

Supplementary Information, Database 1: Synthetic DNA molecules (gBlocks - IDT, Leuven, Belgium) corresponding to *H. perforatum* haplotype 1 (C178), *H. perforatum* haplotype 3 (C22), *H. maculatum* (C206) and *H. patulum* (C203) ITS sequences used as reference standards.

Name - Hypericum p C22 ITS

gBlocks® Gene Fragments 727 base pairs

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5'- GGT TTC CGT AGG TGA ACC TGC GGA AGG ATC ATT GTC GAA ACC TCC AAA TGA CCC GCG AAC TAG TTA TCC
ACA AGT CGG GGG TGT CGT GGG CTT CTG TCC CGG CGC CCC CGT GGC GGT GGT GGC CAG GCG CGC CAA GCT CTT
GGC ACG GCT GGC CCA TCA CCT GCC CAA CAA ACA AAC CCC GGC GCG GCA CGC GCC AAG GAA CTT TTG CAT CAT
AAG AAG TGT AAG GCT CCC GGC TGT GCC GGA AAT CGG ACA ACA CGG TCG GGG GCC TCC TTC TGT TCA TAA CAA
TAA CGA CTC TCG GCA ACG GAT ATC TAG GCT CTT GCA TCG ATG AAG AAC GTA GCG AAA TGC GAT ACT TGG TGT
GAA TTG CAG AAT CCC GTG AAC CAT CGA GTC TTT GAA CGC AAG TTG CGC CCG AAG CCT TCT GGC CGA GGG CAC
GCC TGC CTG GGT GTC ACA CAT CGT CGC CCC CCA AAA TCC CGA TAT CTC GCA AGA GAC AAT CGG GAA TAG GAT
GGG CGG AAA ATG GTC TCC CGT GCG CTC CCG TTC GCG GTT GGC CCA AAA ATG AGT TCC TGG CAA AGC AAA GCC
ACG ACC AGC GGT GGT TGT AAG ACC CTC GGT ACA AGT CGT GAG CCT TGC ATT GCT CGT AGG GAC ATG TTG ACC
CTG AAC GTG ATC GAG TAA CAT CGA ACA CTC ACA AAG TGA CCC CAG GTC AGG CGG GAC TAC CCG CTG AAT TTA
AGC ATA TCA A -3'
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Note 1: The sequence information of the sense strand displayed above is intentionally truncated to the first 1,200 bases. The complete sequence can be verified in FASTA format in your order history.

Note 2: gBlocks® Gene Fragments are delivered as double-stranded DNA. Conformance to quality standards is established in multiple ways, including size verification by capillary electrophoresis and sequence identification by mass spectrometry.

Name - Hypericum p C203 ITS

gBlocks® Gene Fragments 713 base pairs

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5' - TTT TAA AGA GAG AAG AAA TAC AAG GTT TCC GTA GGT GAA CCT GCG GAA GGA TCA TTG TCG AAA CCT CCA
AAT GAC CCG CGA ACC AGT TAT CGA CAA GTC GGG GGT GTC GGG CCC GTA ACC CCC GTG CGC CGG TGG
CGG TCA GGC GTG CCA AGC TCT TGG CAC GGT TGG CCC GTC ACC TGC CCA ACA AAC CAA CCC CGG CGC GGC ACG
CGC CAA GGA ACT TTG CAT CAT GAG AAG GAC AAT GCC CCC GTC CGT GCC GGA AAT CGG ATA ACA CGG CCG GTG
GCT TTC CTT CTG TTC ATA ACT AAA ACG ACT CTC GGC AAC GGA TAT CTA GGC TCT TGC ATC GAT GAA GAA CGT
AGC GAA ATG CGA TAC TTG GTG TGA ATT GCA GAA TCC CGT GAA CCA TCG AGT CTT TGA ACG CAA GTT GCG CCC
GAA GCC TTC TGG CCG AGG GCA CGT CTG CCT GGG TGT CAC ACA TCG TCG CCC CCA AAA CCA ATG CCT CAC TCG
AGT TCA TTG GGT ACA GGA TGG GCG GAT AAT GGT CTC CCG TGC GCA CCC GTT CCG GGT TGG CCC AAA ACT TTG
TTC CTG GCG ATC GCA AGC CAT GAC CAG CGG TGG TTG TAA GAC CCT CGG TCA TAG TCG TGA GCT TGC ACG TCG
GGA CAT ATC GAC CCT GAA CGT GAT CGA GAA ACC TCG AAC ACT CAC AAA GTG ACC TCA GTC AGG GAT CC -3'
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Note 1: The sequence information of the sense strand displayed above is intentionally truncated to the first 1,200 bases. The complete sequence can be verified in FASTA format in your order history.

Note 2: gBlocks® Gene Fragments are delivered as double-stranded DNA. Conformance to quality standards is established in multiple ways, including size verification by capillary electrophoresis and sequence identification by mass spectrometry.

Name - Hypericum m C206 ITS

gBlocks® Gene Fragments 748 base pairs

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5' - TAC AAG GTT TCC GTA GGT GAA CCT GCG GAA GGA TCA TTG TCG AAA CCT CCA AAT GAC CCG CGA ACT AGT
TAT CCA CAA GTC GGG GGT GTC GTG GGC TTC TGT CCC GGC GCC CCC GTG CCG GTG GTG GCC AGG CGC GCC AAG
CTC TTG GCA CGG CTG GCA CAA CAC CTG CCG AAC AAA CAA ACC CCG GCG CGG CAC GCG CCA AGG AAC TTT TGC
ATC ATA AGA AGT GTA AGG CTC CCG GCT GTG CCG GAA ATC GGA CAA CAC GGT CGG GGG CTT CCT TCT GTT CAT
AAC AAT AAC GAC TCT CGG ACA CCG ATA TCT AGG CTC TTG CAT CGA TGA AGA ACG TAG CGA AAT CGC ATA CTT
GGT GTG AAT TGC AGA ATC CCG TGA ACC ATC GAG TCT TTG AAC GCA AGT TGC GCC CGA AGC CTT CTG GCC GAG
GGC ACG CCT GCC TGG GTG TCA CAC ATC GTC GCC CCC CAA AAT CCC GAT ATC TCG CAA GAC ACA ATC GGG AAT
AGG ATG GGC GGA AAA TGG TCT CCC GTG CCG TCC CGT TCG CCG TTG GCC CAA AAA TGA GTT CCT GGC AAA GCA
AAG CCA CGA CCA GCG GTG GTT GTA AGA CCC TCG GTA CAA GTC GTG AGC CTT GCA TTG CTC GTA GGG ACA TGT
TGA CCC TGA ACG TGA TCG AGT AAC ATC ACA AAG TGA CCC CAG GTC AGG CGG GAC TAC CCG CTG
AAT TTA AGC ATA TCA ATA AGG CGG GAG GAA A -3'
```

Note 1: The sequence information of the sense strand displayed above is intentionally truncated to the first 1,200 bases. The complete sequence can be verified in FASTA format in your order history.

Note 2: gBlocks® Gene Fragments are delivered as double-stranded DNA. Conformance to quality standards is established in multiple ways, including size verification by capillary electrophoresis and sequence identification by mass spectrometry.

Name - Hypericum p C178 ITS

gBlocks® Gene Fragments 727 base pairs

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5' - GGT TTC CGT AGG TGA ACC TGC GGA AGG ATC ATT GTC GAA ACC TCC AAA TGA CCC GCG AAC TAG TTA TCC
ACA AGT CGG GGG TGT CGT GGG CTT CTG TCC CGG CGC CCC CGT GGC GGT GGT GGC CAG GCG CGC CAA GCT CTT
GGC ACG GCT GGC TCA TCA CCT GCC CAA CAA ACA AAC CCC GGC GCG GCA CGC GCC AAG GAA CTT TTG CAT CAT
AAG AAG CGT AAC GCT CCC GGC TGT GCC GGA AAT CGG ACA ACA CGG TCG GGG GCT TCC TTC TGT TCA TAA CAA
TAA CGA CTC TCG GCA ACG GAT ATC TAG GCT CTT GCA TCG ATG AAG AAC GTA GCG AAA TGC GAT ACT TGG TGT
GAA TTG CAG AAT CCC GTG AAC CAT CGA GTC TTT GAA CGC AAG TTG CGC CCG AAG CCT TCT GGC CGA GGG CAC
GCC TGC CTG GGT GTC ACA CAT CGT CGC CCC CCA AAA TCC CGA TAT CTC GCA AGA GAC AAT CGG GAA TAG GAT
GGG CGG AAA ATG GTC TCC CGT GCG CTC CCG TTC GCG GTT GGC CCA AAA ATG AGT TCC TGG CAA AGC AAA GCC
ACG ACC AGC GGT GGT TGT AAG ACC CTC GGT ACA AGT CGT GAG CCT TGC ATT GCT CGT AGG GAC ATG TTG ACC
CTG AAC GTG ATC GAG TAA CAT CGA ACA CTC ACA AAG TGA CCC CAG GTC AGG CGG GAC TAC CCG CTG AAT TTA
AGC ATA TCA A -3'
```

Note 1: The sequence information of the sense strand displayed above is intentionally truncated to the first 1,200 bases. The complete sequence can be verified in FASTA format in your order history.

Note 2: gBlocks® Gene Fragments are delivered as double-stranded DNA. Conformance to quality standards is established in multiple ways, including size verification by capillary electrophoresis and sequence identification by mass spectrometry.

Supplementary Information Database 2: Database of ITS sequences from significant *Hypericum* species.

H._maculatum_type_1

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TGTCCCGGCGCCCCGTGCCGGTGGTGGCCAGGCGCGCCAAGCTCTTGGCACGGCTGGCA
CAACACCTGCCAACAAACAAACCCCGGCGCGGCACGCGCCAAGGAACTTTTGCATCATA
AGAAGTGTAAGGCTCCCGGCTGTGCCGAAATCGGACAACACGGTCGGGGGCTTCCTTCT
GTTCATAACAATAACGACTCTCGGCAACGGATATCTAGGCTCTTGCATCGATGAAGAACG
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GCAAGTTGCGCCCGAAGCCTTCTGGCCGAGGGCACGCCTGCCTGGGTGTCACACATCGTC
GCCCCCAAATCCCGATATCTCGCAAGACACAATCGGGAATAGGATGGGCGGAAAATGG
TCTCCCGTGCCTCCCGTTCGCGGTTGGCCAAAATGAGTTCCTGGCAAAGCAAAGCCA
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ACATGTTGACCCTGAACGTGATCGAGTAACATCGGTACACTCACAAA

>H._maculatum_type_2

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AGAAGTGTAAGGCTCCCGGCTGTGCCGAAATCGGACAACACGGTCGGGGGCTTCCTTCT
GTTCATAACAATAACGACTCTCGGCAACGGATATCTAGGCTCTTGCATCGATGAAGAACG
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GCAAGTTGCGCCCGAAGCCTTCTGGCCGAGGGCACGCCTGCCTGGGTGTCACACATCGTC
GCCCCCAAATCCCGATATCTCGCAAGACACAATCGGGAATAGGATGGGCGGAAAATGG
TCTCCCGTGCCTCCCGTTCGCGGTTGGCCAAAATGAGTTCCTGGCAAAGCAAAGCCA
CGACCAGCGGTGGTTGTAAGACCCTCGGTACAAGTCGTGAGCCTTGCAATTGCTCGTAGGG
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>H._perforatum_type_2

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G TTCATAACAATAACGACTCTCGGCAACGGATATCTAGGCTCTTGCATCGATGAAGAACG
TAGCGAAATGCGATACTTGGTGTGAATTGCAGAATCCCGTGAACCATCGAGTCTTTGAAC
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>H._perforatum_type_3

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AGAAGTGTAAAGGCTCCCGGCTGTGCCGAAATCGGACAACACGGTCGGGGGCTCCTTCT
G TTCATAACAATAACGACTCTCGGCAACGGATATCTAGGCTCTTGCATCGATGAAGAACG
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GCAAGTTGCGCCCGAAGCCTTCTGGCCGAGGGCACGCCTGCCTGGGTGTCACACATCGTC
GCCCCCAAAATCCCGATATCTCGCAAGAGACAATCGGGAATAGGATGGGCGGAAAATGG
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>H._perforatum_type_1

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G TTCATAACAATAACGACTCTCGGCAACGGATATCTAGGCTCTTGCATCGATGAAGAACG
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>H._barbatum

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>H._delphicum

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>H._tetrapterum

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>H._attenuatum

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>H._olympicum

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>H._hirsutum

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>H._acmosepalum

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>H._patulum

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CCTGAACGTGATCGAGAAACCTCGAACACTCACAAA

>H._kouytchense

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>H._calycinum

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>H._athoum

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>H._androsaemum

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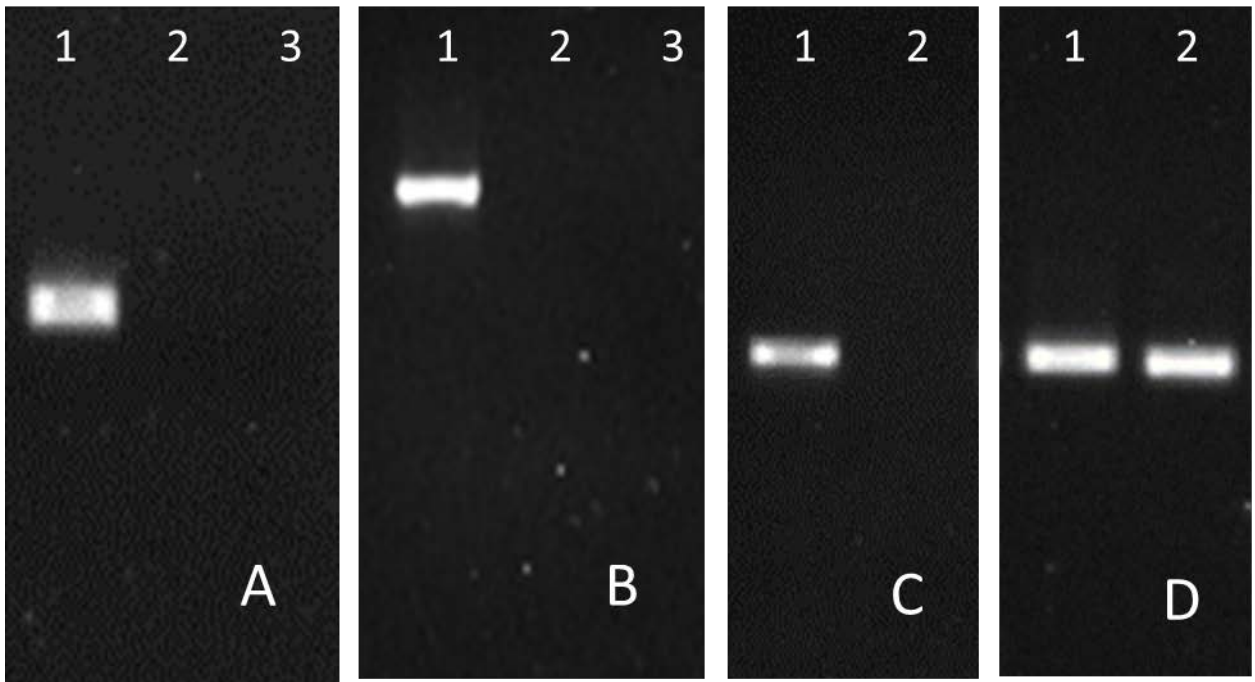
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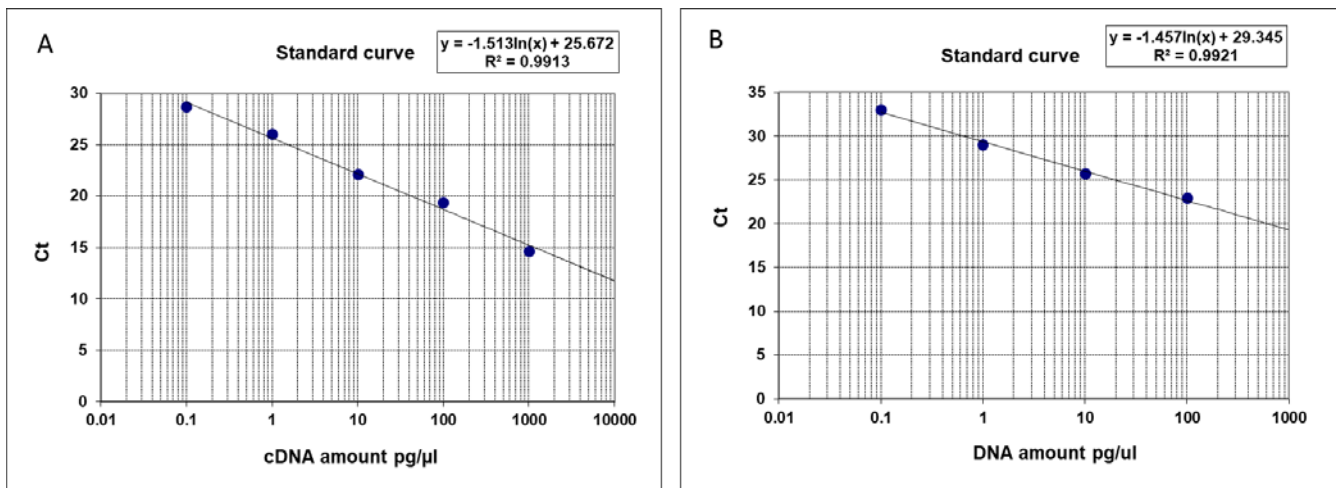
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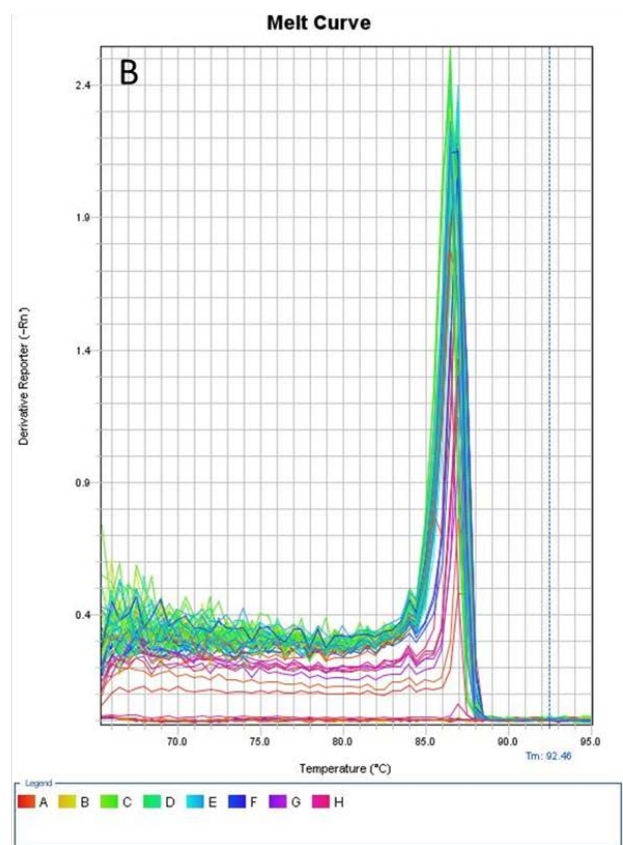
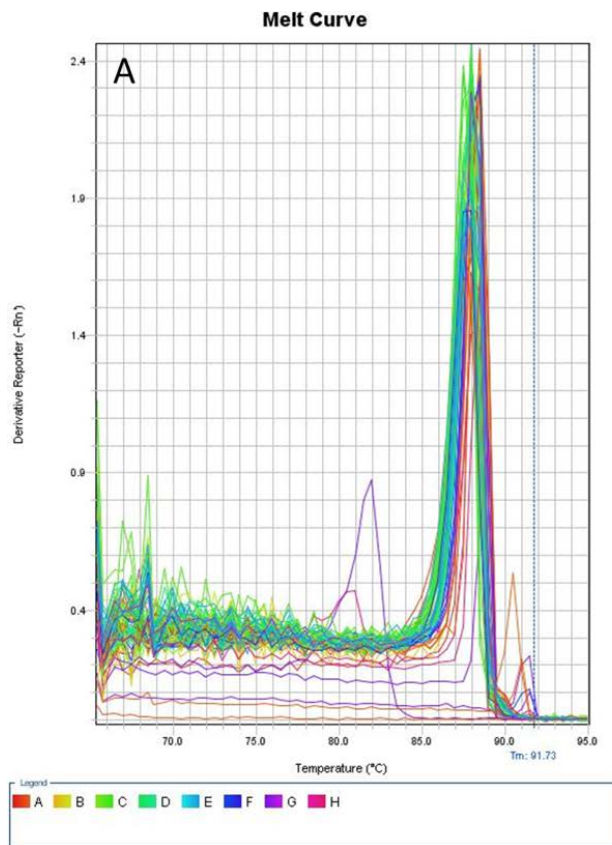
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Supplementary Information, Figure S1: Agarose gel electrophoresis of PCRs showing specificity of the new generation primers. Gel lanes: 1. genomic DNA from 1456, *H. perforatum*; 2. genomic DNA from 1479, *H. patulum*; 3. Negative (no template) control. Primer pairs: A, 460-650; B, FO2-650; C, FO2-460; D, HypGF-HypGR



Supplementary Information, Figure S2: Quantitative Real-time PCR standard curve *Hypericum perforatum* serial dilutions with the A) generic HypG F/R primers and the B) specific 460F-650R primers.



Supplementary Information, Figure S3: Quantitative Real-time PCR Melting curve generated with the A) generic HypG F/R primers and the B) specific 460F-650R primers