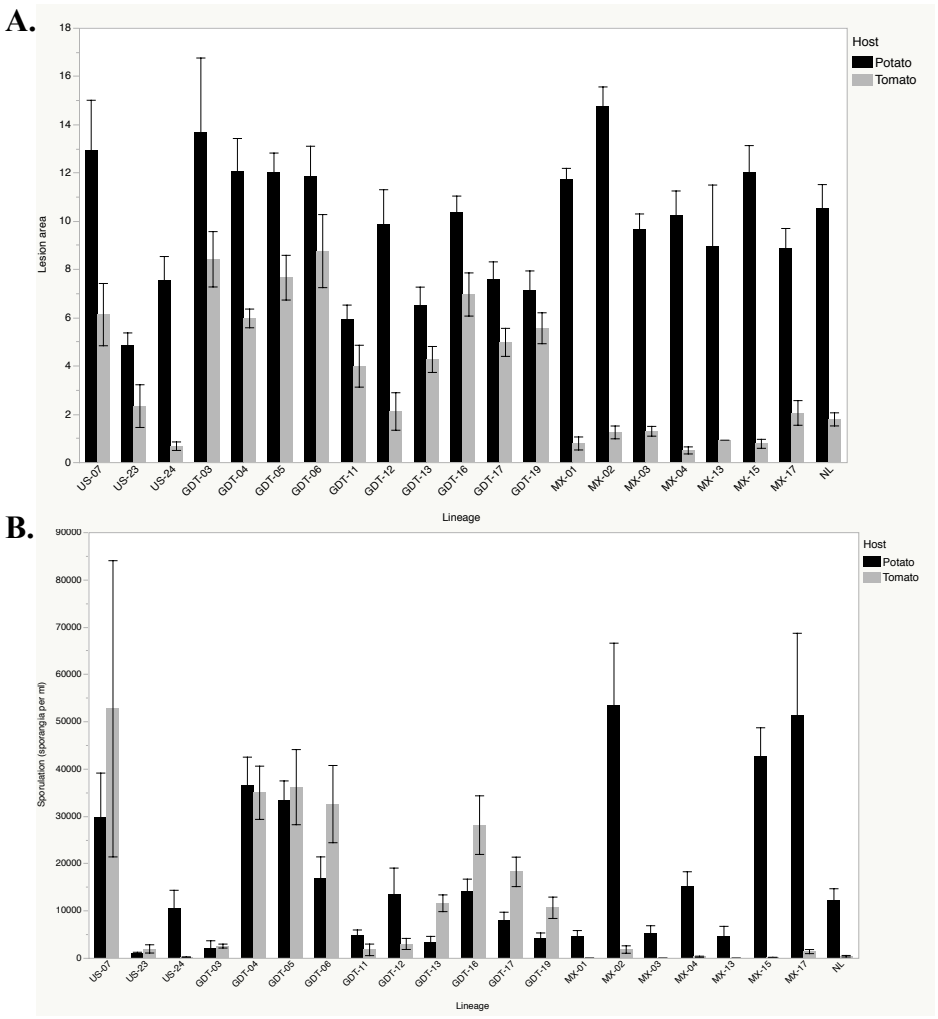
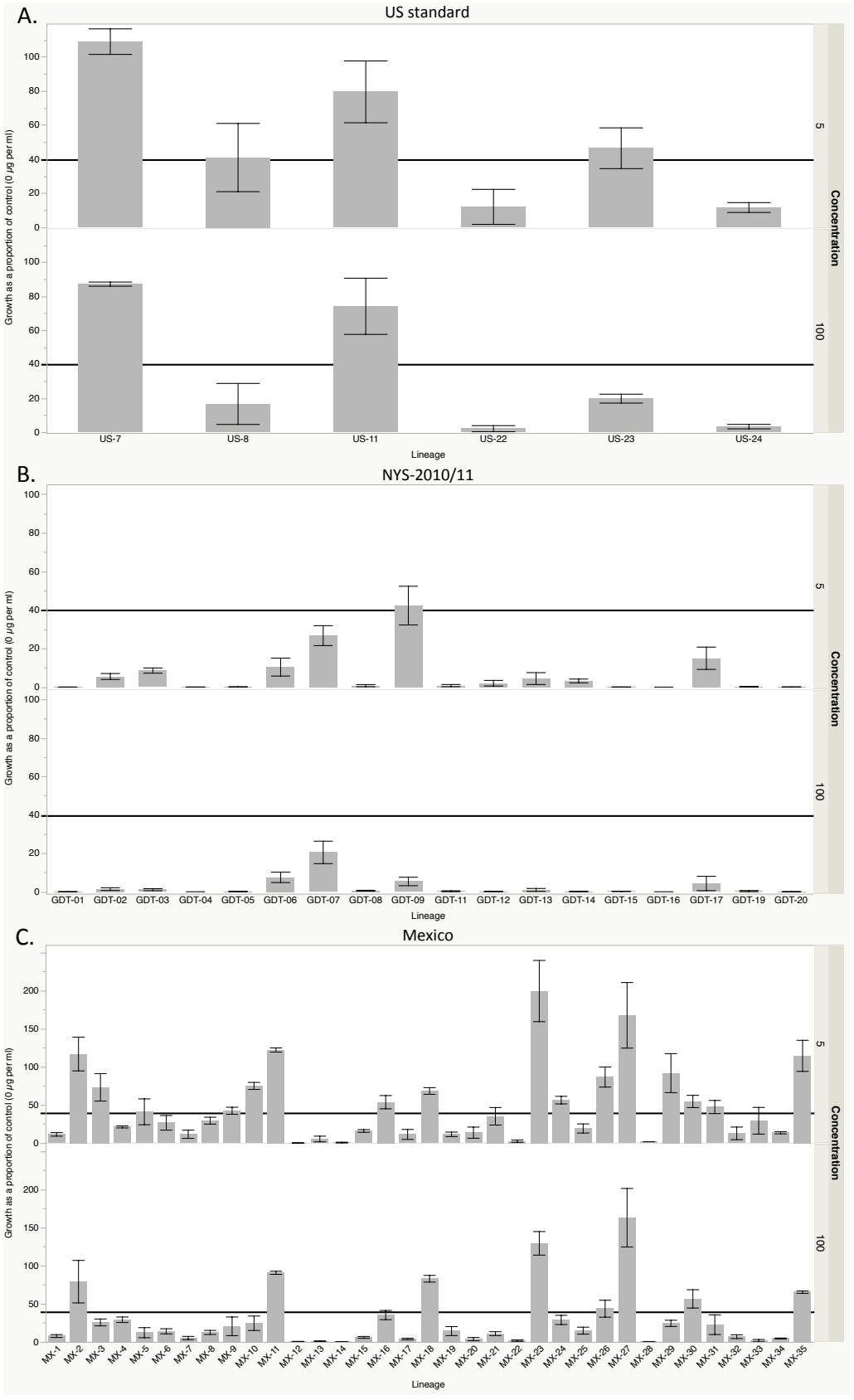


Figure 1. Pathogenicity on potato and tomato for isolates of *Phytophthora infestans* from the US, Mexico and the Netherlands. **A.** Lesion areas (cm^2) produced on potato and tomato. **B.** Sporangia produced per infection site on potato and tomato. There was one isolate per genotype. Error bars represent one standard error from the mean. Lesion areas and sporulation were measured 6 days post inoculation.


A.
US standard
Growth as a proportion of control (0 µg per ml)
Concentration
5
100
US-7
US-8
US-11
US-22
US-23
US-24
Lineage
B.
NYS-2010/11
GDT-01
GDT-02
GDT-03
GDT-04
GDT-05
GDT-06
GDT-07
GDT-08
GDT-09
GDT-11
GDT-12
GDT-13
GDT-14
GDT-15
GDT-16
GDT-17
GDT-19
GDT-20
C.
Mexico
MX-1
MX-2
MX-3
MX-4
MX-5
MX-6
MX-7
MX-8
MX-9
MX-10
MX-11
MX-12
MX-13
MX-14
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MX-34
MX-35

Figure 2. Response of *Phytophthora infestans* isolates to mefenoxam. **A.** Isolates belonging to six US clonal lineages that have been prevalent at one time or that are prevalent today in the US; **B.** Eighteen isolates that seem to have characteristics of a sexually reproducing population collected in and around west-central New York State in 2010 and 2011; and **C.** Thirty-five isolates collected in Central Mexico where sexual reproduction is ubiquitous. Relative growth (as percentage of control) at 5 μg ml^{-1} (top) and 100 μg ml^{-1} (bottom) relative to control (0 μg ml^{-1}). Isolates are described as resistant when growth is more than 40% relative to the control (0 μg ml^{-1}) on mefenoxam-amended plates (5 and 100 μg ml^{-1}), intermediate when growth is more than 40% relative to the control (0 μg ml^{-1}) on 5 μg ml^{-1} mefenoxam-amended plates but less than 40% relative to the control (0 μg ml^{-1}) on 100 μg ml^{-1} mefenoxam-amended plates, and sensitive when growth is less than 40% relative to the control on both 5 and 100 μg ml^{-1} mefenoxam amended plates. Error bars represent 1 standard error from the mean.

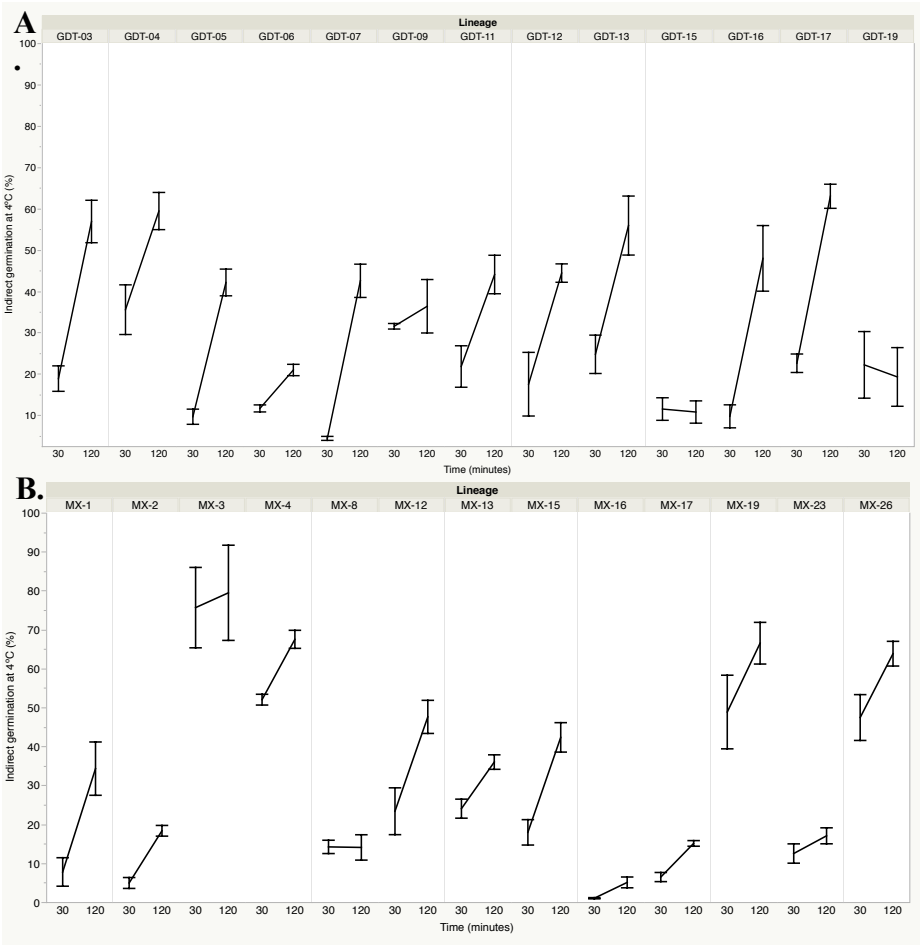


Figure 3. Proportion of sporangia that had germinated at 30 and 120 min at 4ºC. **A.** Thirteen isolates that seem to have characteristics of a sexually reproducing population collected in and around west-central New York State in 2010 and 2011; and **B.** Thirty-six isolates collected in Central Mexico where sexual reproduction is ubiquitous. Error bars represent one standard error from the mean.

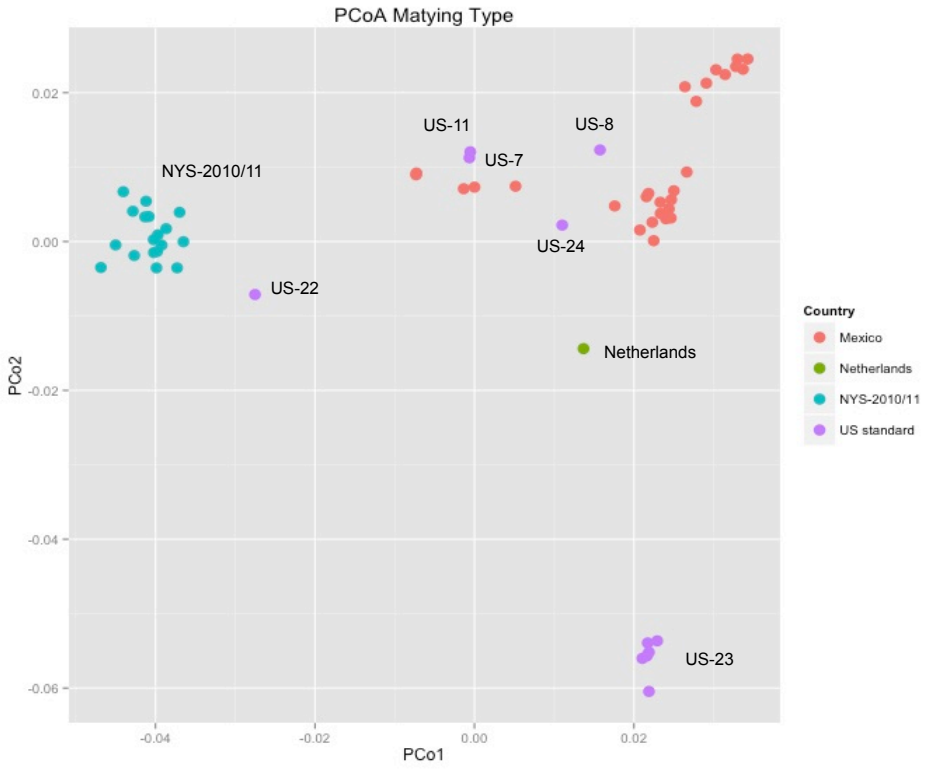


Figure 4. A two-dimensional plot of the Principal Coordinate Analysis (PCoA) of *Phytophthora infestans* isolates from Mexico, the Netherlands, and the US. The first and the second principal coordinates account for 14.9 and 5.8 of total variation, respectively.

Supplemental Material

Supplementary Table 1. Mating type and mefenoxam sensitivity of isolates used in this study.

Population	Lineage	Isolate	Mating type	Mefenoxam sensitivity
US standard	US-7	Coffey7723	A2	R
	US-8	US100048	A2	I
	US-11	US110160	A1	R
	US-22	US110002	A2	S
	US-23	US110059	A1	S
	US-23	2010_8106A	A1	S
	US-23	BL2009P4	A1	S
	US-23	US120096	A1	S
	US-23	US120143	A1	S
	US-23	US100016	A1	S
	US-24	US110157	A1	S
NYS-2010/11	GDT-01	US110084	A1	S
	GDT-02	US110064	A2	S
	GDT-03	US110086	A2	S
	GDT-04	US110074	A2	S
	GDT-05	US110061	A1	S
	GDT-06	US110093	A2	S
	GDT-07	US110072	A2	S
	GDT-08	US110071	A1	S
	GDT-09	US110082	A2	I
	GDT-11	US110085	A1	S
	GDT-12	US100029	A1	S
	GDT-13	US100023	A2	S
	GDT-14	US110054	A1	S
	GDT-15	US100032	A2	S
	GDT-16	US100033	A2	S
	GDT-17	US110092	A2	S
	GDT-19	US100019	A1	S
	GDT-20	US100034	A1	S
Mexico	MX-1	MX107	A1	S
	MX-2	MX73	A1	R
	MX-3	MX62	Selfing	I
	MX-4	MX84	A2	S
	MX-5	Tlax_713	A1	I
	MX-6	Tlax_739	A2	S
	MX-7	1949	A2	S

	MX-8	1633	A1	S
	MX-9	1632	A1	I
	MX-10	5707	A2	I
	MX-11	CH32	A1	R
	MX-12	1639	A1	S
	MX-13	1645	A2	S
	MX-14	1647	Selfing	S
	MX-15	1653	Selfing	S
	MX-16	1628	Selfing	R
	MX-17	1631	Selfing	S
	MX-18	F_02_17	A2	R
	MX-19	1970	A2	S
	MX-20	1655	A1	S
	MX-21	1657	A1	I
	MX-22	1662	A1	S
	MX-23	MX010006	A1	R
	MX-24	PUC_38	A1	I
	MX-25	MICH_7012	A1	S
	MX-26	MICH_7038	Selfing	R
	MX-27	3407	A2	R
	MX-28	MKH7045	A2	S
	MX-29	MX010046	A2	I
	MX-30	MX980046	A1	R
	MX-31	MX010007	A1	I
	MX-32	MX980137	A2	S
	MX-33	MX980221	NA	S
	MX-34	MX980352	A1	S
	MX-35	MX4683	A1	R
	MX-36	MXXX0051	A1	NA
Netherlands	NL	NL	A1	S

R: Resistant – growth on 5 and 100 µg per ml^{-1} of mefenoxam was greater than 40% relative to the control (0 µg per ml^{-1}).

I: Intermediate – growth on 5 µg per ml^{-1} was greater than 40% relative to the control (0 µg per ml^{-1}) but less than 40% relative to the control (0 µg per ml^{-1}) at 100µg per ml^{-1}.

S: Sensitive - growth on 5 and 100 µg per ml^{-1} of mefenoxam was less than 40% relative to the control (0 µg per ml^{-1}).

NA: Nota available

Supplementary Table 2. Average dry weight 6 days after incubation at 10, 15, 20 and 25ºC, respectively.

Population	Lineage	Temperature (ºC)	Average dry weight (g)
Us standard	US-7	10	0.00914
	US-7	15	0.04147
	US-7	20	0.04228
	US-7	25	0.03535
	US-8	10	0.00833
	US-8	15	0.05105
	US-8	20	0.05576
	US-8	25	0.03289
	US-11	10	0.00586
	US-11	15	0.03289
	US-11	20	0.04215
	US-11	25	0.04268
	US-22	10	0.00169
	US-22	15	0.03261
	US-22	20	0.06047
	US-22	25	0.04970
	US-23	10	0.00326
	US-23	15	0.03551
	US-23	20	0.04549
	US-23	25	0.02778
	US-24	10	0.01138
	US-24	15	0.04301
	US-24	20	0.05126
	US-24	25	0.03322
NYS-2010/11	GDT-01	10	0.00001
	GDT-01	15	0.00400
	GDT-01	20	0.00920
	GDT-01	25	0.00828
	GDT-02	10	0.00229
	GDT-02	15	0.03172
	GDT-02	20	0.04970
	GDT-02	25	0.03228
	GDT-03	10	0.00840
	GDT-03	15	0.02749
	GDT-03	20	0.03162
	GDT-03	25	0.02899
	GDT-04	10	0.00923
	GDT-04	15	0.04551
	GDT-04	20	0.05215
	GDT-04	25	0.04349

GDT-05	10	0.00904
GDT-05	15	0.04429
GDT-05	20	0.06720
GDT-05	25	0.04101
GDT-06	10	0.00312
GDT-06	15	0.03455
GDT-06	20	0.05526
GDT-06	25	0.05175
GDT-07	10	0.00203
GDT-07	15	0.01369
GDT-07	20	0.02594
GDT-07	25	0.01508
GDT-08	10	0.00354
GDT-08	15	0.02446
GDT-08	20	0.03036
GDT-08	25	0.03242
GDT-09	10	0.00422
GDT-09	15	0.04500
GDT-09	20	0.04901
GDT-09	25	0.03795
GDT-11	10	0.00529
GDT-11	15	0.02690
GDT-11	20	0.02463
GDT-11	25	0.02437
GDT-12	10	0.00260
GDT-12	15	0.02811
GDT-12	20	0.04344
GDT-12	25	0.03959
GDT-13	10	0.00081
GDT-13	15	0.01505
GDT-13	20	0.02157
GDT-13	25	0.01961
GDT-14	10	0.00649
GDT-14	15	0.01918
GDT-14	20	0.02908
GDT-14	25	0.02233
GDT-15	10	0.00475
GDT-15	15	0.03208
GDT-15	20	0.04625
GDT-15	25	0.03230
GDT-16	10	0.00139
GDT-16	15	0.02154
GDT-16	20	0.04730
GDT-16	25	0.02854
GDT-17	10	0.00787

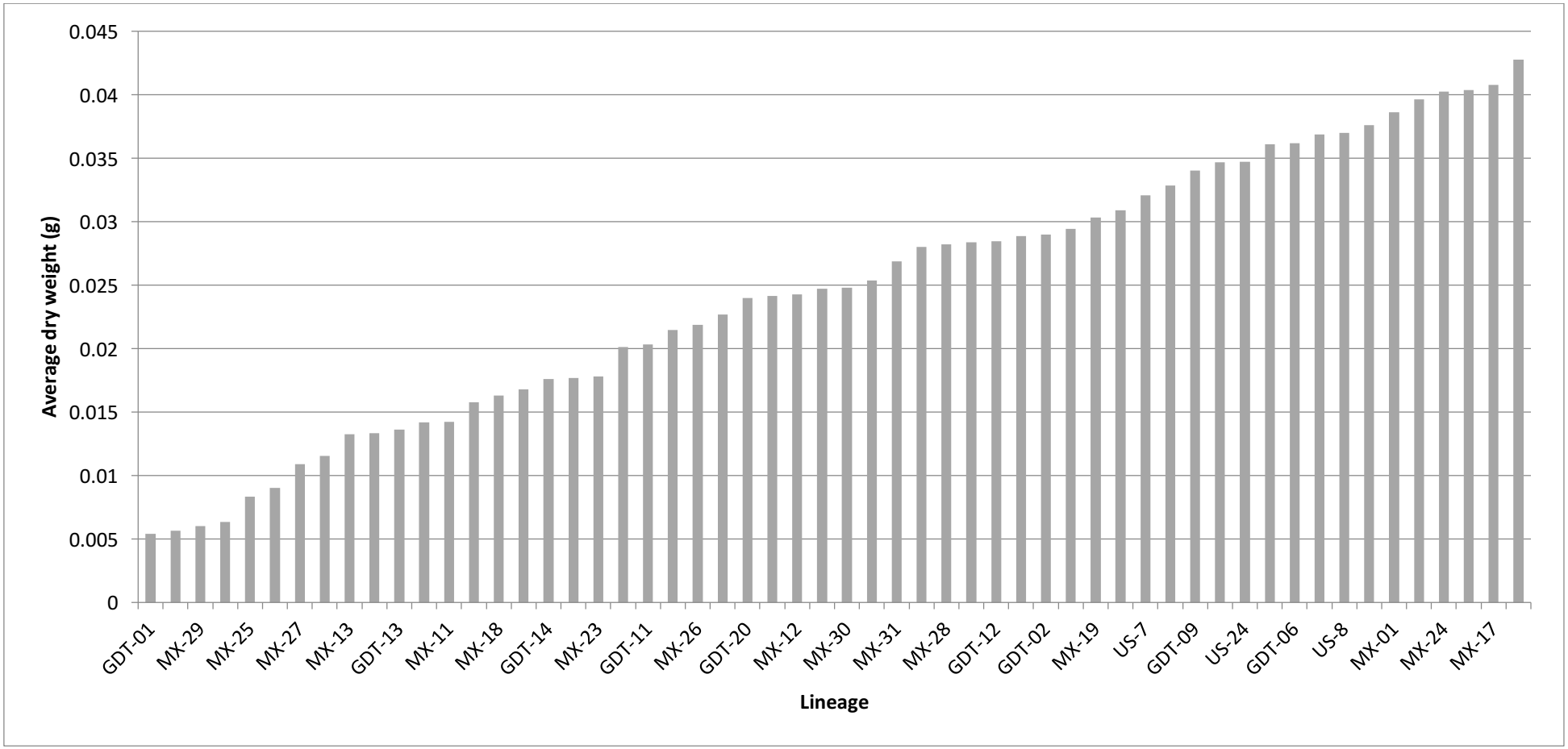
	GDT-17	15	0.04135
	GDT-17	20	0.03963
	GDT-17	25	0.02883
	GDT-19	10	0.00972
	GDT-19	15	0.03908
	GDT-19	20	0.04958
	GDT-19	25	0.04036
	GDT-20	10	0.00230
	GDT-20	15	0.02421
	GDT-20	20	0.03330
	GDT-20	25	0.03607
Mexico	MX-01	10	0.01209
	MX-01	15	0.05973
	MX-01	20	0.05346
	MX-01	25	0.02914
	MX-02	10	0.00907
	MX-02	15	0.05568
	MX-02	20	0.05190
	MX-02	25	0.03087
	MX-03	10	0.02004
	MX-03	15	0.06870
	MX-03	20	0.05270
	MX-03	25	0.02961
	MX-04	10	0.00009
	MX-04	15	0.00770
	MX-04	20	0.01180
	MX-04	25	0.00579
	MX-05	10	0.00053
	MX-05	15	0.00596
	MX-05	20	0.02095
	MX-05	25	0.02578
	MX-06	10	0.00007
	MX-06	15	0.00472
	MX-06	20	0.00897
	MX-06	25	0.00877
	MX-07	10	0.00001
	MX-07	15	0.01981
	MX-07	20	0.03331
	MX-07	25	0.03275
	MX-08	10	0.00222
	MX-08	15	0.02369
	MX-08	20	0.02709
	MX-08	25	0.02740
	MX-09	10	0.00049
	MX-09	15	0.01393

MX-09	20	0.03767
MX-09	25	0.01501
MX-11	10	0.00048
MX-11	15	0.01450
MX-11	20	0.02533
MX-11	25	0.01662
MX-12	10	0.00177
MX-12	15	0.02557
MX-12	20	0.04108
MX-12	25	0.02863
MX-13	10	0.00419
MX-13	15	0.03299
MX-13	20	0.01026
MX-13	25	0.00557
MX-14	10	0.01013
MX-14	15	0.05635
MX-14	20	0.04350
MX-14	25	0.05277
MX-15	10	0.00055
MX-15	15	0.01991
MX-15	20	0.01316
MX-15	25	0.00075
MX-16	10	0.00119
MX-16	15	0.01489
MX-16	20	0.02787
MX-16	25	0.01917
MX-17	10	0.00737
MX-17	15	0.05579
MX-17	20	0.05315
MX-17	25	0.04686
MX-18	10	0.00110
MX-18	15	0.01116
MX-18	20	0.03120
MX-18	25	0.02177
MX-19	10	0.00280
MX-19	15	0.03804
MX-19	20	0.04393
MX-19	25	0.03652
MX-20	10	0.00394
MX-20	15	0.02936
MX-20	20	0.04852
MX-20	25	0.03164
MX-21	10	0.00033
MX-21	15	0.01684
MX-21	20	0.03930

MX-21	25	0.01420
MX-23	10	0.00242
MX-23	15	0.02394
MX-23	20	0.03056
MX-23	25	0.01426
MX-24	10	0.00589
MX-24	15	0.03633
MX-24	20	0.05402
MX-24	25	0.06471
MX-25	10	0.00010
MX-25	15	0.00743
MX-25	20	0.01251
MX-25	25	0.01324
MX-26	10	0.00204
MX-26	15	0.02338
MX-26	20	0.03873
MX-26	25	0.02334
MX-27	10	0.00021
MX-27	15	0.00796
MX-27	20	0.01950
MX-27	25	0.01582
MX-28	10	0.00610
MX-28	15	0.03579
MX-28	20	0.04663
MX-28	25	0.02437
MX-29	10	0.00068
MX-29	15	0.00694
MX-29	20	0.01010
MX-29	25	0.00629
MX-30	10	0.00275
MX-30	15	0.02909
MX-30	20	0.04070
MX-30	25	0.02656
MX-31	10	0.00371
MX-31	15	0.03664
MX-31	20	0.05328
MX-31	25	0.02266
MX-33	10	0.00009
MX-33	15	0.01164
MX-33	20	0.02404
MX-33	25	0.01032
MX-34	10	0.00340
MX-34	15	0.02402
MX-34	20	0.05960
MX-34	25	0.01437

	MX-35	10	0.00391
	MX-35	15	0.02367
	MX-35	20	0.05763
	MX-35	25	0.04615

48
49



Supplementary Figure 1. Average dry weights for all isolates studied. Average dry weight corresponds to the average dry weight at 10, 15, 20, and 25ºC for each isolate, respectively.