

Table S1. List of primers used in this study.

Primer name	Sequence (5'-3')
full-ARAD1-F	atgtcagaaaagggcctaataa
full-ARAD1-R	tcaatttgcttaacaagaagctg
full-ARAD2-F	atggcctcgaagaacaacacc
full-ARAD2-R	tcaggtacaatggcatcgaagtg
5'CDS primer A	(t) ₂₅ v _n
3'CDS primer A	aagcagtggatcaacgcagagtac(t) ₃₀
ARAD1-F1393_RACE-GSP	gattacgccaagcttgctgtggatatgattggcagggcagt
ARAD1-R226_RACE-GSP	gattacgccaagcttcagccgcagaagagaagaaagggg
ARAD1-1383F_RACE	gcctggtgatgctgtggata
ARAD2-F1363_RACE-GSP	gattacgccaagctttggtattgggcctatctcacctgatgg
ARAD2-R199_RACE-GSP	gattacgccaagctttggggattggtggggtgtgtaggag
ARAD2-1F	ggagggctggttcgagaaa
rARAD1-F1303	atcgatcgagacaagtggag
rARAD1-R1403	atatccacagcatcaccagg
rARAD2-F910	gaaacgtccgacccttcttta
ARAD2-2R	ttttctgaaccagccctcc
r18S rRNA-F345	ccgctggcaccttatgagaa
r18S rRNA-R410	tttcagccttgcgaccatact

v = a, g, or c

Table S2. Subcellular localization analysis of CsARAD1 and CsARAD2.

CsARAD1										
Predicted localizations: Golgi apparatus										
Localization	Cytoplasm	Nucleus	Extracellular	Cell membrane	Mitochondrion	Plastid	Endoplasmic reticulum	Lysosome/Vacuole	Golgi apparatus	Peroxisome
Probability	0.1355	0.0859	0.2002	0.2071	0.0659	0.0354	0.5128	0.2726	0.9276	0.0403

CsARAD2										
Predicted localizations: Golgi apparatus										
Localization	Cytoplasm	Nucleus	Extracellular	Cell membrane	Mitochondrion	Plastid	Endoplasmic reticulum	Lysosome/Vacuole	Golgi apparatus	Peroxisome
Probability	0.1653	0.1097	0.1592	0.1643	0.0629	0.0661	0.7714	0.3345	0.8539	0.0285

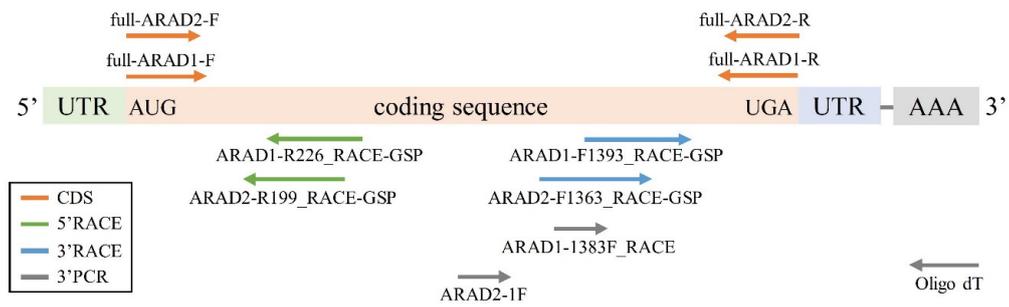


Figure S1. Cloning strategy and primers positions on *CsARAD1* and *CsARAD2*. Specific primers were designed on the open reading frame of *CsARAD1* and *CsARAD2*. AUG: start codon. UGA: stop codon. CDS: coding sequence. UTR: untranslated regions.

(A)

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1  GGTGTAATAATTTGTGCGGCTCCAGCTTCTTAAATCTCTGGAAGTAAAGAGGTCT 60
61  AAATTTATTCATCTTCAATGTCAGAAAGGCGCTAATAATGCGCTCGAGGCTACTTCT 120
      M S E K G L I N P S R L L F
121  TCTTAAATAAGTTTTCAGAGTCTTTTGAATCTCTCTCATGTCTCTCTCAATC 180
      C L I M F S M V L L I F S S L F L L O F
181  AGAGAGGATTTCTCATATCTGGATCGTTTTTAAGATAATTTGTTAACAACATCA 240
      R D D S F I S G S V F K I I V V N N T S
241  GTTACTTAAACATACATACAGGCTGAAATAAACCCTCTCTCTCTCTGCG 300
      V Y L K P S I R G E K I K P P F F S S A
301  GCTGCAACAATTTATGATGACCAACCATGAGAACCAAGAGCAGTCTTATCAGAGTCC 360
      A A T T I Y D D Q P M R T Q E O S Y Q S S
361  AATCCGACATAAAATTTGGTTCCTTGGGAGAGAGAAAGAAAGACTTGTGCCCGAAT 420
      N R S I K L G A L G E E E E K T C D P N
421  CAGGCTCTCTTGGGCTATGATGATGACTTCCCTCAATTTCACTTGGGTATTG 480
      H A L L R V Y M Y D L P P O F H F G L L
481  GGTGGAAGAGGATGAGATCAACATGCCCGATTTGAGTAACCTAGTCAATCCCT 540
      G W K G S A D Q T W P D L S N P S Q I P
541  CATTACCGGGTGTAAATTTACAGCACAGCATGGGTACTGCTACCCCTGATCTT 600
      H Y P G L N L O H S I E Y W L T L D L
601  CTGTCATCAACAGCTCAATGAGGTCAGGCTAGTGTGCTCATGAGTGTCAATTTG 660
      L S S F T P N R V R P C S A I R V H N L
661  AGCAAGCAGATAAATTTTGGCCATCTTCCGACTCTCGATCTTGATTAATGATTTCT 720
      S Q A D I I F V P F F A S L S Y N R Y S
721  AAGCTTTTGGAAAGCGAAAGTGTGATGTCACAGAAATGTGGAGAACAAATGGTGG 780
      K L V G K E K V S V N R M L E N K L V E
781  TTTTGAACCTGGGATGAGTGAAGGAGGATGAGAGGAGGATCTAATAGTAGCA 840
      F L K R R D E W K R L R G K D H L I V A
841  CACCATCAAAATGATGATGATGCGAGAGAGGATGAGAGGAGGATCTAATAGTAGCA 900
      H H P N S M L I A R R K L G S A M F I L
901  GCAGATTTGGAGAGTACCCAGAGAAATGACAACTTAAAGAGGAGCTGATCGCTCT 960
      A D F G R Y P A E I A N L K K D V I A P
961  TACAGCATCTCGTGAAGCCGCTGCTGCTCAACAGCTGGGCCCATTTGAAGGCGCTCT 1020
      Y K H L V K T V A A N K S A P F E G R P
1021  ATATTGACACATTTCCAGGACAGCTTTATAGAAAAGCGGGGAAATATTCGTCAGAA 1080
      I L A H F Q G A V Y R K D G G I I R O E
1081  CTATATTACTCTTCAAGATGAGAGAGATGTCACCTTCACTTTGAGAGCGTTCAGCA 1140
      L Y Y L L K D E K D V H F T F G S V Q A
1141  AATGGAATCGTGGGAGAGAGGAGTGTGATCAATCAATTTGACTGCTATATTCT 1200
      N G I S R A G O G M S S E F C L N I A
1201  GAGGACCTCTCTCAATCCCTTTGATGACCTCTACCAAGTGTGCTCTGTA 1260
      G D T P S S N R L P D A I A S H C A V P V
1261  ATATTAGCAGATGAGTGAAGTACCATATCAAGATGCTTAGACTACTGAGTCTG 1320
      I I S D E I L P Y E D V L D Y S E F C
1321  GTATTGTGACCTCTGATGCTCAAGAAATGCTTAGTGAATCTCTAAGGGGA 1380
      V F V R A S D A V K N G F L V N L L R G
1381  ATGATCGAGCAGTGTGAGCGAATGTTGGGAAAGATTAAAGCAGATTGCACACATTT 1440
      I D R D K W S E M W E R L K Q I A Q H F
1441  GAATATCAGTATCATCTGAGCTGTGATGCTGTGATATGATTTGGCAGGAGTTTCA 1500
      E Y O Y P S Q P G D A V D M I W O A V S
1501  GGTAAAGTGTGATCAACTCAATTAATGTTTACAGGAAACAGGATATATAGATCTCAG 1560
      R K L S T Q F N V H R N N R Y H R S Q
1561  CTCTCTGTTAAGCAATTTGATATATATATATATATTTGGAAATTTCTGTATTATT 1620
      L L V K T N *
1621  TTTATGAGGATCATTTGAAATCTGGTTTTGTTGGGTTCTTCAAAAGAAATTAAGCTG 1680
1681  TTTTGATAAATATGTA 1740

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(B)

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1  CCCCAGCCTAGTATAGCCACCCAGTGTATACCCAGAGTACATGCGGTATACAGCA 60
61  GAGAAGAGTGAACCAAAATGTCCTGGAAGACACACCAACCAACTCTATGCTCT 120
      M A S K N N T K N T T L C S
121  GTCCTCTCTACAGACCCCACTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 180
      V S S L F L S L S L L C I L S L S L F F
181  TTCTCTCTCTACAGACCCCACTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 240
      F L S Y T T H O S P S S L S O A T P S F
241  CCCCCTCACTCCATCAAGTCTACCTGCGAGCCTACCCAGATCTCTCACTACGCGT 300
      P S N P I K V Y L A D L P R S L N Y G L
301  TTGATAAATACTGGTCTTGGACCCGATGCGGCTCGAAGCGAATGACACAGAA 360
      L D K Y W S L D T D S R L G S E S D K E
361  ATTGATCGACCCATTTGTTGACAAAGGCTCTCAATCCACCCCTACCGGAGATCA 420
      I R S T H L W N K R L O Y P P Y P E N P
421  CTGATCAAGCAGTACAGTCCGAGTCTGATCACTGCGTGTGATGATGACCCCTGACGAA 480
      L I K O Y S A E Y W I M G D L M T P E E
481  CTCAGACCTGCGCTTGTGCGAGCGGTTTTCGATGTCGCGAGCCGATGTTGTTTC 540
      L R T G S F A K R V F D V G E A D V V F
541  GTTCCGTTTTTCGAGCTTAAGCCCGAAATCAGTGTGTTGREGMAAGGAGCTTT 600
      V P F F A T L S A E I Y I M G V G K G A F
601  AGGAAGAAAGTGGGATGAGGATATGACAGCCAGACAGGTTGTTGATCTTCTCAG 660
      R K K V G N E D Y E R O R Q V S D M L L K
661  ACTCTGAGGCTTGGACAGGCTGCTGCTGCTGATGATGTTTGTCTTACTGACCT 720
      T S E A W N R S G G R D H V F L L T D P
721  GTTGCATGTCATGTCAGAGCTGAGATGCCCAGCAGTCTCTAGTGTGGATTT 780
      V A M W H V R A E I A P A V L L V D V F
781  GTTGGTGTGTAAGCTTGTCAAAAGCATCTAAGTAAATACATGATGATGACAA 840
      G G W Y R L D S K A S N S N T S D M L K
841  CACAGCCAGTTTCACTGTGAAGATGTAATGTGTCATACACATCTGTTACCTAG 900
      H T Q V S L L K D V I V P Y T H L L P R
901  TTGCAGATACAGAAACCCGAAAGCTCCGACCCCTTCTTATTTCAAGGACTAACAT 960
      L Q I S E N P K R P T L L Y F L K G A K
961  CGGCATCGGGGAGGCTGTCGAGAAATATGGGACTGTTGTTTAAAGAACCCGGA 1020
      R H R G G L V R E K L W D L L V N E P G
1021  GTTATTATGGAAGAGGCTTCCCTATCCACCTGGAAGAGGAGGATGATGATG 1080
      V I M E E G F P N A T G K E Q S I K G M
1081  AGAACATCAGAAATCTCTCTCATCCAGCTGGAGACCCCACTTGTGCGGCTTTTC 1140
      R T S E F C L H P A G D T P T S C R L F
1141  GATGCCATCAAGGCTCTGATACCTGTTATGTCAGGCAACATCAGCTCCATTT 1200
      D A I Q S L C I P V I V S D N I E L P F
1201  GAAGGATGTTGATATTGAGAAATTTCTATTTTCAATTCAGTGTGATGCTTTCAA 1260
      E G M V D Y S E F S I F I A V S D A L Q
1261  CCAAACTGGCTGTGCTCATAGAGCTATTCTGACAGAAAGGATATATTCC 1320
      P N W L V R H L R S Y S D K K D I F R
1321  CAAAATGCTCGAGTACAGCCATTTTGGATTTGATAATGCGCATCTGTTGAT 1380
      Q N M A R V O P I F E F D N G H P G G I
1381  GGGCTTCTCACTGATGCTGTAAATACATATGAGGAAAGTCCACCAAAATG 1440
      G P I S P D G A V N Y I W R K V H O K L
1441  CCGGTGTTAAGGAGCTATTATTCGGGAAAGAGAAACCCGTCAGCGGATCTGTCCA 1500
      P V I K E A I I R E K R K P S G V S V P
1501  CTTGATGCTATGTAAGTAAATTTGAAAGAAAGGACTGCAATGATGTTTCAAGTT 1560
      L R C H C T *
1561  CTTGTGTAAGTATTTTATTTATTTTCTTAAATCCCTCTGTTTTT 1620
1621  TCTGAAACCCGCTCC 1680

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Figure S2. The concordance table of the nucleotide sequence and deduced amino acid sequence of tea tree CsARAD1 and CsARAD2.

(A) The coding sequence of CsARAD1 contained 1503 nucleotide sequences, and 500 amino acid sequences were translated. (B) The coding sequence of CsARAD2 contained 1443 nucleotide sequences, and 480 amino acid sequences were translated. The translation initiation codon is ATG, the translation stop codon is TGA, and the asterisk (*) represents the stop codon. The red box indicated the conserved sequence of GT47 family.

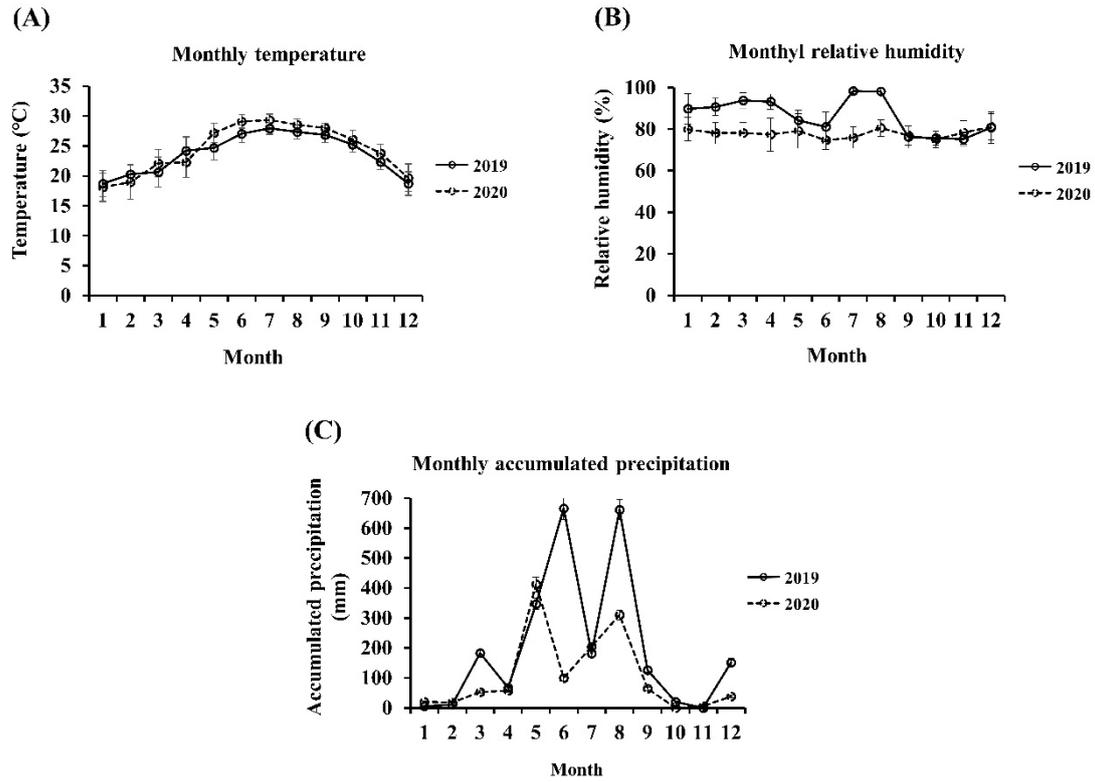


Figure S3. The meteorological data of Nantou during 2019 and 2020.

(A) The average monthly temperature of Nantou in 2019 and 2020. (B) The monthly relative humidity of Nantou in 2019 and 2020. (C) The monthly accumulated precipitation of Nantou in 2019 and 2020.