

**S1 Fig. Alignment of *rbcS-1* and *rbcS-2* cDNA sequences from *Tragopogon dubius*, *T. pratensis* and other Asteraceae representatives along with protein translation for both genes. The conserved hexadecapeptide motif (YYDGRYW<sup>T</sup>MWKLPMFG) is indicated in red text.**

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60
Tdubius_rbcS1_cDNA      AATGGCTTCCATCTCCTCCTCCGCGGTGCGCCACCGTCAACCGGACCACCGCCGCTCAAGC
M A S I S S S A V A T V N R T T A A Q A
Tdubius_rbcS2_cDNA      -----
Tpratensis_rbcS2-cDNA  -----
Lactuca_sativaD14001    AATGGCTTCCATCTCCTCCTCAGCCATCGCCACCGTCAACCGGACCACCTCCACCCAAGC
M A S I S S S A I A T V N R T T S T Q A
Flaveria_pringleiU29933 AATGGCTTCGATCCCCGCTACCGT---CGCCACCGTCGC-----TCAAGC
M A S I P A T V A T V A Q A
Flaveria_pringleiU29934 AATGGCTTCGATCTCCTCCACCGT---CGCCACCGTCAGCCGGGCGCCCCCGCTCAAGC
M A S I S S T V A T V S R A A P A Q A
Flaveria_pringleiU29936 AATGGCTTCGATCTCCTCCACCGT---CGCCACCGTCAGCCGGGCGCCCCCGCTCAAGC
M A S I S S T V A T V S R A A P A Q A
Helianthus_annuusX05079 AATGGCTTCGATCTCCTCCTCAGT---CGCGACCGTTAGCCGGACCGCCCTGCTCAGGC
M A S I S S S V A T V S R T A P A Q A

120
Tdubius_rbcS1_cDNA      CAGCATGGTGGCTCCGTTACCAGGCTCAAGTCTTCCGCGCTTTCCAGTCACCAAGAA
S M V A P F T G L K S S A A F P V T K K
Tdubius_rbcS2_cDNA      -----
Tpratensis_rbcS2-cDNA  -----
Lactuca_sativaD14001    TAGCTTGGCAGCTCCATTACCAGGCTCAAGTCTAACGTAGCTTTCCAGTTACCAAGAA
S L A A P F T G L K S N V A F P V T K K
Flaveria_pringleiU29933 CAACATGGTGGCTCCGTTACCAGGCTTAAAGCCAATGCTGCCTTCCCGTCACCAAGAA
N M V A P F T G L K A N A A F P V T K K
Flaveria_pringleiU29934 CAACATGGTGCAGCCGTTACCAGGCTTAAAGTCCAACGTCGCCTTCCCGCCACCAAGAA
N M V A P F T G L K S N V A F P A T K K
Flaveria_pringleiU29936 CAACATGGTGCAGCCGTTACCAGGCTTAAAGTCCAACGCGCTTCCCGCCACCAAAAA
N M V A P F T G L K S N A A F P A T K K
Helianthus_annuusX05079 CAACATGGTGGCTCCGTTACCAGGCTTAAAGTCCAACGCGCTTCCCGCCACCAAGAA
N M V A P F T G L K S N A A F P T T K K

180
Tdubius_rbcS1_cDNA      GGC---CAATGACTTTTCTCCTCCCTTCCAGCAACGGTGAAGAGTGCAATGCATGAAGGT
A N D F S S L P S N G G R V Q C M K V
Tdubius_rbcS2_cDNA      -----
Tpratensis_rbcS2-cDNA  -----
Lactuca_sativaD14001    GGCTAACAAATGACTTTTTCATCCCTACCCAGCAACGGTGAAGAGTACAATGCATGAAGGT
A N N D F S S L P S N G G R V Q C M K V
Flaveria_pringleiU29933 GGT---CAACGACTTCTCCACCCTTCCAGCAACGGTGAAGAGTGCAATGCATGAAGGT
V N D F S T L P S N G G R V Q C M K V
Flaveria_pringleiU29934 GGC---TAACGACTTCTCCACCCTTCCAGCAACGGTGAAGAGTGCAATGCATGAAGGT
A N D F S T L P S N G G R V Q C M K V
Flaveria_pringleiU29936 GGC---TAACGACTTCTCCACCCTTCCAGCAACGGTGAAGAGTGCAATGCATGAAGGT
A N D F S T L P S N G G R V Q C M K V
Helianthus_annuusX05079 GGC---TAACGACTTCTCCACCCTTCCAGCAACGGTGAAGAGTTCAATGCATGAAGGT
A N D F S T L P S N G G R V Q C M K V

240
Tdubius_rbcS1_cDNA      GTGGCCACCAATTAACATGAAGAAGTACGAGACTCTTTTCGTACCTACCACCATTGTCCGA
W P P I N M K K Y E T L S Y L P P L S E
Tdubius_rbcS2_cDNA      -----
Tpratensis_rbcS2-cDNA  -----
Lactuca_sativaD14001    GTGGCCACCAATTGGGTTGAAGAAGTACGAGACTCTTTCATACCTACCACCATTGTCCGA

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W P P I G L K K Y E T L S Y L P P L S D  
 Flaveria\_pringleiU29933 GTGGCCACCACCTTGAAAGAAGAAGTACGAGACTCTTTCATACCTTCCAGACCTAACTGA  
 W P P L G K K K Y E T L S Y L P D L T E  
 Flaveria\_pringleiU29934 GTGGCCACCACCTTGAAAGAAGAGGTACGAGACTCTTTCATACCTTCCAAATCTAACTGA  
 W P P L G K K R Y E T L S Y L P N L T E  
 Flaveria\_pringleiU29936 GTGGCCACCACCTTGAAAGAAGAAGTACGAGACTCTTTCATACCTTCCAAATCTAACTGA  
 W P P L G K K K Y E T L S Y L P N L T E  
 Helianthus annuusX05079 GTGGCCACCACCTTGATTGAAGAAGTACGAGACTCTCTCATACCTTACCACCCTAACTGA  
 W P P L G L K K Y E T L S Y L P P L T E

300

AGCCTCATGGCTAAGGAAGTCGACTACCTTCTCCGCAACAAGTGGGTTCCTTGTGTTGGGA  
 Tdubius\_rbcS1\_cdNA A S L A K E V D Y L L R N K W V P C L E  
 Tdubius\_rbcS2\_cdNA -----GGTCTAAGGAAGTTGACTACCTTCTCCGC-ACAAATGGGTTCCTTGCCTAGA  
 V \* G S \* L P S P H K W V P C L E  
 Tpratensis\_rbcS2\_cdNA -----CCGC-ACAAATGGGTTCCTTGCCTAGA  
 P H K W V P C L E  
 Lactuca\_sativaD14001 CGAGGCATTGTCTAAGGAAATCGACTACCTTATCCGCAACAAGTGGATTCCATGCTTGGGA  
 E A L S K E I D Y L I R N K W I P C L E  
 Flaveria\_pringleiU29933 GTTCCAGTTGGCTAAGGAAGTCGACTACCTGCTCCGCAACAATGGGTTCCTTGTGTTGGGA  
 V Q L A K E V D Y L L R N K W V P C L E  
 Flaveria\_pringleiU29934 GGCCAGTTGGCTAAGGAAGTCGACTACCTCCTCCGCAACAATGGGTTCCTTGTGTTGGGA  
 A Q L A K E V D Y L L R N K W V P C L E  
 Flaveria\_pringleiU29936 GGCCAGTTGGCTAAGGAAGTCGACTACCTCCTCCGCAACAATGGGTTCCTTGTGTTGGGA  
 A Q L A K E V D Y L L R N K W V P C L E  
 Helianthus annuusX05079 AACTCAGTTGGCTAAGGAAGTCGACTACTTGCTCCGCAAAAATGGGTTCCTTGTGTTGGGA  
 T Q L A K E V D Y L L R K K W V P C L E

360

ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGCACCACCCTCCCCGGGTAATGTA  
 Tdubius\_rbcS1\_cdNA F E L E H G F V Y R E H H H S P G Y Y D  
 Tdubius\_rbcS2\_cdNA ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGCACCACCCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E H H H S P G Y Y D  
 Tpratensis\_rbcS2\_cdNA ATTCGAGTTGGAGCATGTTTTTCGTTTACCGTGAGCACCACCCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E H H H S P G Y Y D  
 Lactuca\_sativaD14001 ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGCACCACCCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E H H H S P G Y Y D  
 Flaveria\_pringleiU29933 ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGAACGCAAGATCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E N A R S P G Y Y D  
 Flaveria\_pringleiU29934 ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGAACGCAAGATCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E N A R S P G Y Y D  
 Flaveria\_pringleiU29936 ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGAACGCAAGATCTCCCCGGGTAATGTA  
 F E L E H G F V Y R E N A R S P G Y Y D  
 Helianthus annuusX05079 ATTCGAGTTGGAGCACGTTTTTCGTTTACCGTGAGAACGCCAGATCCCCGGGTAATGTA  
 F E L E H G F V Y R E N A R S P G Y Y D

420

CGGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGGTGCACCGACTCAGCCCAGGT  
 Tdubius\_rbcS1\_cdNA G R Y W T M W K L P M F G C T D S A Q V  
 Tdubius\_rbcS2\_cdNA TGGCCGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGGTGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Tpratensis\_rbcS2\_cdNA TGGCCGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGGTGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Lactuca\_sativaD14001 TGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGATGCACCGACTCAGCTCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Flaveria\_pringleiU29933 CGGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGATGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Flaveria\_pringleiU29934 CGGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGATGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Flaveria\_pringleiU29936 CGGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGATGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V  
 Helianthus annuusX05079 CGGAAGATACTGGACAATGTGGAAGTTGCCTATGTTTCGGATGCACCGACTCAGCCCAGGT  
 G R Y W T M W K L P M F G C T D S A Q V

480

GTTGAAGGAGTTGGAAGAGTGAAGAAGGAGTACCCGAACGCCTTCGTCCGTATTATCGG  
 Tdubius\_rbcS1\_cdNA L K E L E E C K K E Y P N A F V R I I G  
 Tdubius\_rbcS2\_cdNA GTTGAAGGAGCTTGAAGAGTGAAGAAGGAGTACCCGAACGCCTTCGTCCGTATTATCGG  
 L K E L E E C K K E Y P N A F V R I I G  
 Tpratensis\_rbcS2\_cdNA GTTGAAGGAGCTTGAAGAGTGAAGAAGGAGTACCCGAACGCCTTCGTCCGTATTATCGG  
 L K E L E E C K K E Y P N A F V R I I G

Lactuca\_sativaD14001 CATGAAGGAGGTTGGAGAGTGCAAGAAGGAGTACCCCAACGCCTTCATCCGTGTTATTGG  
M K E V G E C K K E Y P N A F I R V I G  
Flaveria\_pringleiU29933 GATGAAGGAGCTTCAAGAGTGCAAGAAGGAGTACCCCTCAGGCATGGATCCGTATCATTGG  
M K E L Q E C K K E Y P Q A W I R I I G  
Flaveria\_pringleiU29934 GATGAAGGAGCTTCAAGAAATGCAAGAAGGAGTACCCCTCAGGCATGGATCCGTATCATTGG  
M K E L Q E C K K E Y P Q A W I R I I G  
Flaveria\_pringleiU29936 GATGAAGGAGCTTCAAGAAATGCAAGAAGGAGTACCCCTCAGGCATGGATCCGTATCATTGG  
M K E L Q E C K K E Y P Q A W I R I I G  
Helianthus\_annuusX05079 GATGAAGGAGCTTCTGAATGCAAGAAGGAGTACCCCAAGGCCTGGATCCGTATCATTGG  
M K E L A E C K K E Y P Q A W I R I I G

540

Tdubius\_rbcS1\_cdna ATTCGACAACGTTGCGTCAAGTGCAATGTGTGTCAGTTTCATCGCCGCCAAGCCACCAGGC--  
F D N V R Q V Q C V S F I A A K P P G  
Tdubius\_rbcS2\_cdna ATTCGACAACGTTGCGCAAGTGCAATGTGTGTCAGTTTCATCGCTGCCAAACCACCAGGC--  
F D N V R Q V Q C V S F I A A K P P G  
Tpratensis\_rbcS2\_cdna ATTCGACAACGTTGCGCAAGTGCAATGTGTGTCAGTTTCATCGCTGCCAAACCACCAGGC--  
F D N V R Q V Q C V S F I A A K P P G  
Lactuca\_sativaD14001 ATTCGACAACATTGCGTCAAGTGCAATGTATCAGTTTCATCGTTGCCAAGCCCCAGGCGT  
F D N I R Q V Q C I S F I V A K P P G V  
Flaveria\_pringleiU29933 ATTTGACAACGTTGCGTCAAGTGCAATGCATCAGTTTCATTGCCTCAAACCAGGTGGC--  
F D N V R Q V Q C I S F I A S K P P G G  
Flaveria\_pringleiU29934 ATTTGACAACGTTGCGTCAAGTTCAAGTGATCAGTTTCATCGCTTCCAAAGCCAGAAGGC--  
F D N V R Q V Q C I S F I A S K P E G  
Flaveria\_pringleiU29936 ATTTGACAACGTTGCGTCAAGTTCAATGTATCAGTTTCATTGCCTCAAACCAGATGGC--  
F D N V R Q V Q C I S F I A S K P D G  
Helianthus\_annuusX05079 ATTTGACAATGTTGCGTCAAGTTCAATGTATCATGTTTCATTGCTTCCAGGCCAGATGGT--  
F D N V R Q V Q C I M F I A S R P D G

547

Tdubius\_rbcS1\_cdna -TTCTAA  
F \*  
Tdubius\_rbcS2\_cdna -TTCTAA  
F \*  
Tpratensis\_rbcS2\_cdna -TTCTAA  
F \*  
Lactuca\_sativaD14001 TCTCTAA  
L \*  
Flaveria\_pringleiU29933 -TTCTAA  
F \*  
Flaveria\_pringleiU29934 -TTCTAA  
F \*  
Flaveria\_pringleiU29936 -TTCTAA  
F \*  
Helianthus\_annuusX05079 -TACTAA  
Y \*