

Table S1. List of primers used in this study.

Primer name	Sequence (5'-3')
full-ARAD1-F	atgtcagaaaagggcctaataa
full-ARAD1-R	tcaatttgctttaacaagaagctg
full-ARAD2-F	atggcctcgaagaacaacacc
full-ARAD2-R	tcaggtacaatggcatcgaagtg
5'CDS primer A	(t) ₂₅ vn
3'CDS primer A	aagcagtgggtatcaacgcagagtac(t) ₃₀
ARAD1-F1393_RACE-GSP	gattacgcccaagcttgctgtggatatgattggcaggcagt
ARAD1-R226_RACE-GSP	gattacgcccaagcttcagccgcagaagagaagaaagggg
ARAD1-1383F_RACE	gcctgggtgatgctgtggata
ARAD2-F1363_RACE-GSP	gattacgcccaagctttggtattgggcctatctcacctgatgg
ARAD2-R199_RACE-GSP	gattacgcccaagctttggggattggtgggtgtgtaggag
ARAD2-1F	ggagggctggttcgagaaaa
rARAD1-F1303	atcgatcgagacaagtggag
rARAD1-R1403	atatccacagcatcaccagg
rARAD2-F910	gaaacgtccgacccttcttta
ARAD2-2R	ttttctgaaccagccctec
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

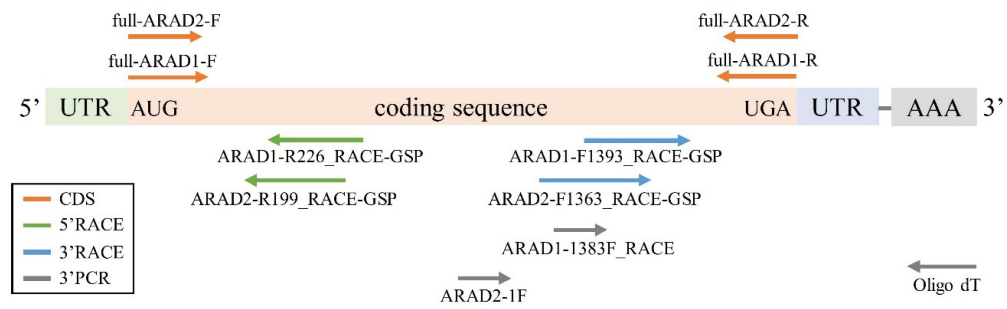


Figure S1. Cloning strategy and primers positions on *CsARAD1* and *CsARAD2*. Specific primers were designed on the open reading frame of *CsARAD1* and *CsARAD2*. AUG: start codon. UGA: stop codon. CDS: coding sequence. UTR: untranslated regions.

(A)

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1  GGTGTAATAATTTGTGAGGCTGACGCTTCTTAATCTCTGAGAGTAAGAGGTTCT 60
61  AATTTATTCAATCTTCAATGTCAGAAAGAGGCTAATAATGCGCTGAGGCTACTTTTC 120
    M S E K G L I N P S R L L F
121  TCTTAAATAATGTTTCAGATGTTCTTTGATCTCTCTTCATGTTCTCTTCAATTC 180
    C L I M F S M V L L I F S S L F L L O F
181  AGAGAGGATTTCTTCATATCTGGATCGTTTTTAAGATAATTTGTTTAACACACATCA 240
    R D D S F I S G S V F K I I V V N N T S
241  GTTACTTAAACATCAGCATCAGGGTGAAATAATTAACCCCTCTCTCTCTCTGCG 300
    V Y L K P S I R G E K I K P P F F S S A
301  GCTGCAACAATTTATGATGACCAACCATGAGAACCAAGAGCAGTCTTATCAGAGTTCC 360
    A A T I Y D D Q P M R T Q E O S Y Q S S
361  AATCGCAGCATAAATTTGGTGGCTTGGGAGAGAGAGAAAGAGCTTGTGACCGGAT 420
    N R S I K L G A L G E E E E K T C D P N
421  CAGGCTCTCTTGGGTTGATATGATGACTTGGCTCTCAATTTCACTTTGGGTTATG 480
    H A L L R V Y M Y D L P P O F H F G L L
481  GGTGGAAAGAGGATGAGATCAACATGCCAGATTGGATTAACCTAGTCAAACTCT 540
    G W K G S A D Q T W P D L S N P S Q I P
541  CATTACCGGTTGTTAAATTTACAGCAGACATCGGTACTGCTACCTCTGATCTT 600
    H Y P G L N L O G H S I E Y W L T L D L
601  CTGTGATCAAGACCTCAATGAGGTGAGGCTGTGATGCTATCAGAGTCCATATTG 660
    L S S N T P N R V R P C S A I R V H N L
661  AGCAAGCAGATTAATTTTGGCGATCTTTCGACTCTCGGTTGATATAGATGATCT 720
    S Q A D I I F V P P F A S L S Y N R Y S
721  AAGCTTTTGGAAAGAGGAGTTAGTGTCAACAGATGTGAGAGCAAAATTTGGTGG 780
    K L V G K E K V S V N R M L E N K L V E
781  TTTTGAACGTCGGATGAGTGAAGCGATTGAGAGCGAGGATCATCTAATAGTAGCA 840
    F L K R R D E W K R L R G K D H L I V A
841  CACCATCAAAATAGTATGTTGATTCGAGAGAGAGGTTGGGTTCTGCGATGTTCACTCT 900
    H H P N S M L I A R R K L G S A M F I L
901  GCAGATTTTGGAGATACCCAGCAGAAATGCAACCTTAAAGAGGAGCTGTGCGCTCT 960
    A D F G R Y P A E I A N L K K D V I A P
961  TACAGCATCTCTGAGAGCGCTGTGCTCAACAGTGGGCCCATTTGAAGGCGCTCT 1020
    Y K H L V K T V A A N K S A P F E G R P
1021  ATATTGGCAGATTTCCAGGAGCAGTTTATAGAAAGAGCGGGGAAATATCTCAAGAA 1080
    I L A H F Q G A V Y R K D G G I I R O E
1081  CTATATTACCTCTTCAAGATGAGAAAGATGTCACCTTGCACATTTGGAAGCGTTCAACA 1140
    L Y Y L L K D E K D V H F T F G S V Q A
1141  AATGGAATCGCTGAGCAGAGAGCGGATGATCATCAAAATCTGATATTTCT 1200
    N G I S R A G O G M S S S E F C L N I A
1201  GCGACATCTCTCTCAATGCGCTCTTGTATGATCTCTAGCCATTTGTTCTCTGTA 1260
    G D T P S S N R L F D A I A S H C A V P V
1261  ATATTAGCGATGAGATGAGCTACCATATGAGAGTCTTAGACTACTTGGATCTCT 1320
    I I S D E I E L P Y E D V L D Y S E F C
1321  GTATTGTTGATCTCTGATGCTCTTAAGAGATGTTTCTAGTGAATCTTCAAGGGA 1380
    V F V R A S D A V K N G F L V N L L R G
1381  ATCGATGAGACATGAGCGAATGTGGGAAAGATTAAAGCAGATTGCACACATCTT 1440
    I D R D K W S E M W E R L K Q I A Q H F
1441  GAATATCAGATCATCTCAAGCTGTGATGCTGTGATATGATTTGGCAGGAGTTTCA 1500
    E Y O Y P S Q P G D A V D N I W O A V S
1501  GTTAAGTTGTGATCACTCAATTTAATGTTTCATAGGAACAACAGGTATCATAGATCTCAG 1560
    R K L S S T Q F N V H R N N R Y H R S Q
1561  CTCTCTGTTAAGCAAAATTTGATATATATATACATATTGGAAATTTCTGATTTATTT 1620
    L L V K T N *
1621  TTTATGAAGATCATTTGGAATCTGGTTGTTTGTGGGTTCTTCAAGAAATTAAGCTTAG 1680
1681  TTTTGATAAATATGTA

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(B)

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1  CCCGAACTTAGTATAGCGCAACAGTGTGATCAACCCAGATACATGCGGNTATCACAGCA 60
61  GAGAGAGGTGAACCAAAATGCGCTGAGGAAGACACACCAACCAACTCTATCTCT 120
    M A S K N T A N T T L C S
121  GTCTCTCTCTGTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 180
    V S S L F L S L S L L C I L S L S L F F
181  TTCTCTCTCTACAGACCCCAACCATCCCATCTTCACTTTTCCAGCTACCCCTTCATTC 240
    F L S Y T T H O S P S S L S O A T P S F
241  CCGTCAATCCATCAAGTCTACCTGCGACCGATCCAGATCTCTCACTACGCTCTC 300
    P S N P I K V Y L A D L P R S L N Y G L
301  TTGATAAATCTGCTCTTGGACCCGATTCGAGGCTGCGAGCGAATCAGAACAGAA 360
    L D K Y W S L D T D S R L G S E S D K E
361  ATTGATCGAGCCATTTTGGAGCAAAAGGCTTCAATACCCACCTACCGGAGATCCA 420
    I R S T H L W N K R L O Y P P Y P E N P
421  CTGATCAAGCAGTACAGTCTGCGAGTACTGATGATCGTGTGATGATGATGATGAT 480
    L I K O Y S A E Y W I N G D L M T P E E
481  CTCAGAACTGCGTCTTTCGAGCGGCTTTTGGATGTCGCGAGCGCGGATGTTGTTTC 540
    L R T G S F A K R V F D V G E A D V V F
541  GTTCTGTTTTCGAGCTTAAAGCCGGAATTCAGTTGGTGTGGGAAAGGAGCTTT 600
    V P F F A T L S A E I O L G V G K G A F
601  AGGAGAGAGTGGGAGTGAAGTATGAGAGCGGAGAGACAGTGTGATGATCTCTCAG 660
    R K K V G N E D Y E R O R Q V V D L L K
661  ACTCTGAGGCTTGGAGCAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 720
    T S E A W N R S G G R D H V F V L T D P
721  GTTGCATGTCATGTCAGAGCTGAGATGCGCCAGCAGTCTCTAGTGTGGATTT 780
    V A M W H V R A E I A P A V L L V D F
781  GTTGGTGTGACAGGCTTGAATCAAAAGCATCTAACGTAATACATCAGATATGACAA 840
    G G W Y R L D S K A S N S N T S D M P
841  CACAGCCAGTTTCACTGCTGAAGATGTAATGTGACATACACATCTGTTACCTAG 900
    H T Q V S L L K D V I V P Y T H L L P R
901  TTGAGATATCAGAAACCCGAAAGTCCGAGCTCTTATTTTCAAGGAGCTAACAT 960
    L Q I S E N P K R P T L L Y F K G A K H
961  CGGATCGGGGAGGCTGTGAGAAATATGGGAGTGTGTTGTTAAAGACCGGA 1020
    R H R G G L V R E K L W D L L V N E P G
1021  GTTATATGAGAGAGCTTCCCTATGCCACTGGAAGAGGAGCAGTCAATAAAGGATG 1080
    V I M E E G F P N A T G K E Q S I K G W
1081  AGAACATCAGATTTCTGCTCTCATCCAGCTGGAGACCCCACTTGTGTCGAGCTTTTC 1140
    R T S E F C L H P A G D T P T S C R L F
1141  GATGCCATCAAGGCTTGTATACCTGTGATGTCAGCAACATCAGAGCTCCATTT 1200
    D A I Q S L C I P V I V S D N I E L P F
1201  GAAGGATGTGATATTGAGAAATTTCTATTTTCAATTCAGTTAGTGTGCTTTTCAA 1260
    E G M V D Y S E F S I F I A V S D A L Q
1261  CCAACTGCTGTGCTCATCTAAGAGCTATTCTGACAGAAAGGATATATTTCOC 1320
    P N W L V R H L R S Y S D K K K D I F R
1321  CAAATATGCTCGAGTTCAGCCCATTTTGGATTTGATATGCGCATCTGTTGGTATT 1380
    Q N M A R V O P I F E F D N G H P G G I
1381  GGGCTATCTCAGCTGATGCTGTAAATACATATGGAGGAGTCCACCAAAATTTG 1440
    G P I S P D G A V N Y I W R K V H O K L
1441  CCGGTGATTAGGAAGCTATTATTCGGGAAAGAGAAACCGTCAGCGGTATCTGTCCA 1500
    P V I K E A I I R E K R K P S G V S V P
1501  CTTCGATGCTATGATCTGAGTGAAGTGAAGAGGAGCTGCAATGATGTTTCAAGTT 1560
    L R C H C T *
1561  CTGTTGTGAAGATTTATTTTATTTATTTTATTTTATTTTAAATTCCTCTGTTTT 1620
1621  TCTGAGACAGCCCTCC

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Figure S2. The correspondence 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.

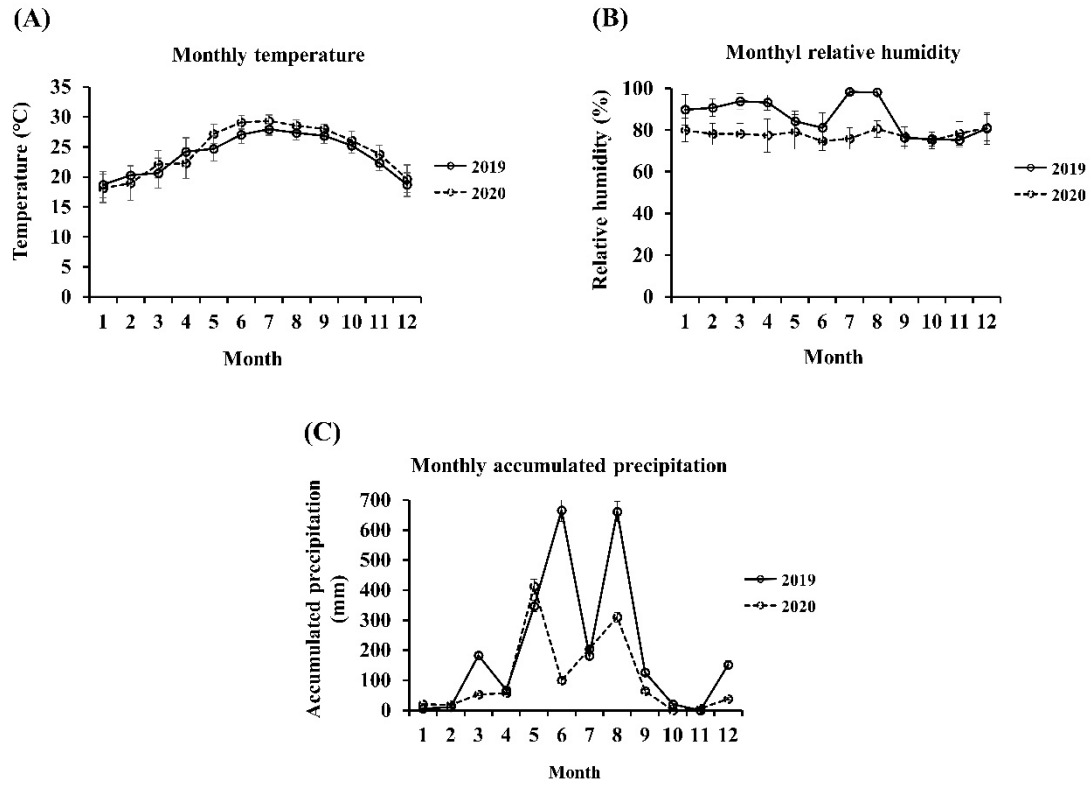


Figure S3. The meteorological data of Nantou during 2019 and 2020.

(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.