soil which could also help in increase of microbe in the soil after using endo and AG3 microbes

We used different methods to treat the soil and seeds using Endo and AG3 solution prior to planting

We had three blocks for trials i.e. 1) block 1 treated with endo liquid

2) Block 2 treated with AG3

3) Block 3 without treatment

The trial and result were as shown below

DATES	TREATMENT	ACTIVITY	OBSERVATION	REMARKS
3/4/2022	Soaked beans in block 1 with endo liquid Soaked the beans seeds in block 2 with AG3 solution			Good
4/4/2022		Planted bean at block 1,2,3		Good
10/4/2022	Drenching	Sprayed endo liquid solution at the base of beans seedling in block 1		Good

		Sprayed AG3 solution at the base of beans seedlings in block 2		
22/4/2022	Drenching	Repeated drenching of endo liquid andAG3 solutions in block 1 and 2 respectively	At this stage beans in block 1 and block 2 looks very healthy Unlike block 3 which seems to be slow	Excellent
7/5/2022		scouting	At this stage block 1 and block 2 looks much healthier and promising They have long fresh pods	Excellent
30/6/2022		harvesting	Beans from block 1 and block 2 are very heavy ie twice the weight of beans from block 3	

We did this trial within black cotton soils and red soil and the microbes performed excellently in both type of soils

LETTUCE

We also used lettuce to represent leafy fresh vegetables like cabbages and kales

Lettuce are among the fast maturing vegetables taking 35 days

We used different methods to treat the soil using endo liquid and AG3 solution before transplanting

We used three different blocks that is block1, 2, 3 where in block 1 we used endo liquid

Block 2 we used AG3

Block 3 we used normal farming methods ie without endo or AG3

We used 3 blocks for this trial as shown below

TREATMENT	ACTIVITY	DATE	OBSERVATION	REMARKS
Sprayed endo liquid in the soil in block 1 and AG3 solution in block 2	Spraying	12/6/2022		Good
Drenched endo liquid at the base of lettuce seedlings in block 1 and AG3 solution in block 2	Spraying	23/6/2022	The vegetative parts are very healthy and attractive in block 1 and block2	Excellent
Repeated drenching with endo and AG3 in block 1 and block 2 respectively	Spraying	30/6/2022	Lettuce in block 1 and 2 gives a clear picture of what endo and AG3 microbes works in the soil	Perfect

CAPSICUM

We also used capsicum to represent the fruiting vegetables

We decided to use capsicum because it produces fruits for many months unlike other vegetables such as tomatoes that fruits only thrice from the first harvest

The lengthy harvesting shows the existence of soil microbes in the soil

We started by soaking the capsicum seeds in the endo solution for block 1 and AG3 for block 2

We then drenched the transplanting bed with Endo for block 1 and AG3 for block 2 to treat the soil

The capsicum performed excellently especially with Ag3 the fruit size was so big the fruits were heavy the colours of fruits was dark green which is a sign of good supply of nutrients in the soil

There was big differences when comparing the capsicum from treated soil and those from untreated soil

COFFEE

Coffee is one of the major crop in Kenya

Coffee plantation requires more attention if you want to achieve more

Here in Kenya most coffee plantation are underperforming because of the following reasons

1) Coffee plantation were planted many years ago, the roots of these trees goes deeper every day hence unable to reach soil nutrient

2) Farmers has been using chemicals such as fertilizers for many years, this has caused acidity in the soil to increase at a high rate killing all soil microorganism. Many farmers don't know why their plantation are under performing and instead they keep on adding more fertilizer thinking they are improving the fertility of the soil but it is from low knowledge on the soil microorganism

Unless people learn how to treat their soil the production will keep on decreasing despite large plantation

In our case we did random selection of trees in our coffee plantation

We selected 10 trees in every station

We had three stations namely station 1, station 2 and station 3

In station 1 we used endo liquid, station 2 we used the AG3 solution and in the station 3 was the control unit

At first there was no physical signs but after a month everybody was seeing the difference

The trees had healthy berries they were heavier and the trees vegetation are very healthy that is dark green which is a good indication the plant is accessing nutrients from the soil easily

In station 2 we used AG3 solution

Also in these stations the trees produced elephants berries they were heavy

I would recommend the use of AG3 solution and Endo liquid in our soil

Our soil is under performing due to lack of existing soil microorganism due to frequently use of chemicals years after years

Our soil requires treatment for it to regain its fertility

The microbes from endo and AG3 solution proved to be the solution of our soil amendment

Many farmers should be educated on how to use these microbe to treat their soils to make their land productive as they were before

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June 12, 2017

To: Mr. Allen Lopez

It was great visiting with you. I am very interested in pursuing the nanotechnology and waterless irrigation system we spoke about. As I mentioned, I have a small property totaling two acres that we can conduct the testing for your company and mine. Once I am comfortable that the technology performs, I have several other the large vineyards that I advise for as Senior Project Manager.

I have looked at my schedule and I am prepared to meet with you directly here in Mendocino County within the next two weeks. Once I receive the NDA, I will execute and look forward to receiving the documentation you mentioned, which will detail the functionality of the technology.

With your permission, I will invite Graziano Vineyards, Rick Piffero Vineyards, Russian Creek Vineyards, Stewart Vineyards, Hermsmeyer Vineyard, Spencer Vineyard, Barrett Vineyard, Patianna Vineyard, Red Hills Vineyard, Beckstoffer Vineyards, Roederrer and Scharffenberger Vineyards - Philo, JAC Vineyard Management for Alan Olivier Vineyards - Lodi, Pettrone Cellars, Chateau Montelina - Napa, La Burrito - Napa, Steltzner Vineyards - Silverado Trail, Fetzer Vineyards, Ceago, Sarafina, Jeriko and Milovina Vineyards, and some of the larger vineyard owners to observe and participate in the study as this will definitely be of interest to them, as well as all of the organic farms in the region.

Regards,

Tom
TOM BARRETT

TB/td

ENDO REPORT

We established 20 plots for ENDO LIQUID and AG3 SOLUTION and the following is the physical and agro scientific observation for the last one month

PLOT 1 (CAPSICUM)

Here we used **MANURE, FERTILIZER and ENDO LIQUID**, in this plot we have observed capsicum have done excellently that is vegetative parts is growing very fast, flowers percentages and flowers fomation is good

PLOT 2

Here we used ENDO LIQUID and FERTIZER here capsicum has also done good but not as in plot 1 the vegetative part is healthy that is dark green, flower percentages is also good that is 70% growth rate is also good

PLOT 3

Here we used MANURE and ENDO LIQUID this plot resembles plot 2 growth rate, flower percentage and vegetation health is the same

PLOT 4

This plot is the control unit here we used the normal farming method, we used MANURE ,FERTLIZER AND FOLIAR FEEDS

this plot has done far much better than other plots the vegetative part is much health i.e. dark green bushy and flower formation and percentages is much excellent

PLOT 5

This plot is also a control unit here we used ENDO LIQUID only

In this plot has performed poorly the growth rate is very low no flowers and vegetative part has signs of nutrient deficiency

NB

We have repeated the same with beans and result are the same

MY OBSERVATION AND COMMENTS

The ENDO LIQUID has been acting as nutrient releaser from manure and fertilizer

For me there is no nutrients in ENDO LIQUID but it helps in fastening nutrient uptake from manure and fertilizers

AG3 (BEANS)

We have 6 plots as follows

PLOT 1

We used AG3, FERTILIZER AND MANURE

PLOT 2

We used AG3 and MANURE

PLOT 3

We used AG3 and FERTILIER

PLOT 4

We used AG3 only

PLOT 5

We used normal farming without AG3

PLOT 6

We used **AG3** and **ENDO LIQUID**

MY OBSEVATION

AG3 have performed perfectly in all plots, the control unit that is PLOT 4 has indication **AG3** has something to support plant growth as compared to **LIQUID** ENDO

We require much explanation on these **ENDO LIQIUD** and **AG3** that is the application methods and rates

For us we used it to drench the soil and also used it as foliar and it was from my own thinking because the labels in jelly cans has no explanation on how these liquids will be used and by what method

January 14, 2021

The photos, at age 20 days & 30 days from planting, are meant to give an idea of the general progress & size of the beans.

A detailed and full description of each trial and final performance shall be done in six weeks time after harvest.

Though, a tentative observation reveals better growth vigor, and wider leaves for trial beds with Endo treatment. A combination of endo with either fertilizer or manure has a significant observable superior growth.

This shows/indicates an overall growth media improvement upon treatment with the soil conditioner.

Attached random photos are the six beds of open field beans on different treatments. It is for our records but you may be interested to see 20 day old progress.

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20 day progress:




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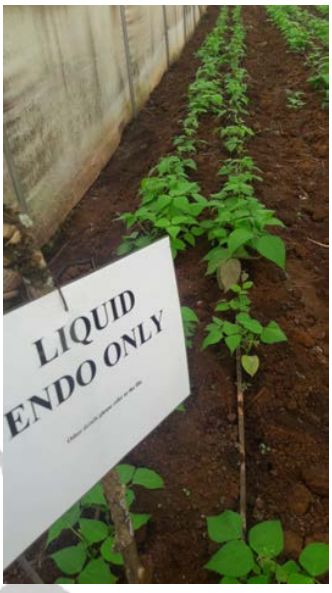

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30 Days

Liquid Eno Only:

Manure Only:

Fertilizer Only:

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Endo + Manure + Fertilizer:

Endo & Manure:

Endo & Fertilizer:

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Report Date
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September 01, 2022

Issue Date
01/09/2022

Microbes Biosciences

1544 Sawdust Rd #505

The Woodlands, TX 77380

Report of Analysis

For: External use by

Endogenous Dynamics

EndoDynamics Water Vortex Imploder effect on tap water

Purpose:

The first purpose of the experimental outline is to test the efficiency of the water vortex imploder on removing contaminants and improving water quality of tap water.

Experimental Outline:

Part 1- Water Vortex imploder

1. Test tap water with water vortex imploder passing 30 gallons of water thru system prior to collecting the sample
2. Test RO water with water vortex imploder passing 30 gallons of water thru system prior to collecting the sample
3. Send samples for analysis of components
    a. Tap water untreated = 1 sample
    b. RO water intreated = 1 sample
    c. tap water with water vortex imploder = 3 samples
    d. RO water with water vortex imploder = 3 samples

Summary:

The water vortex imploder provided by Endodynamics does reduce contaminants in the treated samples as compared to untreated. The level of reduction in contaminants was slight. This may be due to reduced water pressure through the device. An adjustment of the equipment may lead to greater reduction of contaminants. Both tap water and reverse osmosis water had reduction in Chlorine as well as Total dissolved solids. Reduction of these contaminants in agriculture water will aid in the health of both plants and soil. These reductions could also lead to less buildup of harmful salts that tend to build up on the surface of agricultural land. Typically, well water is used for irrigation of agricultural land which historically shows elevated salt as compared to water from a municipal source.

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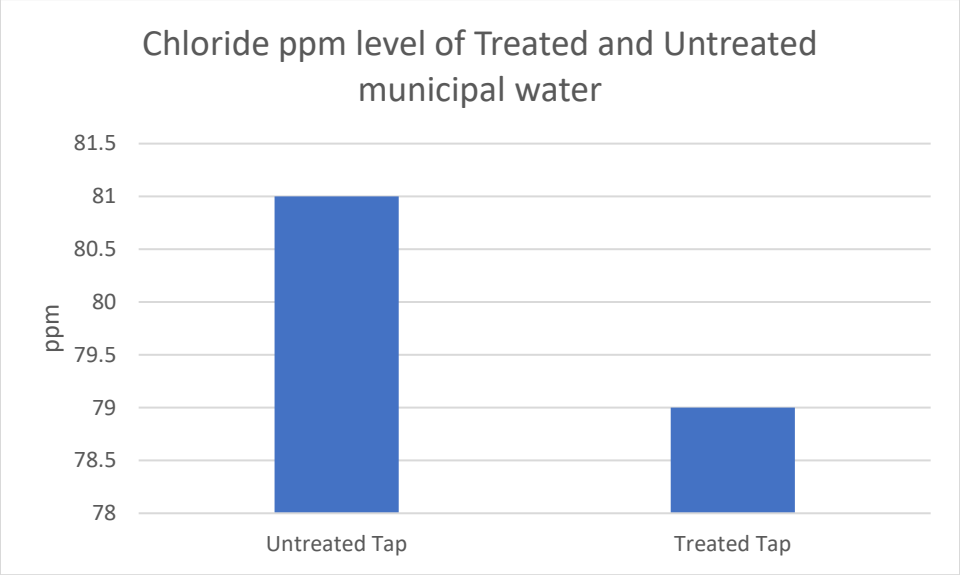
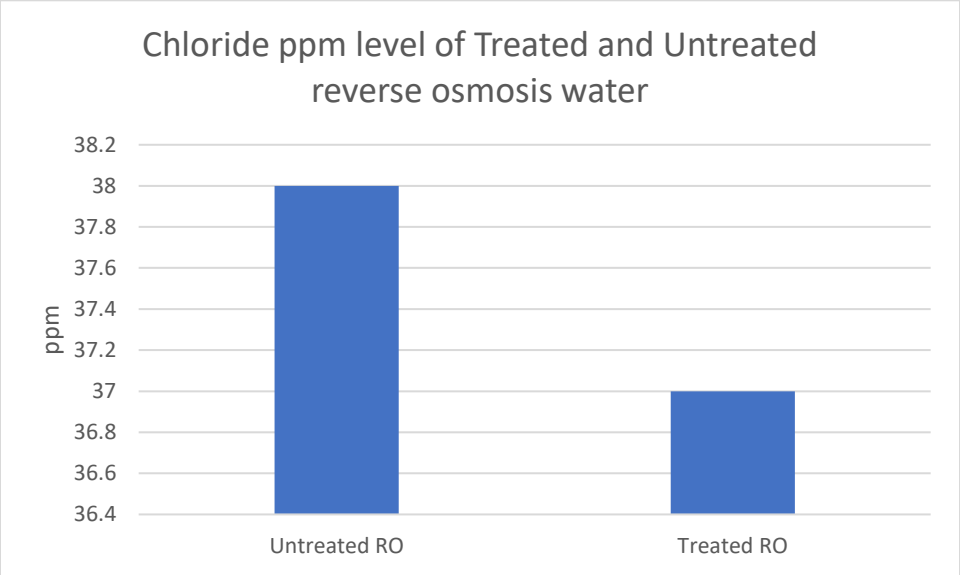
Data:

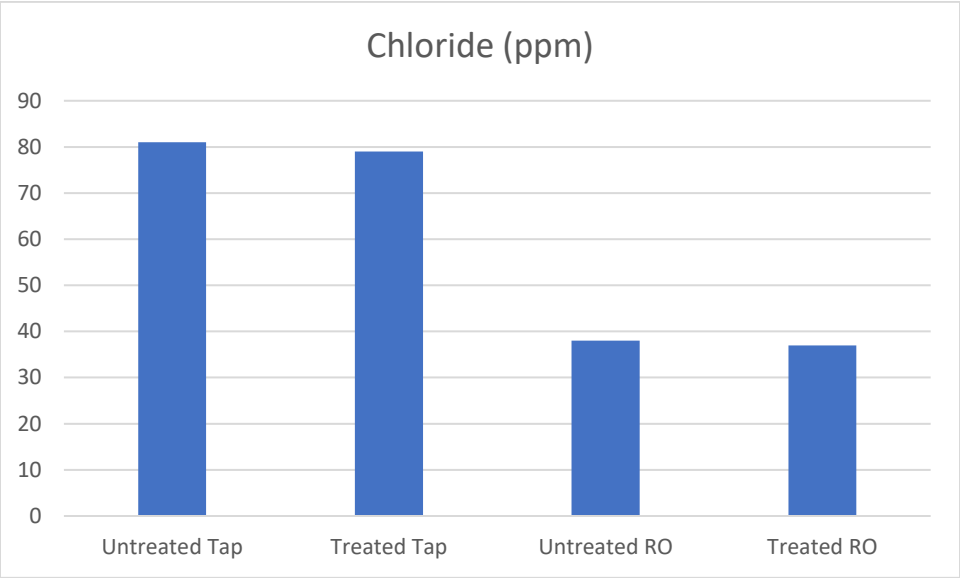
An irrigation suitability water test was conducted by Midwest Laboratories. Treated tap and reverse osmosis water had an overall reduction of 3% of Chlorine as compared to the untreated. Treated tap water had a reduction of 4.42% and treated reverse osmosis water had a reduction of 1% for Total Dissolved solids



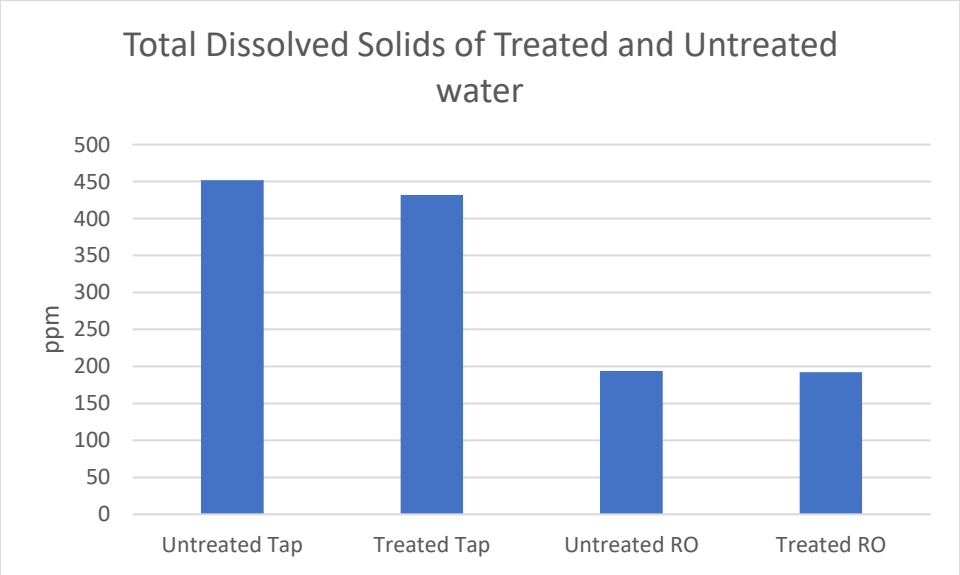
Graph 1. Chloride ppm level from treated and untreated municipal (tap) water.



Graph 2. Chloride ppm level from treated and untreated reverse osmosis water.



Graph 3. A comparison of Chloride ppm level from treated and untreated reverse osmosis and municipal water.



Graph 3. A comparison of Total Dissolved Solids (TDS) ppm level from treated and untreated reverse osmosis and municipal water. The TDS is estimated from conductivity. Conductivity can be used as a measure of total dissolved solids (TDS). These solids are usually composed of the sulfate, bicarbonate, and chlorides of calcium, magnesium, and sodium. Estimate TDS in ppm by multiplying conductivity (uS/cm) by 0x67.

Irrigation Suitability Results								
Treatment	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	pH	Nitrate (ppm)	Sulfate (ppm)	Conductivity (mmhos/cm)	Total Dissolved Solids (Est. from Cond ppm)
Untreated Tap	154	10.9	2.94	8.18	0.3	18	0.696	452
Treated Tap	155	10.4	2.71	8.13	0.4	18	0.664	432
Untreated RO	73.4	0.66	0.46	7.72	nd	nd	0.298	194
Treated RO	71.7	0.95	0.47	8.16	nd	1	0.295	192

Table 1. Raw Data from Irrigation Suitability Test.

Irrigation Suitabilty Results					
Treatment	Sodium Aborption (ppm)	Phosphorus (ppm)	Potassium (ppm)	Bicarbonate (ppm)	Chloride (ppm)
Untreated Tap	10.6	0.68	2.16	237	81
Treated Tap	11	0.59	2.29	236	79
Untreated RO	16.9	0.08	0.92	102	38
Treated RO	15	0.24	0.89	100	37

Table 2. Raw Data from Irrigation Suitability Test.

Irrigation Suitabilty Results					
Boron (ppm)	Iron (ppm)	Manganese (ppm)	Copper (ppm)	Zinc (ppm)	Carbonate as CaCO3 (ppm)
0.18	0.13	0.01	0.01	0.02	3.4
0.18	0.08	0.007	0.03	0.04	3
0.24	0.05	0.006	0.01	0.02	0.5
0.23	0.05	0.005	0.01	0.02	1.4

Table 3. Raw Data from Irrigation Suitability Test.

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MICROBES BIOSCIENCES
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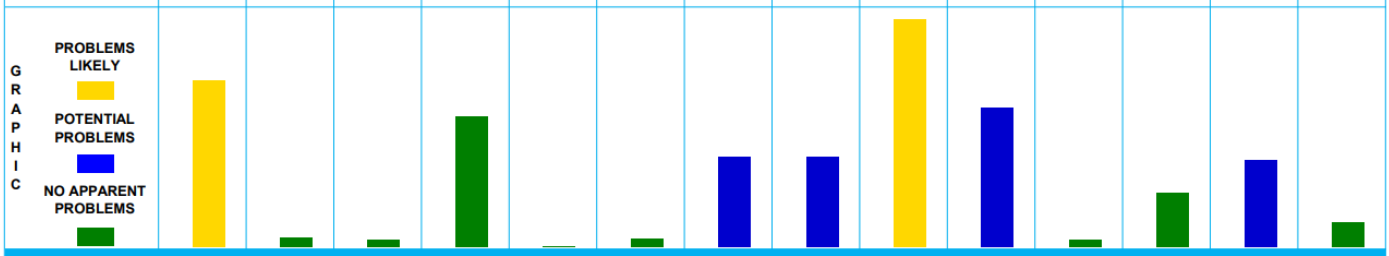
1544 SAWDUST RD #505
THE WOODLANDS TX 77380

Irrigation Suitability
For: (19291) MICROBES BIOSCIENCES
Irrigation Water Analysis

Irrigation Suitability Results for Untreated Tap

ELEMENT	SODIUM	CALCIUM	MAGNESIUM	pH	NITRATE NITROGEN	SULFATE	CONDUC-TIVITY	TOTAL DISSOLVED SOLIDS	SODIUM ABSORPTION RATIO	PHOSPHORUS	POTASSIUM	BICARBONATE	CHLORIDE	BORON
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 150.1	EPA 300.0	EPA 300.0	EPA 120.1	EST. FROM COND ppm	(SAR) CALCULATION	EPA 200.7	EPA 200.7	SM 2320 B	EPA 300.0	EPA 200.7
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	mmhos/cm			ppm	ppm	ppm	ppm	ppm
LEVEL FOUND	154	10.9	2.94	8.18	0.3	18	0.696	452	10.6	0.68	2.16	237	80	0.18
CRITICAL LEVEL	120	150	80	5.5/9	40	336	2	1300	2.5	0.7	30	400	200	0.8

GRAPHIC



ADDITIONAL ELEMENTS

ELEMENT	Iron (total)	Manganese (total)	Copper (total)	Zinc (total)	Carbonate as CaCO3		
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	SM 2320 B-(1997)		
UNITS	ppm	ppm	ppm	ppm	ppm		
LEVEL FOUND	0.13	0.010	< 0.01	0.02	3.4		

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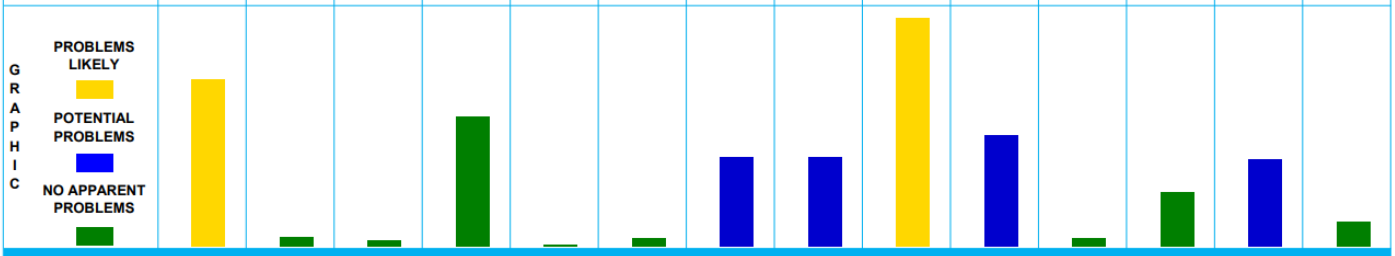
1544 SAWDUST RD #505
THE WOODLANDS TX 77380

Irrigation Suitability
For: (19291) MICROBES BIOSCIENCES
Irrigation Water Analysis
16062022

Irrigation Suitability Results for Treated Tap

ELEMENT	SODIUM	CALCIUM	MAGNESIUM	pH	NITRATE NITROGEN	SULFATE	CONDUC-TIVITY	TOTAL DISSOLVED SOLIDS	SODIUM ABSORPTION RATIO	PHOSPHORUS	POTASSIUM	BICARBONATE	CHLORIDE	BORON
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 150.1	EPA 300.0	EPA 300.0	EPA 120.1	EST. FROM	(SAR)	EPA 200.7	EPA 200.7	SM 2320 B	EPA 300.0	EPA 200.7
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	mmhos/cm	COND ppm	CALCULATION	ppm	ppm	ppm	ppm	ppm
LEVEL FOUND	155	10.4	2.71	8.13	0.4	18	0.664	432	11.0	0.59	2.29	236	79	0.18
CRITICAL LEVEL	120	150	80	5.5/9	40	336	2	1300	2.5	0.7	30	400	200	0.8

GRAPHIC



ADDITIONAL ELEMENTS

ELEMENT	Iron (total)	Manganese (total)	Copper (total)	Zinc (total)	Carbonate as CaCO3		
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	SM 2320 B-(1997)		
UNITS	ppm	ppm	ppm	ppm	ppm		
LEVEL FOUND	0.08	0.007	0.03	0.04	3.0		

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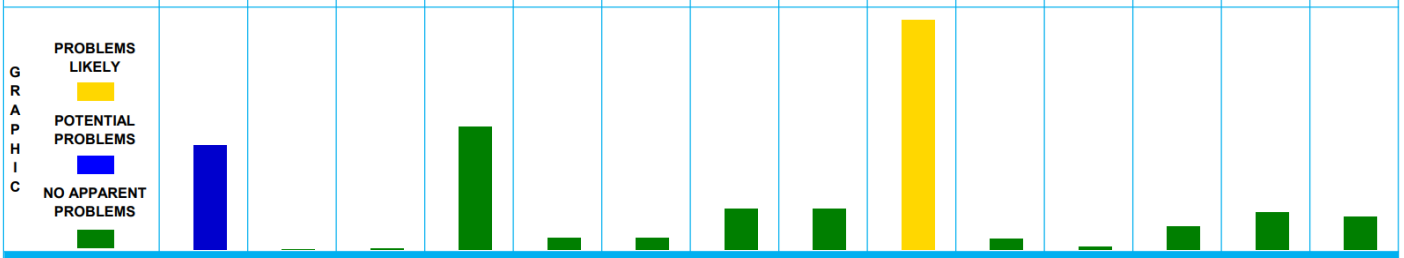
THE WOODLANDS TX 77380

Irrigation Suitability
For: (19291) MICROBES BIOSCIENCES
Irrigation Water Analysis
16062022

Irrigation Suitability Results for Untreated RO

ELEMENT	SODIUM	CALCIUM	MAGNESIUM	pH	NITRATE NITROGEN	SULFATE	CONDUC-TIVITY	TOTAL DISSOLVED SOLIDS	SODIUM ABSORPTION RATIO	PHOSPHORUS	POTASSIUM	BICARBONATE	CHLORIDE	BORON
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 150.1	EPA 300.0	EPA 300.0	EPA 120.1	EST. FROM COND ppm	(SAR) CALCULATION	EPA 200.7	EPA 200.7	SM 2320 B	EPA 300.0	EPA 200.7
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	mmhos/cm			ppm	ppm	ppm	ppm	ppm
LEVEL FOUND	73.4	0.66	0.46	7.72	n.d.	n.d.	0.298	194	16.9	0.08	0.92	102	38	0.24
CRITICAL LEVEL	120	150	80	5.5/9	40	336	2	1300	2.5	0.7	30	400	200	0.8

GRAPHIC



ADDITIONAL ELEMENTS

ELEMENT	Iron (total)	Manganese (total)	Copper (total)	Zinc (total)	Carbonate as CaCO3		
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	SM 2320 B-(1997)		
UNITS	ppm	ppm	ppm	ppm	ppm		
LEVEL FOUND	< 0.05	0.006	< 0.01	0.02	0.5		

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THE WOODLANDS TX 77380

Irrigation Suitability
For: (19291) MICROBES BIOSCIENCES
Irrigation Water Analysis
16062022 Endowater

Irrigation Suitability Results for Treated RO

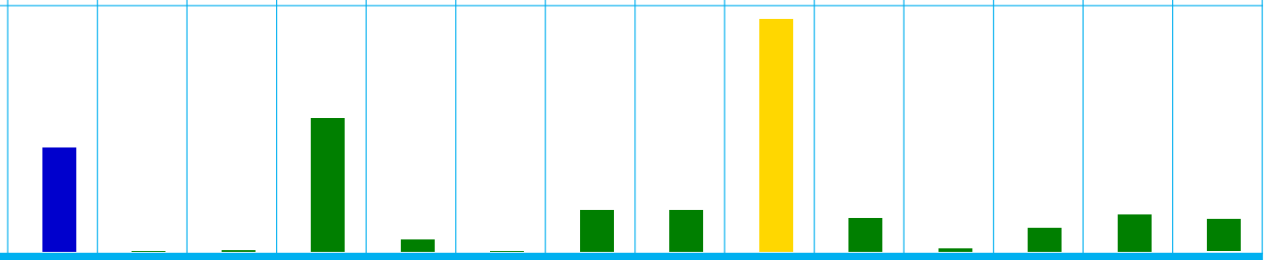
ELEMENT	SODIUM	CALCIUM	MAGNESIUM	pH	NITRATE NITROGEN	SULFATE	CONDUC-TIVITY	TOTAL DISSOLVED SOLIDS	SODIUM ABSORPTION RATIO	PHOSPHORUS	POTASSIUM	BICARBONATE	CHLORIDE	BORON
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 150.1	EPA 300.0	EPA 300.0	EPA 120.1	EST. FROM	(SAR)	EPA 200.7	EPA 200.7	SM 2320 B	EPA 300.0	EPA 200.7
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	mmhos/cm	COND ppm	CALCULATION	ppm	ppm	ppm	ppm	ppm
LEVEL FOUND	71.7	0.95	0.47	8.16	n.d.	1	0.295	192	15.0	0.24	0.89	100	37	0.23
CRITICAL LEVEL	120	150	80	5.5/9	40	336	2	1300	2.5	0.7	30	400	200	0.8

GRAPHIC

PROBLEMS LIKELY

POTENTIAL PROBLEMS

NO APPARENT PROBLEMS



ADDITIONAL ELEMENTS

ELEMENT	Iron (total)	Manganese (total)	Copper (total)	Zinc (total)	Carbonate as CaCO3		
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	SM 2320 B-(1997)		
UNITS	ppm	ppm	ppm	ppm	ppm		
LEVEL FOUND	< 0.05	< 0.005	< 0.01	0.02	1.4		

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THE WOODLANDS TX 77380

Irrigation Suitability

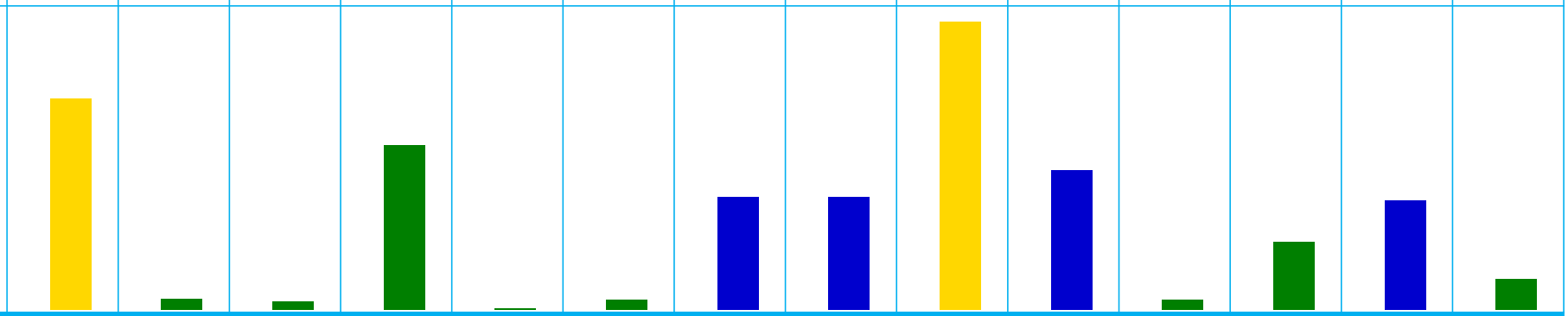
For: (19291) MICROBES BIOSCIENCES
Irrigation Water Analysis
16062022

Irrigation Suitability Results for Treated Tap

ELEMENT	SODIUM	CALCIUM	MAGNESIUM	pH	NITRATE NITROGEN	SULFATE	CONDUC-TIVITY	TOTAL DISSOLVED SOLIDS	SODIUM ABSORPTION RATIO	PHOSPHORUS	POTASSIUM	BICARBONATE	CHLORIDE	BORON
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 150.1	EPA 300.0	EPA 300.0	EPA 120.1	EST. FROM	(SAR)	EPA 200.7	EPA 200.7	SM 2320 B	EPA 300.0	EPA 200.7
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	mmhos/cm	COND ppm	CALCULATION	ppm	ppm	ppm	ppm	ppm
LEVEL FOUND	155	10.4	2.71	8.13	0.4	18	0.664	432	11.0	0.59	2.29	236	79	0.18
CRITICAL LEVEL	120	150	80	5.5/9	40	336	2	1300	2.5	0.7	30	400	200	0.8

GRAPHIC

PROBLEMS LIKELY
POTENTIAL PROBLEMS
NO APPARENT PROBLEMS



ADDITIONAL ELEMENTS

ELEMENT	Iron (total)	Manganese (total)	Copper (total)	Zinc (total)	Carbonate as CaCO3		
METHOD	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	SM 2320 B-(1997)		
UNITS	ppm	ppm	ppm	ppm	ppm		
LEVEL FOUND	0.08	0.007	0.03	0.04	3.0		

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MICROBES BIOSCIENCES
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1544 SAWDUST RD #505
THE WOODLANDS TX 77380

REPORT OF ANALYSIS

For: (19291) MICROBES BIOSCIENCES
MICROBES BIOSCIENCES
12052022

Analysis	Level Found As Received	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **SOIL K BIO** Lab Number: **70115425** Date Sampled: **2022-05-12 1400**						
Aerobic plate count	2180000	cfu/g	10	AOAC 2015.13	Jcp2-2022/05/14	jzh4-2022/05/14
Salmonella	negative	org/25g	1	RapidChek/AOAC RI 030301; AFNOR SDI 34/01-04/10	kkb0-2022/05/15	jzh4-2022/05/15
Total coliforms	n.d.	cfu/g	10	AOAC 2018.13	Jcp2-2022/05/14	jzh4-2022/05/14
Sample ID: **ENDODYNAMIC TURF** Lab Number: **70115426** Date Sampled: **2022-05-12 1400**						
Yeast	n.d.	cfu/g	10	FDA/BAM Chapt. 18	Jcp2-2022/05/18	jzh4-2022/05/18
Mold count	n.d.	cfu/g	10	FDA/BAM Chapt. 18	Jcp2-2022/05/18	jzh4-2022/05/18
Aerobic plate count	10	cfu/g	10	AOAC 2015.13	Jcp2-2022/05/14	jzh4-2022/05/14
Salmonella	negative	org/25g	1	RapidChek/AOAC RI 030301; AFNOR SDI 34/01-04/10	kkb0-2022/05/15	jzh4-2022/05/15
Total coliforms	n.d.	cfu/g	10	AOAC 2018.13	Jcp2-2022/05/14	jzh4-2022/05/14

All results are reported on an AS RECEIVED basis., n.d. = not detected , cfu = colony forming unit

For questions please contact:

Rob Ferris
Account Manager
rferris@midwestlabs.com (402)829-9871

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REPORT OF ANALYSIS
For: (19291) MICROBES BIOSCIENCES
MICROBES BIOSCIENCES
12052022

Detailed Method Description(s)

Aerobic Plate Count AOAC 2015.13

Sample analysis follows MWL MI 293 which is based on AOAC 2015.13. A representative sample is obtained and added to phosphate buffer. Aliquots of the sample are withdrawn and placed on the Petrifilm plates. After the plates are prepared, they are incubated for 24 hours. After plates are incubated, the colonies found on the plates are counted and the levels reported as Colony Forming Units (cfu).

Salmonella - Lateral Flow

Samples are analyzed following MWL MI 195 which is based on the RapidChek Select Salmonella User Guide. A representative sample is obtained and combined with a selective media and allowed to incubate. After incubation, a test strip is used for Salmonella determination. Results are reported as negative or presumptive positive.

E. coli and Total Coliform using 3M Petrifilm

Sample analysis follows MWL MI 292 which is based on AOAC 2018.13. A representative sample is obtained and added to phosphate buffer. Aliquots of the sample are withdrawn and placed on Petrifilm plates. The plates are incubated for 18 to 24 hours . After incubation, the plates are counted to determine the number of generic E. coli and total coliforms present. The color of the colony and the presence of gas differentiate a generic coliform from E. coli. The levels are reported as colony forming units (cfu).

Yeast and mold FDA/BAM Chapter 18

Sample analysis follows MWL MI 288 which is based on FDA/BAM Chapter 18. A representative sample is obtained and added to phosphate buffer. Sample aliquots are withdrawn, plated on PDA (potato dextrose agar), and incubated for five days. Air Monitoring Plates received from clients will go directly to incubation. Colonies on the plates are counted as either yeast or mold and the results are reported as Colony Forming Units (cfu).

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THE WOODLANDS TX 77380

REPORT OF ANALYSIS

For: (19291) MICROBES BIOSCIENCES
MIBROBES BIOSCIENCES
12052022

Analysis	Level Found As Received	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **SOIL K BIO** Lab Number: **70115446** Date Sampled: **2022-05-12 2:00pm**						
Nitrate-N	n.d.	%	0.01	WC PROC 32	Rpk5-2022/05/17	tat9-2022/05/17
Ammonium nitrogen (total)	n.d.	%	0.01	AOAC 920.03 (mod)	krg0-2022/05/17	tat9-2022/05/17
Sample ID: **ENDODYNAMIC TURF** Lab Number: **70115447** Date Sampled: **2022-05-12 2:00pm**						
Nitrate-N	n.d.	%	0.01	WC PROC 32	Rpk5-2022/05/17	tat9-2022/05/17
Ammonium nitrogen (total)	n.d.	%	0.01	AOAC 920.03 (mod)	krg0-2022/05/17	tat9-2022/05/17

All results are reported on an AS RECEIVED basis., n.d. = not detected

For questions please contact:

Rob Ferris
Account Manager
rferris@midwestlabs.com (402)829-9871

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.
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Midwest Laboratories®
13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770
www.midwestlabs.com

MICROBES BIOSCIENCES
MICROBES BIOSCIENCES
1544 SAWDUST RD #505
THE WOODLANDS TX 77380

REPORT OF ANALYSIS
For: (19291) MICROBES BIOSCIENCES
MIBROBES BIOSCIENCES
12052022

Detailed Method Description(s)

WC PROC 32

The extraction phase is based on ASA (American Society of Agronomy) chapter 38 and uses potassium chloride as the extracting solution. The extract is analyzed by automated cadmium reduction based on EPA 353.2

Ammonia (fertilizer/compost)

Analysis follows WC 015 which is based on AOAC 920.03. A sample is placed in a distillation tube and a standard base added to convert ammonium to ammonia. The ammonia is distilled into an acid solution. The acid solution is titrated with a standard acid.

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Midwest Laboratories, Inc.
13611 B Street Omaha, Nebraska 68144-3693 (402) 334-7770 FAX (402) 334-9121 www.midwestlabs.com

Lab # 70115445 **Report of Analysis** Report Number: 22-145-4078

Account: 19291	MICROBES BIOSCIENCES MICROBES BIOSCIENCES 1544 SAWDUST RD #505 THE WOODLANDS TX 77380	Robert Ferris Account Manager 402-829-9871
Date Sampled:	2022-05-12	
Date Received:	2022-05-13	SOIL ADMENDMENT
Sample ID:	ENDODYNAMIC TURF	12052022

		Analysis (as rec'd)	Analysis (dry weight)	Total content, lbs per ton (as rec'd)
NUTRIENTS				
Nitrogen				
Total Nitrogen	%	0.03	0.70	0.6
Organic Nitrogen	%	0.02	0.53	0.5
Ammonium Nitrogen	%	0.007	0.163	0.1
Nitrate Nitrogen	%	< 0.01	----	----
Major and Secondary Nutrients				
Phosphorus	%	< 0.05	----	----
Phosphorus as P2O5	%	< 0.1	----	----
Potassium	%	0.63	14.65	12.6
Potassium as K2O	%	0.76	17.67	15.2
Sulfur	%	0.07	1.63	1.4
Calcium	%	0.40	9.30	8.0
Magnesium	%	0.08	1.86	1.6
Sodium	%	0.090	2.093	1.8
Micronutrients				
Zinc	ppm	< 20	----	----
Iron	ppm	405	9419	0.8
Manganese	ppm	203	4721	0.4
Copper	ppm	28.5	663	----
Boron	ppm	147	3419	0.3
OTHER PROPERTIES				
Moisture	%	95.70		
Total Solids	%	4.30		86.0
Organic Matter	%	1.14	26.51	22.8
Ash	%	3.20	74.42	64.0
C:N Ratio		72 : 1		
Total Carbon	%	2.17	50.47	
Chloride	%	0.01	0.23	
pH		8.8		

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REPORT NUMBER
22-145-4078

REPORT DATE
May 25, 2022

SEND TO
19291

RECEIVED DATE
May 13, 2022

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www.midwestlabs.com

ISSUE DATE
May 25, 2022

MICROBES BIOSCIENCES
MICROBES BIOSCIENCES
1544 SAWDUST RD #505
THE WOODLANDS TX 77380

REPORT OF ANALYSIS

For: (19291) MICROBES BIOSCIENCES
SOIL ADMENDMENT
12052022

Analysis	Level Found As Received	Level Found Dry Weight	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **ENDODYNAMIC TURF** Lab Number: **70115445** Date Sampled: **2022-05-12**							
Arsenic (total)	n.d.	n.d.	mg/kg	5.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Cadmium (total)	n.d.	n.d.	mg/kg	0.50	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Cobalt (total)	n.d.	n.d.	mg/kg	1.00	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Copper (total)	26.0	605	mg/kg	1	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Lead (total)	n.d.	n.d.	mg/kg	5.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Mercury (total)	0.38	8.84	mg/kg	0.05	EPA 7471	mrs3-2022/05/25	trh1-2022/05/25
Molybdenum (total)	n.d.	n.d.	mg/kg	1.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Nickel (total)	n.d.	n.d.	mg/kg	1.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Selenium (total)	n.d.	n.d.	mg/kg	5.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25
Zinc (total)	n.d.	n.d.	mg/kg	2.0	EPA 6010	ery3-2022/05/17	trh1-2022/05/25

Sample(s) was prepared for EPA 6010 analysis by EPA 3050b.
n.d. = not detected , ppm = parts per million, ppm = mg/kg

For questions please contact:

Rob Ferris
Account Manager
rferris@midwestlabs.com (402)829-9871

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TOM BARRETT AGRICULTURAL SERVICES

2200 Tendall Ranch Road
Ukiah, California 95482

Telephone: (707) 272-2505 **Email: barrett@pacific.net**

November 1, 2017

To: Jerry

This is the final report for the harvest of the vineyard at 1288 Road D, Redwood Valley, California ("subject property"). Note/Considerations: The harvest was conducted during the fires in and around the region of the subject property. Impact will be described later in the report.

On Sunday, October 22, 2017, we arrived with the laborers to harvest the one acre parcel also known as, the subject project. Upon arrival, it was obvious that the plants were increasingly stressed. We had inspected the property several times in recent weeks, noticing that all of the leaves had turned and that the clusters were beginning to raisin. I believe that the drastic change in the health of the plants was due to the plants' atmospheric reaction to the fires in the region, which came very close to the subject property. While harvesting, we had to abandon a significant volume of clusters due to the additional degradation from the feeding of deer in the region. Please note that the net results of the harvest do not include the significant volume of clusters that were abandoned during the grooming and harvesting of the vines/grapes.

Upon the completion of the harvest, we departed with a total count of eleven (11) bins. Note: The buyer of the grapes was present during the harvest. Mr. Graziano of Graziano Family Wines was very impressed with the yield. He stated that he had never seen the vineyard look so good, especially under the extreme fire conditions. He also commented that the quality of the grapes on the vines was excellent and he was confident that the lab results would prove up a very high quality Petit Sarah harvest. He also commented that the quality was so high that he would be submitting a feature article describing this harvest and the subject grapes in his upcoming wine club newsletter. Mr. Graziano also anticipates this product to be award winning.

Additional Note: Because of the fires, we were unable to harvest the grapes on October 15, 2017, due to inaccessibility to the property. Even though harvest was delayed one week, I believe it is worth mentioning that harvest was accomplished fourteen (14) days ahead of the normal harvest from prior years. Upon arrival at the winery scales, the official tag weight was 5.58 tons, an increase of 1.36 from previous harvests, which is approximately a thirty percent (30%) increase in yield.

As mentioned in previous reports, this one acre parcel is missing 200 vines, which would equate to approximately ¾ of an acre of grapes. The average number of vines to an acre is 806 with industry standard spacing. The subject property has a total of 580 vines. Note: For the recorded number of vines on the subject property, the net result of yield was a remarkable improvement, especially under the austere conditions at the close of this season.

Furthermore, I would like the report to reflect that the sound irrigation system, which was implemented late in the season (3 months – July) obviously contributed to the increase in the final yield. As the senior ag manager for Graziano, I am keenly in tune with this property and many of the other properties. During the sound irrigations, I noticed significant enhancements with vine production. As senior ag manager, I would and will recommend this revolutionary agriculture method as a viable program for future farming. I can say that based on my 35 years of experience, I have not seen a more impressive result, especially in one year's time. I am looking forward to introducing this method to many of our other vineyards next year and in the coming years.

Regards,

Tom
TOM BARRETT

TB/td

Attachments

cc: Allen Lopez

Weighmaster Certificate

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurements Standards of the California Department of Food and Agriculture.

№ 2453

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-22-17 5:18PM 12820 lb

10-22-17 5:41PM 8440 lb

No: GFW102217 1

Grower: Drew

Variety: Petite Sirah

Ranch/Block/Clone:

# of Bins/Tanks: 4 in 4 out

Licenses: 6855484

Driver:

Delivered To: redwood valley

Delivered From: redwood valley

Deputy Signature: Molly Sker

Date: 10-22-17

Time In:

Time Out:

Farming:
Conventional: ✓
Organic Certificate:
Biodynamic Cert.:

Appellation: Mendocino

County: Mendocino

Net: 4380

Tons/Gallons: 2.18

Weighmaster Certificate

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№ 2455

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-22-17 7:10PM 12820 lb
4x95 380
10-22-17 7:23PM 8200 lb

No: GFWN22112

Grower: Drew

Variety: Petit Sirah

Ranch/Block/Clone:

# of Bins/Tanks: 4 m 4 cut

Licenses: CA85484

Driver:

Delivered To: Redwood Valley

Delivered From: Redwood Valley

Deputy Signature: Molly Stay

Date: 10 22 17

Time In:

Time Out:

Farming:
Conventional: ✓
Organic Certificate:
Biodynamic Cert.:

Appellation: Mendocino

County: Mendocino

Net: 4240

Tons/Gallons: 2.12

Weighmaster Certificate

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№ 2457

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-22-17 8:15PM 11020 lb
- 4495 380 lb
2560 lb
10-22-17 8:31PM 8080 lb

No: GSW1022173

Grower: Drew

Variety: Petite Sirah

Ranch/Block/Clone:

# of Bins/Tanks: 4 in 0 out

Licenses: CB854541

Driver:

Delivered To: Redwood Valley

Delivered From: Redwood Valley

Deputy Signature:

Date: 10/22/17

Time In:

Time Out:

Farming:

Conventional: ✓

Organic Certificate:

Biodynamic Cert.:

Net:

Tons/Gallons: 1.28

Appellation: Redwood Valley

County: Mendocino

2016 Drew Petite Sirah +14%

DATE	TONS	WT TAG	VARIETY	VINEYARD	LOT	LBS	REMARKS
10/2/16	3.27	2054	Petite Sirah	Drew	597	4540	165 gals per ton
"	1.95	8095	"	"	597	3900	
Total	5.22				Total	8440	

DATE		INVENTORY	GAL MOVED	FROM TK	FROM LOT	FROM GAL B	FROM GAL A	TO TK	TO LOT	TO GAL B	TO GAL A	CASES	NOTE	LOSS
10/2/16	Crushed	625	625	04	597	625	18	19	597	18	625		9.5%	
10/5/16	Pressed + Produced +14%	625	675	19	597	675	18	34	597	1	675		9.5%	
11/2/16	racked off 12x59	675	708	34	597	675	18	04	597	18	703	9gm	33	
2/8/16	racked off 12x59	708	—	04	597	708	708	04	597	708	708			
2/8/16	added copper	708	—	04	597	708	708	04	597	708	708			
2/8/16	inventory 12x59	708	—	04	597	708	708	04	597	708	708			
6/30/17	inventory 12x59	590	118	04	597	708	590	34	597	118	118			
6/30/17	racked off Rosselesque P.S.	625	35	34	597	35	18	04	597	590	625			
7/21/17	racked off Rosselesque P.S.	625	—	04	597	625	625	04	597	625	625			
7/21/17	removed from Rosselesque P.S.	18	625	04	597	625	18	7	4CPL	826	1451			
2/8/17	added liquid 02													
8/30/17	racked off to Bank Cellar P.S.													

Analysis Sheet

VARIETY Petite Sirah
VINEYARD Crew

NTAGE 2016

ATE	BRIX	TEMP	ETOH	TIA	PH	VA	FSO2	TSO2	R.S.	TANK#	LOT#	NOTES/%ML
11/6	25.7			.56	3.94					19	597	post crush
30/6	-.1		15.41	.71	3.95	.051				34	597	post press
7/14				.95	3.49					34	597	post dcac
6/7	-.9		14.8	.84	3.63	.043				bl	597	2nd lees
30/8						.048				bl	597	re checking
8/17	-1.3		15.01	.72	3.38	.042				bl	597	3rd lees
5/17						.063				bl	597	re checking
8/17							51			bl	597	re check
5/17				.73	3.41					bl	597	re check

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№ 2295

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-12-16 12:12:26AM 12260 lb
10-12-16 12:12:28AM 7900 lb

No:

Grower:

Date:

Net:

Variety: Petite Sirah

Time In:

Tons/Gallons: 1.95

Time Out:

Ranch/Block/Clone:

Farming:

# of Bins/Tanks: Via Court

Conventional:

Organic Certificate:

Licenses:

Biodynamic Cert.:

Driver:

Appellation:

Delivered To:

Delivered From:

County:

Deputy Signature:

Weighmaster Certificate

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№ 2294

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-11-16 10:14:48PM 12040 lb
10-11-16 10:15:39PM 8120 lb

No:

Grower:

Date:

Net:

Variety: Petite Sirah

Time In:

Tons/Gallons:

Time Out:

Ranch/Block/Clone:

Farming:

# of Bins/Tanks: Via Court

Conventional:

Organic Certificate:

Licenses:

Biodynamic Cert.:

Driver:

Appellation:

Delivered To:

Delivered From:

County:

Deputy Signature:

2014 Dew Petite Sirah +M%

DATE	TONS	WT TAG	VARIETY	VINEYARD	LOT	LBS	REMARKS:
10/2/14	1.20	1598	Petite Sirah	Dew	402	2400	Blend:

DATE		INVENTORY	GAL MOVED	FROM TK	FROM LOT	FROM GAL B	FROM GAL A	TO TK	TO LOT	TO GAL B	TO GAL A	CASES	NOTE	LOSS
10/2/14	Crushed	192	192	Dew	402	192	0	Bin	402	0	192		402	
10/22/14	Drained + pressed +M%	156	156	Bin	402	156	0	4/4	402	0	156			
11/11/14	Racked to Barrels 3x59	177	177	4/4	402	156	0	Bbl	402	0	177	3		
12/31/14	Inventory 3x59	177	–	Bbl	402	177	177	Bbl	402	177	177			
6/30/15	Inventory 3x59	177	–	Bbl	402	177	177	Bbl	402	177	177			
8/31/15	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
12/31/15	Inventory 3x59	177	–	Bbl	402	177	177	Bbl	402	177	177			
5/2/16	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
12/31/16	Inventory 3x59	177	–	Bbl	402	177	177	Bbl	402	177	177			
8/31/17	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
9/1/17	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
9/28/17	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
6/28/17	Racked liquid 2x	177	–	Bbl	402	177	177	Bbl	402	177	177			
12/31/17	Inventory 3x59	177	–	Bbl	402	177	177	Bbl	402	177	177			
2/1/18	Racked off lees	59	177	Bbl	402	177	59	2	402	60	222			1
8/1/18	Ready to bottle	0	59	Bbl	402	59	0	Bbl	402	59	0			59

Analysis Sheet

VARIETY Petite Sirah
VINEYARD Drew

NTAGE 2014

ATE	BRIX	TEMP	ETOH	TIA	PH	VA	FSO2	TSO2	R.S.	TANK#	LOT#	NOTES/%ML
9/14	24.5											field sample 66
9/14	26.5											field sample 66
10/14	[illegible]			.93	3.23					BrA	402	post crush
10/14	27			.92	3.20					BrB	402	post crush
11/14	7.8									[illegible]	402	checking ok
11/14	7.5									4m	402	post press
10/14	Ø		13.9%	.94	3.15	.025				4m	402	complete
1/14	-.3									Brb	402	re-checking
4/14	-.4									brb	402	re-checking
1/15										brb	402	40% finished ML
2/15										brb	402	60% finished ML
2/15										brb	402	70% finished / bl
3/15										brb	402	90% finished / bl
3/15										brb	402	100% / bl
3/15										brb	402	20% / bl
3/15										brb	402	30-40% multi
3/15										brb	402	60% / bl
3/15										brb	402	60% multi
2/15	-1.0		14.3%	.88	3.09	.067	18	23		brb	402	20% complete ML
3/15										brb	402	60-70% ml multi
3/15										brb	402	40% multi
5/15						.024				brb	402	re-checking - 90% ml
5/15										brb	402	40% / bl ml
5/15										brb	402	80% / bl ml
5/15										brb	402	80% / bl ml
5/15										brb	402	70% / bl ml
5/15										brb	402	70% / bl ml
5/15										brb	402	70% / bl ml
2/15							9			brb	402	pre SO2
-							36			brb	402	post SO2
10/16						.015	23			brb	402	re-checking
10/16							18			brb	402	pre SO2
1							42			brb	402	post SO2
10/16						.060				brb	402	re-checking
12/16	-1.6		14.2%	.88	3.13	.071	19			brb	402	3rd racking

VY

Weighmaster Certificate

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Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

1958
10-12-14 1:43PM: 11300 lb
10-12-14 2:00PM 8900 lb

No: SG01214S

Grower: Drew Vineyard

Variety: Petite Sirah

Ranch/Block/Clone:

# of Bins/Tanks: 3 Plastic

Licenses:

Driver: Tom Barnett

Delivered To: DSG

Delivered From: Redwood Vly

Deputy Signature: [illegible]

Date: 10-12-14

Time In:

Time Out:

Farming:
Conventional: X
Organic Certificate:
Biodynamic Cert.:

Appellation: Redwood Vly

County: Mendocino

Net:

Tons/Gallons:

1.2 Tons

2013 Drew Petite Sirah +14%

DATE	TONS	WT TAG	VARIETY	VINEYARD	LOT	LBS	REMARKS: 166 gals per Ton
10/8/13	1.61	1810	Petite Sirah	Drew	306	3220	Blend
10/8/13	1.1475	1813	Petite Sirah	Drew	306	2295	
10/8/13	1.4975	1816	Petite Sirah	Drew	306	2995	
Total	4.255				Total	8510	

DATE		INVENTORY	GAL MOVED	FROM TK	FROM LOT	FROM GAL B	FROM GAL A	TO TK	TO LOT	TO GAL B	TO GAL A	CASES	NOTE	LOSS
10/30/13	Crushed	681	681	Bins	306	681	0	1	306	0	681		9%	
11/1/13	Added Concentrate	720	39	Conc	Conc	39	0	1	306	681	720			
11/8/13	Pressed and Produced +14%	708	708	1	306	720	0	5	306	0	708			
11/15/13	Racked to Barrels 12x59	708	708	5	306	708	0	B1	306	0	708			
6/3/14	Inventory 12x59	708	–	B1	306	708	708	B1	306	708	708			
6/20/14	Added Liquid	708	–	B1	306	708	708	B1	306	708	708			
6/24/14	Inventory 12x59	708	–	B1	306	708	708	B1	306	708	708			
11/18/14	Added Liquid	708	–	B1	306	708	708	B1	306	708	708			
11/18/14	Wand to top	649	59	B1	306	708	649	B1	306	708	649			59
2/1/15	Wand to top	590	59	B1	306	649	590	B1	306	649	590			59
3/31/15	Inventory 10x59	590	–	B1	306	590	590	B1	306	590	590			
9/15/15	Added Liquid	590	–	B1	306	590	590	B1	306	590	590			
6/30/15	Inventory 10x59	590	–	B1	306	590	590	B1	306	590	590			
7/30/15	Added Liquid	590	–	B1	306	590	590	B1	306	590	590			
11/05	Added Liquid	590	–	B1	306	590	590	B1	306	590	590			
12/3/15	Inventory 10x59	590	–	B1	306	590	590	B1	306	590	590			
12/3/15	Racked off lees to Barrel from Barrel #1	495	158	B1	306	590	495	B1	AR	212	284			9
↓	↓ ↓ +14%	413	80	B1	306	495	413	B1	AR	96	116			2
3/31/16	Added Liquid	413	–	B1	306	413	413	B1	306	413	413			
4/6/16	Wand to top	354	59	B1	306	413	354	B1	306	413	354			59
6/30/16	Inventory 6x59	354	–	B1	306	354	354	B1	306	354	354			
7/7/16	Racked off lees to Barrel from Barrel #2	191	160	B1	306	354	191	9	AR	247	307			3
↓	↓ produced +14%	177	14	B1	306	191	177	B1	AR	56	68			2
7/25/16	Added Liquid	177	–	B1	306	177	177	B1	306	177	177			
9/7/16	Produced to +14%	177	–	B1	306	177	177	B1	306	177	177			
10/31/16	Inventory 3x59 + Jar	177	–	B1	306	177	177	B1	306	177	177			
3/30/17	Added Liquid	177	–	B1	306	177	177	B1	306	177	177			
5/11/17	Racked off lees to Barrel from Barrel #3	88	89	B1	306	177	88	9	425	503	587			5
↓	↓ ↓	0	89	B1	306	88	0	10	425	503	587			5

ANALYSIS RECORD

VARIETY Petite Sirah
VINEYARD [illegible]

VINTAGE 2013

DATE	BRIX	TEMP	ETOH	TIA	PH	VA	FSO2	TSO2	R.S.	TANK#	LOT#	NOTES
10/5/13	21.1											field sample
11/1/13	[illegible]			.54	3.40					1	306	post crush
11/11/13	-.8		13.41	.80	3.46	.035	18			5	306	post press
8/5/14	-.8					.035				Bal	306	re checking
3/25/14						.035				Bal	306	re checking
5/7/14	-1.0		14.0%	.74	3.41	.043				Bal	306	2x1 lots
6/20/14							40			Bal	306	post sw
11/11/14						.062				Bal	306	re checking
11/18/14							34			Bal	306	post sw
2/9/15							46			Bal	306	post sw
4/1/15						.071	35	79		Bal	306	re checking
5/26/15						.070	35			Bal	306	re checking
7/2/15						.070	39			Bal	306	re checking
7/30/15							35			Bal	306	pre sw
7/31/15							45			Bal	306	post sw
11/10/15							37			Bal	306	pre sw
12/2/15							39			Bal	306	post sw
3/10/16						.074	32			Bal	306	re checking
3/31/16						.070	54			Bal	306	post sw
7/25/16							31			Bal	306	pre sw
↓							38			Bal	306	post sw
9/2/16	-1.4		15.21	.65	3.46	.086	22			Bal	306	3rd racking
10/2/16							46			Bal	306	post sw
2/6/17						.093				Bal	306	re checking v.a
9/10/17							32			Bal	306	pre sw
↓							51			Bal	306	post sw

Weighmaster Certificate

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurements Standards of the California Department of Food and Agriculture.

1812

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-30-13 11400 gross
Bin weight 395 285
10-30-13 6120 lb
GG

No. SG01092
Grower: Drew
Variety: Petite Sirah
Ranch/Block/Clone:
# of Containers: 3 plastic
Licensee: 6X84199
Driver: [illegible]
Delivered To: Redwood Valley DSG
Delivered From: Redwood Valley
Deputy Signature: Molly Stop

Date: 10-30-13
Time In:
Time Out:
Farming:
Conventional: ✓
Organic Certificate:
Biodynamic Cert.:
Appellation: Redwood Valley
GG
County: Mendocino

Net: 2995
Total Gallons: 4475
GG

Weighmaster Certificate

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurements Standards of the California Department of Food and Agriculture.

1810

Domaine Saint Gregory
1170 Bel Arbres Road
Redwood Valley, CA 95470
Phone (707) 485-9463
Fax (707) 485-9742

10-30-13 11620 LB
10-30-13 8400 LB

No. GFW1030131
Grower: Drew
Variety: Petite Sirah
Ranch/Block/Clone:
# of Containers: 3 Plastic
Licensee: 6X84199
Driver: [illegible]
Delivered To: DSG
Delivered From: Redwood Valley
Deputy Signature: [illegible]

Date: 10-30-13
Time In:
Time Out:
Farming:
Conventional: X
Organic Certificate:
Biodynamic Cert.:
Appellation: Redwood Vly
County: Mendocino

Net: 3220
Total Gallons: 1.61

GreenLIFE Liquid Endo trial. (15/11/2020)

The parcel arrived at Nairobi from USA on 9th October 2020.

There were some hitches at Kenya Customs regarding clearance, having been sent through DHL Express who normally handle very small sized parcel.

Until a system gets in place, prior to sending the next parcel, a smooth clearance shall happen if it's sent through the industrial arm of the DHL headed by Mohsin chaudhry. It's therefore advisable to alert Anthony, Mohsin or Khan before a parcel is sent in order to lay a smooth logistics end to end with the concerned parties.

The parcel was received at the farm on 22nd October 2020.

Field trial was started from 23rd October.

There are two coffee cultivars at the farm. (Ruiru 11 variety and SL28)

Two portions of 120 trees each, from the two fields was identified for the trial.

Each portion was further sub-divided into six parts of 20 trees each.

Each portion got following treatment in Common: digging basins around the trees, pruning and weeding.

It is currently wet in Kenya, but whenever an activity such as irrigation or crop protection shall be carried out, an equal and even treatment shall be applied to all the portions without due advantage to either.

Each block of 20 trees except the controls, was treated with a pint (approx 0.5L) of the concentrate mixed in 20L of water.

A litre of the mixed solution was applied per tree.

The treatment is replicated on the Ruiru 11 and SL28 portions as follows:

1. First block was treated with the mixed solution of ENDO only, without other additions such as manure. This was meant to find out the observable effects of the product on soil mineralization when used alone.
2. The second block was treated with fertilizer only (NPK 23:23:23) at the rate of 150g per tree. There was no additional treatment except for the basin dug around the tree and this was done across all the blocks regardless of the treatment done. (Control)
3. The third block was treated with well matured manure and nothing more. The quantity used per tree was a 20L container measure of dry manure. (Control)

4. Fourth block was treated with a combination of Liquid Endo plus 150g of 23:23:23 (N.P.K) fertilizer per tree.
5. The fifth block was treated with a combination of Liquid Endo plus manure at the rate of 20L container per tree.
6. Sixth block is a combination of Liquid Endo + Fertilizer (150g/tree) + Manure (20L container/tree)

The Problem Background.

One of the biggest challenges for coffee growers and very relevant for specialty coffee producers is the profitability of their business.
The profitability of the coffee business is directly related to sustainable aspects of the production system and of the coffee growers and their families.

The profitability of a coffee production system depends on four variables:
i) the coffee price,
ii) the productivity,
iii) the quality and
iv) the production costs.

Of those four variables, only productivity and quality can directly be influenced by the coffee grower.

A total of five factors have a direct impact on **quality**:
i) Genotype
ii) Environment, such as climate and soil
iii) Management, including crop nutrition practices, chemical controls, agroforestry systems or shade management,
iv) harvest and
v) post-harvest measures including fermentation, washing, drying, storage, transport, roasting and preparation of the beverage.

Cup quality variables that positively influence the price are described as: fruity, sweetness, floral, creamy, body, acid, species and balance.
The objective of this trial is to show/confirm, based on trial results, how the nutrition of the coffee crop in combination with a conditioner (Liquid Endo) can improve the "material attributes" for quality.

You shall get updated in case any other type of crop is 'trialed'. We prioritized coffee to ensure the product is adequate for the priority trial.

Best regards,
Anthony.mwenda@gmail.com (15/11/2020)

KENYA VINEYARDS LTD

P. O. Box 14187-00800
NAIROBI

Tel.: 020 - 4447458/9342

5 September, 2022

Mr. Allen Lopez
CEO, Endonynamic
25025 25025 I 45 N
77380 Woodland
Red River - Texas - USA

Dear Allen,

Please let me first express my appreciation for your efforts and patience in getting us where we are today.

Next, I would like to apologize because things have taken longer than expected and you are still waiting on things from us. However, rather than going over the delays, I would like to talk about what has been done, what is in motion and what we foresee ahead.

The second pilot has been completed and I saw the report that was sent to you. It is my regret that it was not adequate and does not reflect what was observed during the pilot, nor contain information in a format that is useful to you. I am convinced that our initial approach was not the right one: it should have been more scientific.

In my view, for this business to pick up here, we need a better scientific analysis from a professional in a respectable institution. A report from my manager will not suffice to convince the public and the government of the efficacy of the product, with proper controls and comparisons.

With this in mind, Mr. Wasim and I met the Head of the Horticultural Department of Jomo Kenyatta University of Agriculture and Technology - **Professor Njue** - who has conducted a similar study for other organizations. He has agreed to undertake the study and analysis for the efficacy of the project.

The professor, will in a few days' time, give us his working plan and what he requires from us. This will include the cost of this initial analysis, which, we shall discuss between yourself, Mr. Wasim and I, as to how it will be financed.

As you know, I have been active in our County Government. I have already passed a law in Murang'a County towards banning chemical fertilizers and only allowing organic products into our County. This is a step that is already in place leading towards all of Kenya going organic. There is already a citizen movement and now the legislative movement is complete.

The above is also why having an independent study done with the Professor is vital. I need to show that an independent party studied the product, documented its superiority over other things on the market and demonstrated that the chemical fertilizers are unnecessary.

Again, my apologies for the information you received on the second pilot. Nonetheless, as you can see from above, we have already put things into place to rectify the same and are moving things forward. Time may have been wasted but this was part of the learning process and the lessons obtained will assist in moving forward.

Best regards,

L. N KARIUKI

Soil Application of Liquid Endo, on Beans and Coffee Trial at Kenya Vineyard Limited (Kabati-Thika)

Liquid Endo is a bio-fertilizer consisting of a mixed culture of potentially beneficial microorganisms. In this Trial, we investigated the effects of Endo treatment on coffee trees as well as French beans grown indoors and open field.
Liquid Endo can be considered a promising and environmentally friendly technology for sustainable agriculture, and thus more studies are needed to extend its applications in other areas.

Trial Method.

Coffee.
One set of trial block was carried out on young bearing Ruiru 11 trees and the other on old SL28 Coffee trees.
Each block of 20 trees except the controls, was treated with a pint (approx 0.5L) of the concentrate mixed in 20L of water.
A litre of the mixed solution was applied per tree.
The treatment is replicated on the Ruiru 11 and SL28 portions as follows:

First block was treated with the mixed solution of ENDO only, without other additions such as manure. This was meant to find out the observable effects of the product on soil mineralization when used alone.

The second block was treated with fertilizer only (NPK 23:23:23) at the rate of 150g per tree. There was no additional treatment except for the basin dug around the tree and this was done across all the blocks regardless of the treatment done. (Control)

The third block was treated with well matured manure and nothing more. The quantity used per tree was a 20L container measure of dry manure. (Control)

Fourth block was treated with a combination of Liquid Endo plus 150g of 23:23:23 (N.P.K) fertilizer per tree.

The fifth block was treated with a combination of Liquid Endo plus manure at the rate of 20L container per tree.

Sixth block is a combination of Liquid Endo + Fertilizer (150g/tree) + Manure (20L container/tree)

Beans.
The trial was replicated into two, where one was done in the open field, whereas the other was done in the green-house (Tunnel) as follows;

First bed (A bed is 1M wide) was treated with the mixed solution of ENDO only, without other additions such as manure. This was meant to find out the observable effects of the product on soil mineralization when used alone

The second bed was treated with fertilizer only (NPK 23:23:23) at the rate of 30g per Mitre. (Control)

The third bed was treated with well matured manure and nothing more. The quantity used per 3 M was a 20L container measure of dry manure. (Control)

Fourth bed was treated with a combination of Liquid Endo plus 30g of 23:23:23 (N.P.K) fertilizer per M.

The fifth bed was treated with a combination of Liquid Endo plus manure at the rate of 20L container per 3M.

Sixth bed was a combination of Liquid Endo + Fertilizer (30g/M) + Manure (20L container/3M)

Observations.

One common observation was that in terms of plant vigour, the treatments with Endo+Manure + Fertilizer was top.
Treated Beans had a huge root mass whereas coffee trees had lots of new root hairs.
The old SL28 coffee trees has developed lots of new shoots and deeper green colour.
On the other hand, Ruiru 11 has developed more healthy leafs.
The soil structure is thriving with signs of micro-organisms activity, more porous 'softer' and more receptive to other forms of life such as earthworms.
Treated beans have high flower set, broad leaves as well as more healthy in appearance.

Finally, we can speculate on the possible mechanisms involved in the observed effects, focusing on two phenomena relevant for plant growth and productivity:
Maintenance of photochemical efficiency for several extra weeks (with respect to controls) indicates that Endo-treated plants experienced less stress, with fewer impacts on primary metabolism, and thus were effectively able to grow for longer.
As treatments represented modification of edaphic conditions (soil type and soil microbial community) it is reasonable to speculate a mechanism whereby Endo addition improved the availability of mineral resources for plant growth. Whatever the precise mechanism(s), further studies are needed in order to ascertain the real efficacy of Endo under open field Conditions, where plants are exposed to multiple co-occurring biotic and abiotic stresses, by assessing the root length and morphology, the levels of ROS and scavengers, stress-related secondary metabolites, and phyto-hormones.

Other observations.

The coffee berries will take longer time to assess on quality attributes owing to the long growth cycle of coffee.

The bean pods were harvested and weight was registered, but it should be noted that the harvesting was not consistent due to other factors outside of this scope. Thus as the yield

record is concerned, it is not enough to draw conclusions. Having stated so, it is important to display the yields on table below.

	Greenhouse (Kgs)	Open Field (Kgs)
Endo Only	34.7	18.8
Fertilizer only	46.2	20.58
Manure Only	29.4	17.22
Endo + Fert	32.25	21.85
Endo + Manure	39.4	18.7
Endo + Fert + Manure	32.25	18.25

Greenhouse yield is more within same period but in terms of healthy, resilient and sustainable natural farming, Endo is an indispensable factor.

Competitiveness. (Endo Vs. Local Brands.)

There is only one outstanding contender in Kenya who keeps his product a mystery in terms of contents. His product is simply referred to as EM1.
EM Technologies Kenya Ltd, is a company with origins in Japan, but has a production facility in Kenya based at Embu. There is a splinter company which also sells under the brand name OSP. (Organic solution Primary) They normally sell @ 300/= per Litre.
Their product is marketed to cover multiple areas such as Agriculture, Animal Husbandry, Aquaculture, water treatment, waste treatment and construction.

Facebook page: https://www.facebook.com/EM-Technologies-Limited-Kenya-1627631054190802

Web site: https://www.emrojapan.com/

Conclusion.
Having used both the local product as well as Endo, there is no doubt as to the Endo's Superiority. Main Challenge may be on pricing, but again this may be compensated by the value propositions. Local formulation would give a big competitive edge by eliminating logistics cost.

Best regards,
Compiled by; Anthony Mwenda.

Supp #: QAGA

Piercing the Veil

Atmosphere in Quantum Agricultural Systems
Supplemental Data

Teachings of the course has covered essentials to develop the awareness of 'quantum-connectedness' of all physical systems, mental system patterning parameters and *quanta.* Thus, quantum agricultural engineers when engineering dynamic individualized quantum agricultural systems (local system employing non-localized mechanisms) need to develop components to actually put **equal emphasis** on optimizing energetics of soil, water and Atmosphere. This approach is distinguishably different from most schools of modern agriculture, that is so narrowly focused on building soil; even though plants do the greater part of their growing into the atmosphere.

What About the Atmospheric In-Put Factor in Agriculture Production?

This supplement will be covering the above question which is avoided or not addressed in most modern agriculture teachings. Most people in general today, have great worry and stress over the condition of our atmosphere and are left feeling defensive and helpless over its fouled state. Today, our future quantum agriculture engineers using New Science have methods of imparting localized dynamic organizational patterning (via non-localized vacuum engineering) for quantum energies to move into and throughout the atmosphere. This can be helpful to improve and optimize the atmosphere not only for plant growth but for the benefit of all life of Earth.

For instance, if there was no organizational pattern matrix for cloud formation, no organization of moisture in the atmosphere (nor microbes to *work* the fluids) we would not have life on this Earth. Based upon nano particle morphology and geometric structure of the base-material, specialized nano particles such as Si, help give rise to clouds and rain. This is produced from the organizational pattern optimization which established the geometric matrix of the base material used (Si, peripheral geometric matrix is hexagonal; internal geometric matrix is star-tetrahedral) resulting in optimized lateral and vertical atmospheric moisture distribution mechanism.

Much of this activity is assisted by the physical-work of Pseudomonas cultures living on fast rising vapor streams high in the atmosphere where this lateral distribution patterning is at its height of activity. This culture follows the pathways of the organizational patterning broadcasted. This organizational pattern as well helps energize and strengthen the microbe culture to optimize their work out-put assisting in organizing the atmosphere.

Programming of the nano particles (installing bi-directional time-polarized waveform patterning at specific harmonic ranges) is essential in establishing an even resonant field broadcast through the individual farm or growing location where the particles are to be

lightly dusted. Once the nano particles receive specialized data programming their potential is increased. These nano particles have a heighted performance and ability to resonate a constant, clear broadcast pattern as a resonant induction field between them. This informational or organizational matrix pattern can be spread out, amplified and transmitted like a radio broadcast into the atmosphere with specialized antenna/transmitters (Quantum Agriculture Amplifiers) broadcasting these patterns; that among other positive effects improve organization of the atmosphere.

Plants live both in soil and atmosphere. The activity and processes a plant conducts in atmosphere are different yet complimentary to the soil processes, as outlined:

Plant Processes in:	*Atmosphere*	*Soil*
	Photosynthesis	Digestion
	Most Actual Growth	Nitrogen Fixation
	Blossoming	
	Fruiting	
	Ripening	

Consider the organizational pattern to support plant activity in the atmosphere as compared to patterning required of soil.

In the atmosphere photosynthesis, (awakening and controlling cellular metabolic processes, including digestive processes occurring beneath the surface in the soil) most actual growth and development (mitosis, cell division and development), Blossoming, flowering and fruiting (the product of the other processes) indicating the importance and essential nature of addressing the atmospheric in-put factor in agricultural production.

In the soil there is established patterning and energetics for plant digestion (provision of moisture and minerals which are taken up via enzymatic exchange with microbes in the soil) and nitrogen fixation (conducted in cooperation with nitrogen fixing microbes as symbiotic partner in the work). Nutritive patterns of the soil revolve around lime, whereas that of atmosphere revolve around silica (Si). The natural structural geometry of Si provides excellent patterning or the atmospheres optimal organization structuring.

Essential organizational patterning to incorporate within quantum agricultural systems includes silica for atmosphere and lime for broadcasting a transmission in the soil. There is another key organizational pattern essential in engineering successful quantum systems. This missing pattern serves water and both fertilizing and fecund energies in a similar way that quantum membranes or dimension dividers serve quantum energies entering, expressing and leaving the physical 3-D plane. This **in-between pattern** (similar to quantum membranes in structure and service) links and provides a living connection *between the outer and inner* is the organizational patterns inherent in that of clay.

Clay also affects the ebb and flow of sap between the soil and atmosphere. Clay serves this micro-ecosystem as a quantum membrane between the two, allowing a certain flow, exchange or intercourse of energy and return pathway. This quantum energetic exchange is produced out of a bi-directional organizational patterning of QVS as organically structured in clay. The stable membrane patterning inherent in clay modifies the symmetry of QVS to optimize this exchange between the outer-and-inner. These vacuum modifications generate a type of quantum wake which pulls the physical that follows.

The geometries of silica informational transmissions provide the basic organizational lattice structure of pathways from which a more re-vitalized and life-sustaining capacity of atmosphere can be built. Broadcasting quantum data of optimal organizational information within organic patterning, can heal our atmosphere, soil and plant. Organization is after all, the basis of life- organ, organic, organize, organism.

One primary objective in the engineering of quantum agriculture systems is, in large part to get the dynamic interplay going on between what is occurring above the ground with that occurring below.

Piercing the Veil

Healthy Plant Metabolism Elements
Supplemental Data

During the day with photosynthesis, as plants draw in energies and carbon (basis of life) they build-up sugars and carbohydrates in their sap, allowing a portion of this to drain down to their root-tips at night and exude into the soil around tender young root growth. By so doing the plant gives back. This feeds nutrition to the soil and its inhabitants, via this nutrient dense honey-like syrup. The soil then uses this nutrient dense, rich, abundant energy source to release minerals like silica, lime and phosphorus along with various trace mineral co-factors while providing the *important mechanisms for nitrogen fixation into soil as this supplement will cover.*

Fertilizers and Fertilization

Engineers of quantum agricultural systems should be aware misunderstandings regarding fertilization of soil relating to cellular metabolic processes of plants. Firstly, it is wise to bear in mind that our planet, Earth, is the feminine endowed with fecund energies that require fertilization constantly to support all its constant life giving and sustaining process. Naturally, our creation system is patterned to amongst other things, automatically meet any need including the constant need of fertilization required by our Earth. Looking within our immediate planetary system we find the organic, original and only fertilizer of our Mother Earth, that is our Sun/Star.

The structured pattern and cycle of the Sun's activity generates, emits and transfers (within its plasmatic-corona discharge) all of the fertilization energies (information) Mother Earth and her inhabitants including humans require. These energies fertilize and sustain all planetary bodies within its governed system. It is the information carried within the full spectrum of sun rays that deliver the data in the correct format (pattern, rhythm, cycle and spin) to fertilize Earth and maintain the health of its inhabitants. Unfortunately, over the recent past human activity has obstructed and is interfering with the essential spectrum transmission of sun rays from reaching Earth.

The below illustrated obstruction happened fast, in just forty years our planet has been mutated as the actual photo images taken from space, public domain NASA demonstrate:

photo of Earth NASA taken 1976 photo of Earth NASA taken 2015

Space-trash is the physical by-product of a governmental addiction to hyper-invasive surveillance technologies and monitoring systems as well as systems manipulating weather, climate and life beneath them; as unfortunately still utilized today. According to the U.S. Dept. of Defense, Space-Trash obstructs over 60% of the natural rays that normally contact Earths surface. This interference and blockade is inhibiting the production of Vitamin D-3 in human and other mammal species suppressing auto-immune system capacity in the population as well and depriving our Earth of the proper fertilization energies/information to sustain living processes occurring in soil.

NITROGEN WARNING: *Adding Nitrogen to soil, kills soil and retards plants*

Modern agriculture is starting to recognize the issues and eco-havoc of spreading over 500,000,000 tons nitrogen, high nitrogen salt based or chemical fertilizers annually. Harmful augmentation of soil compositions is a wide spread problem. Most commercial fertilizers are high in nitrogen and only reintroduce 3 mineral elements into the soil.

Soil requires a minimum of 54 minerals and trace elements to maintain its living system. Plants use and take from this soil spectrum annually in the production. Reintroducing only 3 isolated minerals into the soil produces a long term compositional imbalance. The imbalance worsens and increasing in severity season after season. This compositional augmentation destroys the natural balance to the soil ecosystem and kills off most of the beneficial flora. The remaining flora must mutate in-order to survive in this augmented and harmful environment, much converting to funguses and strains literally at the root of the blight affecting coconut, mango, avocado, citrus and other blights globally; which are at a high, even with use of the toxic chemical based agents.

Modern Organic “fertilization” products and practices, used in most organic production also contributes to the deadening of soil and harmful augmentation of flora due to environmental adversities produced. For instance, manure, fish emulsion, guano, chicken poop and other animal based sources of highly concentrated nitrogen are a common annual organic in-put. Organics fails to recognize and honor the basic phylum. Organic growers don’t not take into consideration the phylum division nor order as followed by nature. Basically, ignoring the fact that the mineral kingdom provides all the buildingblocks of biological organisms starting with microbes, then plants and then animals which either eat the plants or eat animals which have consumed the plants to get the minerals. It is absolutely un-natural for plants to eat animals, a phylum above them as well as products of animals such as mentioned above. Naturally plants are designed and derive their minerals from mineral phylum not from consuming a product from the animal kingdom. Thus, placing animal remains, excrement or products directly on or turning into soil does not provide mineral nutrients for plants use.

The application of such animal products into soil does cause an augmentation of soil chemistry, composition and environment triggering an excessive and sustained proliferation of harmful fungus in the soil. The fungal population increase is sustained as is required to break-down the deaden, decaying animal material and transform it back into simple mineral elements. Thus, if one desired to perk-up their soil using animal based products complete composting of the animal material is required in a composting heap, container or mound away from the growing area. Once the animal based product is totally composted the fresh compost is worthy of use in restoring soil.

NITROGEN DAMAGE TO PLANT INTEGRITY TRIGGERING ATROPHY

The processes involved in nitrogen fixation requires intensive use and depletion of vital energies in the soil. It roughly requires, 10 units of sugar to fix just 1 unit of amino acid. Moreover, the microbes don’t just gift the nitrogen (in the form of amino acids) that they fix to plants. Also, many organisms such at protozoa and other soil based microorganisms eat the beneficial mineral releasing and nitrogen fixing micro-organism floras. This action produces excretions of a constant release into the soil of a milk-like nourishment, rich in amino acids and mineral chelates, “digested” for plant assimilation and use. This milk-like nourishment contains the base for chlorophyll assembly in leaf and for duplication of DNA together with protein synthesis and chemistry required for plant growth.

It is important that the soluble salt (including nitrogen) levels in the soil are kept as low as possible while the insoluble but available nutrients stored are abundant. This objective is important to maintain while engineering the quantum system. Because, when the plants take up amino acids instead of nitrogen salts; efficiency factor is multiplied exponentially. Further, it serves well to bear in mind that nitrogen and other soluble salts are toxic to the

nitrogen-fixing and mineral releasing micro flora of soil. Nitrogen and other soluble salts in the soil amount to their own waste, in which case they shut-down and fail to function as is reasonably with any organism having to live in its own waste.

PLANT METABOLISM:

Required Bio-Chemical Sequencing of Nutrition in Plants

In considering the rebuilding up of soil it is essential for the understanding of plant metabolism, nutrient up-take sequence, order and functional use of same. The following is a list of the required nutritional element up-take sequence, relation and order essential in plant metabolism, health, growth and production:

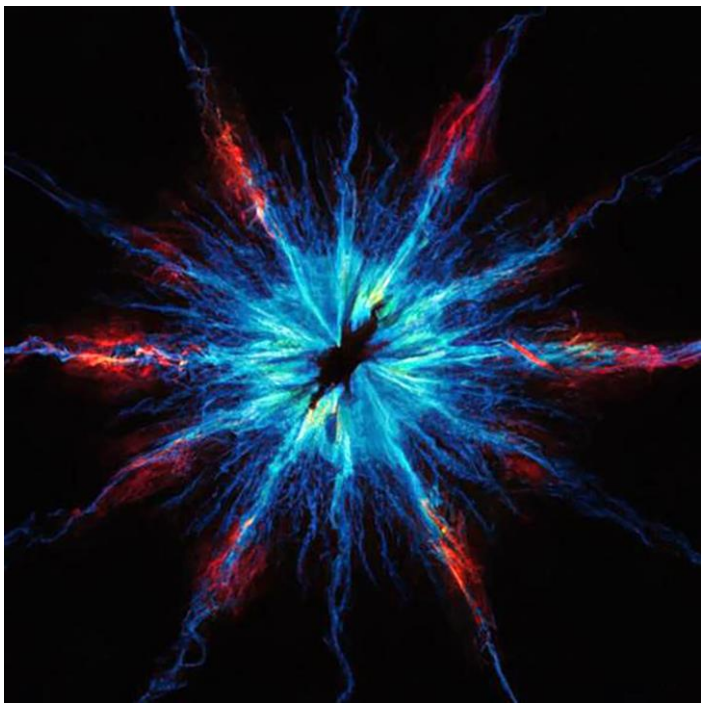
Plant metabolic biochemical sequences begin with-

1. B/Boron/ which activates
2. Si/Silicon/ which carries all other nutrients

Starting with

3. Ca/Calcium/ which binds
4. N/nitrogen/ to form amino-acids, DNA, cell-division. Amino-acids form proteins such as chlorophyll and tag trace elements, especially
5. Mg/Magnesium/ which transfers energy via
6. P/Phosphorus/ to
7. C/Carbon/ to form sugars which go where
8. K/Potassium/ carries them, as the plant requires.

This sequencing of essential 8 elements identified above is optimum in plant metabolism and required in maintaining healthy plants and growth. The elements of H and O are not listed as are not exclusive source from soil as can be up-taken in sufficient quantities from atmosphere alone, especially with proper energetics applied.



Our Endodynamic AG3 Advanced Agriculture System Pierces the Veil of traditional agriculture & Agronomy teachings.

IT'S TRULY OUT OF THIS WORLD!