

Table S1. List of primers used in this study.

Name	Sequence (5'-3')
<i>PAL</i> -F	TCATCCTCCATTCCATCCCA
<i>PAL</i> -R	TCGCAGCAACTCTTCCTTTT
<i>PAL</i> -B	GCTGATATCGGATCCATGGTCATCAACTCTGACGG
<i>PAL</i> -H	TGCGGCCGCAAGCTTTCACCTCCTCAGCGGCAAACA
pAN7-F	AGTAGATGCCGACCGCGGGA
pAN7-R	GGTGATGTCTGCTCAAGCGGG
<i>PAL</i> -iF-F	TGAGCAGACATCACCATGGTCATCAACTCTGACGGTC
<i>PAL</i> -iF-R	CGGTCGGCATCTACTTCACCTCCTCAGCGGCAAACAT
<i>hph</i> -F	GAGCCTGACCTATTGCATCT
<i>hph</i> -R	GTCTGCTGCTCCATACAAGC
<i>PAL2</i> -F	TCAGTCCAACATTTGTTGCCA
<i>PAL2</i> -R	GGGAGGTGTGTGCGTTGTAGA
<i>PAL</i> -qF	GCACCCGACGCACTCAAAT
<i>PAL</i> -qR	AAGGCCGTACCGTTCAAAATC
<i>4CL</i> -qF	CCCTTCTGTGCTATTCTTCTGG
<i>4CL</i> -qR	ATTGTTCTATCCTTGCCGTGTC
<i>IFR</i> -qF	TTGCTGTGAAAAAGGGAGGTG GAAATGTCAAATCCGAATCGC
<i>IFR</i> -qR	GATGTCCATTTCGCCACGGTA
<i>PKS</i> -qF	GAATGCCATAGCACCTCAGA
<i>PKS</i> -qR	
α -tubulin-qF	CCAGCAAGCGTTACCGATT
α -tubulin-qR	TCCACGACGTCCATCGTTC

Note: The underlined parts of *PAL*-B and *PAL*-H primers are respectively *Bam*HI and *Hind*III restriction sites.

Table S2. Flavonoids from the mycelia of *S. baumii*.

Compound	Ion mode	Peak area	Formula	Class	CAS
5-Hydroxy-7-methoxyflavone	Negative	7580.90	C ₁₆ H ₁₂ O ₄	Flavones	-
Galangin (3,5,7-Trihydroxyflavone)	Negative	2542.40	C ₁₅ H ₁₀ O ₅	Flavones	548-83-4
6-Hydroxydaidzein	Positive	124290.00	C ₁₅ H ₁₀ O ₅	Isoflavones	17817-31-1
Luteolin (5,7,3',4'-Tetrahydroxyflavone)	Negative	8221.60	C ₁₅ H ₁₀ O ₆	Flavones	491-70-3
3,4,2',4',6'-Pentahydroxychalcone	Positive	45986.00	C ₁₅ H ₁₂ O ₆	Chalcones	73692-51-0
2-Hydroxynaringenin	Negative	11149.00	C ₁₅ H ₁₂ O ₆	Flavones	-
Catechin	Negative	13744.00	C ₁₅ H ₁₄ O ₆	Flavanols	154-23-4
Epicatechin	Positive	30712.00	C ₁₅ H ₁₄ O ₆	Flavanols	490-46-0
4'-Hydroxy-5,7-dimethoxyflavanone	Negative	3749600.00	C ₁₇ H ₁₆ O ₅	Flavanols	-
Taxifolin	Positive	21547.00	C ₁₅ H ₁₂ O ₇	Flavones	480-18-2
Epigallocatechin	Negative	3840.90	C ₁₅ H ₁₄ O ₇	Flavanols	970-74-1
Isobavachalcone D	Positive	34071.00	C ₁₉ H ₂₀ O ₄	Chalcones	-
3-O-Acetylpinobanksin	Negative	3209.30	C ₁₇ H ₁₄ O ₆	Flavanonols	52117-69-8
Quercetagenin	Positive	74531.00	C ₁₅ H ₁₀ O ₈	Flavonols	90-18-6
Gancaoanin G	Negative	11933.00	C ₂₁ H ₂₀ O ₅	Isoflavones	126716-34-5
Tangeretin	Positive	5374.80	C ₂₀ H ₂₀ O ₇	Flavonols	481-53-8
Nobiletin	Positive	7655.10	C ₂₁ H ₂₂ O ₈	Flavones	478-01-3
Apigenin-7-O-glucoside	Positive	8730.20	C ₂₁ H ₂₀ O ₁₀	Flavones	578-74-5
Genistein-7-O-galactoside	Positive	7158.10	C ₂₁ H ₂₀ O ₁₀	Isoflavones	-
Apigenin-7-O- α -D-glucopyranoside	Positive	9012.50	C ₂₁ H ₂₀ O ₁₀	Flavones	-
Apigenin-3'-O- α -D-glucopyranoside	Positive	11641.00	C ₂₁ H ₂₀ O ₁₀	Flavones	-
7-O-Galloyltricetiflavan	Negative	13607.00	C ₂₂ H ₁₈ O ₁₀	Flavanols	-
Epicatechin gallate	Negative	14254.00	C ₂₂ H ₁₈ O ₁₀	Flavanols	1257-08-5
Catechin gallate	Negative	13965.00	C ₂₂ H ₁₈ O ₁₀	Flavanols	130405-40-2
Prunetin-4'-O-glucoside	Negative	460880.00	C ₂₂ H ₂₂ O ₁₀	Isoflavones	154-36-9
Trifolirhizin	Negative	139630.00	C ₂₂ H ₂₂ O ₁₀	Isoflavanone	6807-83-6
Kaempferol-7-O-glucoside	Negative	20634.00	C ₂₁ H ₂₀ O ₁₁	Flavonols	16290-07-6
Trifolin	Negative	21323.00	C ₂₁ H ₂₀ O ₁₁	Flavonols	23627-87-4
Dihydrokaempferol-3-O-glucoside	Positive	5569.80	C ₂₁ H ₂₂ O ₁₁	Flavanonols	1049-08-8

Compound	Ion mode	Peak area	Formula	Class	CAS
Epigallocatechin-3-gallate	Negative	24306.00	C ₂₂ H ₁₈ O ₁₁	Flavanols	989-51-5
Gallocatechin 3-O-gallate	Negative	21262.00	C ₂₂ H ₁₈ O ₁₁	Flavanols	5127-64-0
(-)-Gallocatechin gallate	Positive	21819.00	C ₂₂ H ₁₈ O ₁₁	Flavones	4233-96-9
Kaempferol-3-O-glucuronide	Negative	5549.50	C ₂₁ H ₁₈ O ₁₂	Flavonols	22688-78-4
Luteolin 7-O-glucuronide	Positive	4403.00	C ₂₁ H ₁₈ O ₁₂	Flavones	29741-10-4
8-Methoxykaempferol-7-O-rhamnoside	Negative	4431.60	C ₂₂ H ₂₂ O ₁₁	Flavonols	-
Quercetin-7-O-glucoside	Negative	8272.30	C ₂₁ H ₂₀ O ₁₂	Flavonols	491-50-9
Isoquercitrin	Negative	6347.10	C ₂₁ H ₂₀ O ₁₂	Flavonols	482-35-9
Hyperin	Negative	8540.20	C ₂₁ H ₂₀ O ₁₂	Flavonols	482-36-0
Spiraeoside	Negative	13059.00	C ₂₁ H ₂₀ O ₁₂	Flavonols	20229-56-5
Hesperetin-7-O-glucoside	Positive	16419.00	C ₂₂ H ₂₄ O ₁₁	Flavones	31712-49-9
Hesperetin-5-O-glucoside	Negative	11927.00	C ₂₂ H ₂₄ O ₁₁	Flavanonols	69651-80-5
Apigenin-7-O-(6"-acetyl) glucoside	Positive	28380.00	C ₂₃ H ₂₂ O ₁₁	Flavones	72741-92-5
Kaempferol-3-O-(4"-O-acetyl) rhamnoside	Positive	35057.00	C ₂₃ H ₂₂ O ₁₁	Flavones	-
6-C-Methylquercetin-3-O-glucoside	Positive	3144.00	C ₂₂ H ₂₂ O ₁₂	Flavonols	-
6"-O-Acetylglycitin	Positive	557220.00	C ₂₄ H ₂₄ O ₁₁	Isoflavones	134859-96-4
Kaempferol-3-O-(6"-acetyl) glucoside	Negative	952530.00	C ₂₃ H ₂₂ O ₁₂	Flavonols	-
Kaempferol-3-O-(2"-acetyl) glucoside	Positive	3674500.00	C ₂₃ H ₂₂ O ₁₂	Flavonols	-
Quercetin-3-O-(2"-acetyl) rhamnoside	Positive	7592.90	C ₂₃ H ₂₂ O ₁₂	Flavonols	-
Tricin-5-O-Glucoside	Negative	12845.00	C ₂₃ H ₂₄ O ₁₂	Flavones	32769-00-9
6"-O-Malonyldaidzin	Positive	215770.00	C ₂₄ H ₂₂ O ₁₂	Isoflavones	124590-31-4
Kaempferol-3-O-(2"-O-acetyl) glucuronide	Negative	106010.00	C ₂₃ H ₂₀ O ₁₃	Flavonols	-
6"-O-Malonylgenistin	Positive	31107.00	C ₂₄ H ₂₂ O ₁₃	Isoflavones	51011-05-3
Naringenin-7-O-(6"-malonyl) glucoside	Positive	3296.10	C ₂₄ H ₂₄ O ₁₃	Flavanols	-
6"-O-Malonylglycitin	Positive	6589.20	C ₂₅ H ₂₄ O ₁₃	Isoflavones	137705-39-6
Procyanidin B1	Negative	30624.00	C ₃₀ H ₂₆ O ₁₂	Proanthocyanidins	20315-25-7
Procyanidin B3	Negative	2411.70	C ₃₀ H ₂₆ O ₁₂	Proanthocyanidins	23567-23-9
Procyanidin B2	Negative	13885.00	C ₃₀ H ₂₆ O ₁₂	Proanthocyanidins	29106-49-8
Apigenin-7-O-(6"-p-Coumaryl) glucoside	Positive	14834.00	C ₃₀ H ₂₆ O ₁₂	Flavones	-
Isorhoifolin	Positive	5643.00	C ₂₇ H ₃₀ O ₁₄	Flavones	552-57-8
Rhoifolin	Positive	7548.50	C ₂₇ H ₃₀ O ₁₄	Flavones	17306-46-6

Compound	Ion mode	Peak area	Formula	Class	CAS
Narirutin	Negative	6377.30	C ₂₇ H ₃₂ O ₁₄	Flavanones	14259-46-2
Naringin	Negative	23435.00	C ₂₇ H ₃₂ O ₁₄	Flavanones	10236-47-2
Kaempferol-3-O-(2"-p-Coumaroyl) galactoside	Positive	25450.00	C ₃₀ H ₂₆ O ₁₃	Flavones	-
Kaempferol-3-O-(6"-p-Coumaroyl) galactoside	Positive	11176.00	C ₃₀ H ₂₆ O ₁₃	Flavones	-
Tiliroside	Negative	7414.40	C ₃₀ H ₂₆ O ₁₃	Flavones	20316-62-5
Castanoside A [Kaempferol-3-O-(6"-p-coumaroyl) mannoside]	Positive	13934.00	C ₃₀ H ₂₆ O ₁₃	Flavones	-
Luteolin-7-O-(6"-caffeoyl) rhamnoside	Negative	1123.00	C ₃₀ H ₂₆ O ₁₃	Flavones	-
Kaempferol-3-O-neohesperidoside	Positive	9562.10	C ₂₇ H ₃₀ O ₁₅	Flavones	32602-81-6
Kaempferol-3-O-rhamnosyl (1→2) glucoside	Positive	9246.00	C ₂₇ H ₃₀ O ₁₅	Flavonols	-
Rutin	Negative	12282.00	C ₂₇ H ₃₀ O ₁₆	Flavonols	153-18-4
Quercetin-3-O-glucoside-7-O-rhamnoside	Positive	7419.00	C ₂₇ H ₃₀ O ₁₆	Flavonols	-
Quercetin-3-O-robinobioside	Negative	6797.50	C ₂₇ H ₃₀ O ₁₆	Flavonols	52525-35-6
Luteolin-7,3'-di-O-glucoside	Positive	7557.50	C ₂₇ H ₃₀ O ₁₆	Flavones	52187-80-1
Quercetin-3-O-(4"-O-glucosyl) rhamnoside	Positive	8766.80	C ₂₇ H ₃₀ O ₁₆	Flavonols	59262-54-3
Quercetin-3-O-neohesperidoside	Positive	11836.00	C ₂₇ H ₃₀ O ₁₆	Flavonols	117611-67-3
Guangsongon N	Positive	2782.80	C ₃₅ H ₃₀ O ₁₀	Flavanones	-
Neohesperidin	Positive	7706.40	C ₂₈ H ₃₄ O ₁₅	Flavanones	13241-33-3
Hesperidin	Negative	25349.00	C ₂₈ H ₃₄ O ₁₅	Flavanones	520-26-3
Tamarixetin-3-O-glucoside-7-O-rhamnoside	Positive	60425.00	C ₂₈ H ₃₂ O ₁₆	Flavones	-
Kaempferol-3-O-(2-O-Xylosyl-6-O-Rhamnosyl) Glucoside	Positive	4424.00	C ₃₂ H ₃₈ O ₁₉	Flavones	-
Kaempferol-3-O-rutinoside-7-O-glucoside	Positive	59905.00	C ₃₃ H ₄₀ O ₂₀	Flavonols	-

Table S3. Homologous amino-acid sequences for PAL from 16 species.

Species	Accession ID	Kingdom
<i>Tricholoma matsutake</i>	BAM63315.2	Agaricales; Tricholomataceae
<i>Pleurotus eryngii</i>	AHH55203.1	Agaricales; Pleurotaceae
<i>Flammulina velutipes</i>	AHD25301.1	Agaricales; Physalacriaceae
<i>Sparassis crispa</i>	XP 027611961.1	Polyporales; Sparassidaceae
<i>Daedalea quercina</i>	KZT72322.1	Polyporales
<i>Laetiporus sulphureus</i>	XP 040759197.1	Polyporales
<i>Cantharellus anzutake</i>	XP 038919162.1	Cantharellales; Cantharellaceae
<i>Pyrrhoderma noxium</i>	PAV24234.1	Hymenochaetales; Hymenochaetaceae
<i>Fomitiporia mediterranea</i>	XP 007262022.1	Hymenochaetales; Hymenochaetaceae
<i>Sanghuangporus baumii</i>		Hymenochaetales; Hymenochaetaceae
<i>Inonotus obliquus</i>	AJD20419.1	Hymenochaetales; Hymenochaetaceae
<i>Aspergillus fumigatus</i>	KEY77231.1	Eurotiales; Aspergillaceae
<i>Fusarium langsethiae</i>	KPA41552.1	Hypocreales; Nectriaceae
<i>Aspergillus luchuensis</i>	GAT31350.1	Eurotiales; Aspergillaceae
<i>Penicillium griseofulvum</i>	XP 040645987.1	Eurotiales; Aspergillaceae
<i>Arabidopsis thaliana</i>	NP 187645.1	Brassicales; Brassicaceae

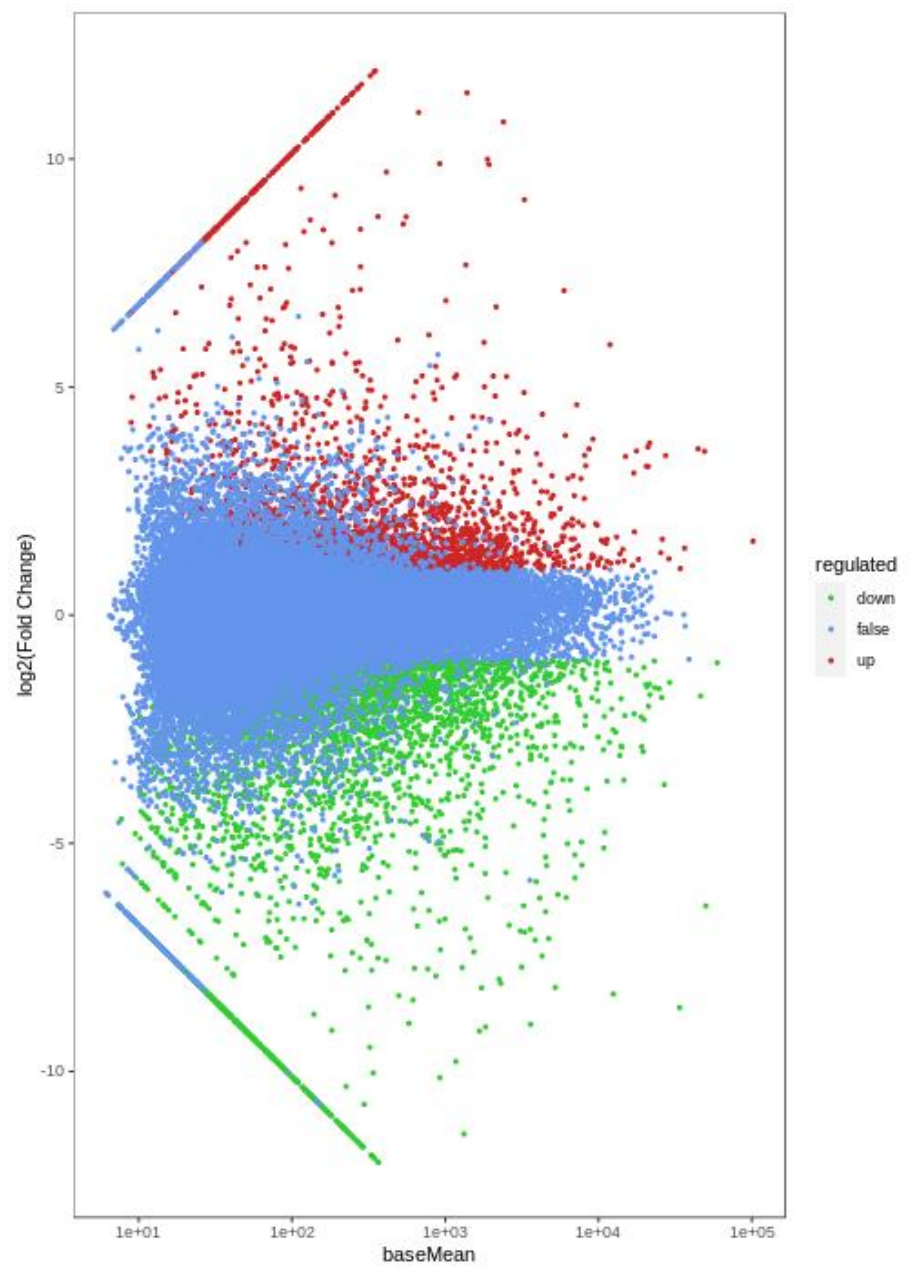
Figure S1. Micro-array plot of differentially expressed genes.

Figure S2. The SbPAL 2,493 bp open reading frame and encoded amino acid sequence.

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1      ATGGTCATCAACTCTGACGGTCACTTCGCGCGTCTCTCATTCAAACCTCAAACCTCGGGTTCGCGGACTACAACCATC
    M V I N S D G H F A R P H S N S N S G S A T T T I
76     GTCTCCCCTCACATCGACCACTCTTACGACAGCTACTATGGTCATGCTATCCCCCTTCGTGTACCAACACCGGAG
    V S P H I D H S Y D S Y Y G H A I P L R V P T P E
151    GACTTGCTCAAGCACAAGGCACTCTGAACCAAGCAGACTGTCTCAAAGACTTCATCGCGTCTACCAGGAGCTC
    D L L K H K A L L N Q A D C L K D F I A S Y Q E L
226    GACTCGTACAAGAACGGCGCTTCCATCAGCCTTACAGGTGATGATCTCACCTCTCTGCAGTCGTAGCCGTCGCA
    D S Y K N G A S I S L T G D D L T L S A V V A V A
301    CGTACCAGAGCTCGTCTCTGAGCTATCGACGAAGCTCTCGCGTCCCTCTCCAAGGACGACTCGCGCGTCCAG
    R Y P E L V S A A I D E A L A S L S K D D A W V Q
376    GCTCTCAACAGCTCACGAAAGATCATCGATGACAGCTCGCGCAGAATAAGAGTATCTATGGTGTGACACCGGT
    A L N S S R K I I D D K L A Q N K S I Y G V S T G
451    TTCGGTGGTAGTGCGGACACTCGTACGGCAGAGCAGATCTACTCGGTTTCGCGCTCCTTCAGCACCAGCATTCG
    F G G S A D T R T A E H D L L G F A L L Q H H S
526    GGTGTCTCCCAGTGGTCTCCAGTCCGTCGCGGATGCCAATGCTAGCTCTGACGCACCGTCTCTGTGCTTCG
    G V L P T G L Q S V A D A N A S S D A P S S A A S
601    ACTACCAAGTCGAGCACTCCCCTCCCCTGAGCTCTTCCGCTTCCTCCCTCTCCATGCCCCCGCATGGACGCGT
    T T K S S T P L P L S S S A S S L S M P A S W T R
676    GCAGCCATGGTAGTTCGTCTCAACTCCCTCTGCGGGACACAGTGTCTGTTCTGTTCCCTCTCAACGCCATG
    A A M V V R L N S L L R G H S A A S V P L L N A M
751    GCGGACTTCTCTCAAGAATATCACGCCTATCGTCCCTCTCCGTGGTTCATCTCCGCTTCAGGCGACTTGTCT
    G G L L S K N I T P I V P L R G S I S A S G D L S
826    CCTCTTTCTTACGTGCGCGGTACGCTCGTCGCGGAGCGAGGCATCTACTGCTACGCACCTAGCGGTGAGAAGCGC
    P L S Y V A G T L V G E R G I Y C Y A P S G E K R
901    CTAGGTGAGGAAGTGGGTATGAGCGGAGAGGAACGAAGTCTCCGTGCACCCGACGCACTCAAATCTGCTGGT
    L G E E L G M S G E G T K V L R A P D A L S A G
976    CTTGAGCCCATCAAGCTCAGACCAAGGAGCAGTAGCGATTTTGAACGGTACGGCCTTCAGTTGTGGAGCAGCT
    L E P I K L R P K E Q L A I L N G T A F S C G A A
1051   GCTCTCTGCGTCGAGGAGCGGCAACTCGTCATGCTCGGGACGGTCTGCACCGCAATGGGCAAGAGCCATG
    A L C V E E A R Q L V M L G T V C T A M G T E A M
1126   CGTGCGTCAGCAGACTCCTTCTGCGAGTTTATCCAGCGCATACGTCCGCAACCCGGGGCAGATCGAGACAGCGCGG
    R G S A D S F C E F I Q R I R P H P G Q I E T G A
1201   CTCCTCACACACTTGTGGAGACCTCGAAGCTCGCTACACGCCATGCTGAGCCCGACACTCTGCCGCGTCAAT
    L L T H L L E T S K L A T R H A E P G H S A A V N
1276   GCGGTTGAGGAGAGCATGACGGAGACCGGAAGGATAAGATCATTGTTGATGAGGAAGTATTGATGCGGATGCC
    G V E E S M T E T G K D K I I V D E E T I D A D A
1351   GGTGTCTTGAGGAGGATCGTTACCCACTCAGGACCGCCCCGAATGGCTCGGTCCGCAACTTGAGACCGTCCAG
    G V L R Q D R Y P L R T A P Q W L G P Q L E T V Q
1426   CGTGCTGCTGAAGTAATTGCTATCGAGTGAATTCTACGACGGATAACCCACTCATCGACCTGCAACTGGTATT
    R A A E V I A I E C N S T T D N P L I D P A T G I
1501   GTCCACCAAGCGGTAATTCGAAGCAATGCGGTCACCTCCGTCTCGAACCCTCCGTCTCTCCCTCTTCAC
    V H H G G N F Q A M A V T S V L E P L R L S L F H
1576   ATCGGCAAGATCCTCTTCGCGCAAGCGACCGAGCTGCAGAACCTCTCATGTGCAATGGGCTGACGGGTAACTCT
    I G K I L F A Q A T E L Q N P L M S N G L
1651   GCCTCCACCGACGCTCCCTCAACTTCGCGGTAAGGGGATCGACATCGCGATGGCCGCGTACGTCGCGGAGCTC
    A S T D A S L N F A G K G I D I A M A A Y V A E L
1726   GCGTACCTTGCGAACCCGGTGAGTACGGCGTGCAGAGCGCCGAGATGCACAACAGGCTGTGAACTCGTTGGCA
    A Y L A N P V S T G V Q S A E M H N Q A V N S L A
1801   TTCGTACGCGCGGTTACACCTCCAGGCGATTGAGATCGTGCAGATGGTTGTTGCGAGCTACATCTACCTCCTC
    F V S A R Y T L Q A I E I V Q M V V A S Y I Y L L
1876   TGCCAGGCTGTGCACTCCGCGCCCTGCAGAAGGAGATGGAAGAGAAGACGAGGAGATCTGAGGAACTTGT
    C Q A V D L R A L Q K E M E E K T Q E I V E L V
1951   AAGGAGCACTTTGCTGCTGGTGAATAATCCGTCAATGCGAAGGAAGTGTCCAAGGCTGTTTGGACGTCATTGAC
    K E H F A A G E N S V N A K E V S K A V W T S F D
2026   ACCTCTGCAACATGGATGCGAAGCCCGTCTGAGAAGGCGCGAAGGCATCTACGCAGCCTCTCGTAGACCAG
    T S A N M D A K P R A E K A A K A S T Q P L V D Q
2101   CTCCTCTCTCCACAGCTCTCCTTCTCACTTTTCATCCCTCCCCGCTTCCAATCGAGCCTCTCCGCGGTATC
    L L S S H S V S F S L S S L P A F Q S S L S A R I
2176   TACAACGACACACCTCCCTCACCACCTCTACCTCTCTTCCACCGCTTCCCCGCTCTCGCTGCGTACCTCCCA
    Y N A H T S L T T S Y L S S T A S P S L P
2251   GCCCTCAGCTCCTCGGGCGCACAAGTCCCTCTACGCGTTCTGTCGCTCGCCGCTCTCCAGGCTGGGTTAGGC
    A L Q L L G R T K S L Y A F V R S P V S Q G G L G
2326   ATCGCATGACGAGATACGAGAACCTTCAGAAATTCGTGACGGGCTCGGGAACGGCGACGAGTGGC
    I G M H G Y E N L Q K F V D G L G N G D A S K R G
2401   ACGATCGGTGGGACGTGACGCGGATACGAGAGCATTCGCGATGGACGCATGGGCCGCTCGTCTGTTAGCATG
    T I G G D V S A I Y E S I R D G R M G R V V V S M
2476   TTTGCGGCTGAGGAGTGA
    F A A E E *

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Figure S3. PCR gel electrophoresis results for the resistant strains (M: marker; N: negative control; P: positive control; 1, 2: Band for the hph gene; 3, 4: Band for the PAL gene initiated by a gpd promoter).

