Table S2A. Primers designed in the non-recombining regions of mating type chromosomes (NRR) for checking the loss of the genes without expression in one of the two mating types of *Microbotryum lychnidis-dioicae* .

Primer name	Sequence	ID of the primer pair indicated in Table S2B
MVLG_06358_1_F	TTTCGATACGACGTAGCCCG	1
MVLG_06358_1_R	TTCTTTTTCCCGTCGCTCGA	1
MVLG_06640_1_F	GTCGTGATAAGGACCGCGAT	2
MVLG_06640_1_R	ACGGTCTTGTTTTTCGCACG	2
comp5283__A1_F	TACTGCTGCTGTAACACCGG	3
comp5283__A1_R	ATTGAGCAAGAGCCGTGTGA	3
MVLG_07141_1_F	GGCAGCTCGACAAGTTTTGG	4
MVLG_07141_1_R	AGACGCCTAGGTTTCAAGGC	4
MVLG_07187_4_F	CAAGGGCCTTCAACTCGTCA	5
MVLG_07187_4_R	ACCAAATCGCTCAACTGGGT	5
MVLG_06929_F	ATCTCCCTAGCTCCGCCTAG	6
MVLG_06929_R	GGATGAACGCCGACAACATG	6
comp8984__A1_F	CAGGGCCAGGTGTGTTAAGA	7
comp8984__A1_R	TTACAGTGACTCCTGCACGC	7
MVLG_06190_F	CTTGGCACTCCTTTGCGAAC	8
MVLG_06190_R	GAGTGGTCGGACCTGACATG	8
comp2378__A1_F	AGACGTTCAAAGCGTCCTCC	9
comp2378__A1_R	TGCGCGTGGTTCTAGTTCAA	9
comp7541__A1_F	TACTGGAGGTCCTCGACGTT	10
comp7541__A1_R	GAAAGGCCTTGACCCTCTCC	10
MVLG_06927_F	GCCGTGCTTCCAAGACTTTG	11
MVLG_06927_R	ACCGCTCACCACTCTTTCTG	11
comp4640__A2_F	CCTTTGTACCAGGTCCCGTC	12
comp4640__A2_R	CTATGGACACCGTACCGAGC	12
comp5017__A2_F	CCGACTTCAAACGACTCGGA	13
comp5017__A2_R	TGTAACGGGCTTTGCGTTTG	13
comp7018__A2_F	TAGAGTATCGCCTGCCGGTA	14
comp7018__A2_R	GGCGCCAGTAGGTCAATTGA	14
comp7032__A2_F	CGAGACCGACACCGATACAG	15
comp7032__A2_R	CCAGCTTCTGATGCAAGGGA	15
comp8195__A2_F	GCCGAACGAGATCGATCCTT	16
comp8195__A2_R	CTCCTCCGCGACTCTTGATC	16
comp4356__A2_F	TCTGCTCCGAGACTCTCACC	17
comp4356__A2_R	AAGTGCACAAGAGACGGGAG	17
comp7143_2_A2_F	GTACCAACCGCTACCTCCTG	18
comp7143_2_A2_R	CGTGCGTTGCAAAATGTGTG	18
comp8741__A2_F	TTGTCATCAAGGCTGCTGCT	19
comp8741__A2_R	CCATGATGCATCATTGACGTCC	19
comp7032_1_F	CGAGACCGACACCGATACAG	20
comp7032_1_R	TCCAGCTTCTGATGCAAGGG	20
comp8195_1_F	GATCAAGAGTCGCGGAGGAG	21
comp8195_1_R	AGTCCTCCTCACTGATCCCC	21
5017_0_F	TCCTCGACTCAACCCCTCAT	22
5017_0_R	CGAACCACGTCCCTCTTTGA	22
5017_1_F	TCAAAGAGGGACGTGGTTCG	23
5017_1_R	GCCGAACGGTACAATTGCTC	23

Table S2B: Amplification of different primer pairs in A1 or A2 haploid strains of different *Microbotryum* species.
The primer pair 660 amplifies in a1 strains while the primer pair 588 amplifies in a2 strains (Devier et al. 2009).
The other primer pairs correspond to the genes lost in a1 or a2 of the Lamole strains (primers in Table S2A).
A "X" means that an amplicon was obtained.

Species	Primer pair / Strain	660	588	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
M. lychnidis-dioicae	**Lamole a2**		**X**												**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
M. lychnidis-dioicae	Sl 40-01 a2		X												X	X	X	X	X	X	X	X	X	X	X	X
M. lychnidis-dioicae	Sl IT.00 a2		X												X	X	X	X	X	X	X	X	X		X	X
M. lychnidis-dioicae	Sl 41.06 a2		X												X	X		X	X	X	X		X		X	X
M. lychnidis-dioicae	Sl sesto Cal a2		X												X	X	X	X	X	X	X	X	X		X	X
M. lychnidis-dioicae	Sl svA 03 a2		X												X	X	X	X	X	X	X	X	X		X	X
M. lychnidis-dioicae	Sl 100.10 a2		X												X	X	X	X	X	X	X	X	X		X	X
M. lychnidis-dioicae	SL 139.01 a2		X												X	X		X	X	X	X		X		X	X
M. lychnidis-dioicae	Sl Alpes 100.01 a2		X												X	X	X	X	X	X	X	X	X		X	X
M. lychnidis-dioicae	**Lamole A1**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**												
M. lychnidis-dioicae	Sl 00 site 14 - a1	X				X	X	X		X	X	X	X	X												
M. lychnidis-dioicae	Sl 39.04 a1	X		X	X	X	X	X	X	X	X	X	X	X		X	X									
M. lychnidis-dioicae	Sl UK 00 - a1	X		X	X	X	X	X		X	X	X	X	X		X										
M. lychnidis-dioicae	Sl 124.2 a1	X		X	X	X	X	X	X	X	X	X	X	X												
M. lychnidis-dioicae	Sl 824.3 a1	X		X	X	X	X	X	X	X	X	X	X	X			X									
M. silenes-dioicae	Sd H3 a1	X		X	X	X	X	X	X	X	X	X	X			X	X									
M. silenes-dioicae	Sd 949 a1	X		X	X	X	X	X	X	X	X	X	X			X	X									
M. silenes-dioicae	Sd 15.02 - A1	X		X	X	X	X	X		X	X	X	X	X		X										
M. silenes-dioicae	Sd-b Bretagne A1	X		X	X	X	X	X	X	X	X	X	X	X		X	X									
M. silenes-dioicae	Sd 900.12 A1	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X									