

Supplementary material S1

Fasta file of *S. nonagrioides* predicted protein sequences and corresponding transcript sequences

>SnonGOBP1
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>SnonCXE13

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>Snon-N-Acetyltransferase

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>Snon-Acetyltransferase 1

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>Snon-Desaturase

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>Snon-Acetyltransferase

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>Snon-N-Acetyltransferase 3

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>Snon-Fatty acid synthase

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>Snon-Fatty-acyl CoA reductase 1

ATGGGCTTCTAGAAGATCGAGATCTAAGTGGCGTGCCTAGTATACCTGAATCTATAAAGAAAACAGTATTCATTAAGTGGCGTTCTGGT
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AAGACAGATTAGCTCAGTTGTTTCTTCAATATGTTTCGACAGACTTCGCAAAGAAAGGCCGATTCCAATCAAAAAGTGTGTCATAGCTGGA
GATGTTTAGAAAATGGTTTAGGATATCTGAGGAAGATCTGCTCTGATTTGCAATCTGTTGAACATCGTGTGAACATCGTCTCCACGTTGCTGTACGCTAC
ATTTGATGATCCCTTGAAGATGCTGTGCGAATGAATCTTAGAGGCAGAAAGGAGTGGTGAACCTCGCCACGACATCAGGAATTTAAATGCC
TTCTCCACGTTCAACTCTACTCCAAACATAACAGAGATCTATAGACGATCTTGATAGAGGACTGTTACCCCTCATGCTGACTGAGGGACACCTTGA
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GCTGAAAACGATAGTGGCCGAGTATAAGGGAATACTGCCATTGTCATCATAGACCTCCATAGTCAATCAAGTGTGGAGGAGCCAGTTCCAG
GATGGGTAGAGAATCAACGGTCTGTGGTGTATGGCAGCTACAGGAAAGGCATCATGCGCAGCTTACACGGATCCAAATCTGATAGC
TGACTACATGCCAGTGCATATAGCTATCAAGAGCTTATAGTACGATCTTGATGGCAACGAGGAACTAAAGAACTGTSTCAACAGCACACCGTCA
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GACTCTTCTGTGGGCAATTCGGCAGAAAACATGCTGATCAAAAATCCAACCGCCATCTACATAGCGAAYTTGCCCTCGAGTACTACRTAC
CAAGCAGTGGACTTTTGACAAACAATAACTGGTACTCCTGTTCAAGAACTTAGAAAACGACATGAAACAATGAAAACAGTGGAGTCAAGAA
GTTGATAAATACCGTTTTTTGTAACGCGAGCTTGGAGGAAAGAAATTTTTATTGAAAAGAAAAGGATGAAAGTCTTCCAAAGGCTAAGCGTC
ATCATAAAAGATGCTGATCATTGACACGGTGGTGAATACTCTTCTACGGTACCTGTTCTGGTGGTCTTCTGAATCTGCAATTCATAAAAAA
ATTATTTAATAAGTAATAATTTCTCAAT

>Snon-Fatty-acyl CoA reductase 2

ATGAGCCAGTACACTTTGGATGAGTCCCCACTGATAGTACTCCTAAAACTGCGAAAAAGATGGAGAAGTGGGTCAAAGCCAGGTTAAGGGCG
AGAAGACAGACATTTGATGCTACGGCAAGCCACAGATCAGATGCTCAAAGAACTCGAGAATGTGAGGGGTCTCAGCAAAGAGCTACAGGACA
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CGAGTTCGTCCCGGACACCGCGACACCTATTACGAGAGGAGGACAAGTGAAGTCCGAAGGAAAGAAAGAAAGAAACTTACAAAAGGGTA
AAGCGCCAAAGACTGAGATTCAGGATTTCTATAGAGATCAGTGTGTGTTACTGTTGGAATTTGAAAGCCAGTCACTGATAGAAA
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AAAATTTGAAAAGATTGTCACAACGTTCTAGGAAAAGAGCCCTAACAGTATTGCTTACGAAGGCATAGCAGAGGAGGCTGTTCCAAAAT
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GCGTAAATGCTATCCTCGCTCCGCTGGTTCACTGCCAAGAAATTACAAGAGAAATCAAACATCTGTATTTCCGATCACAACCTCGTGTGGA
GCGCAGAACCCCTCAACTTGGGAGACTTCATTGAAGTAAACCGAGAWATGGTATGCAAAAACCCACCACAAGGCTGTTGGTACTACGGTT
TGAACCCACGAACAATATTATGTCTTGTCTACAACCTTCTTACATATCTGCCCGCTGTTGTGGGACATGACTGCGCCATCAGCG
GGAAAAGACGAGGATGTGAAAAGTGAACAACAAGTAAAGAAATTTGCAACATTTCTGTCTACTTCTGACCCAAAGACTGGAAGTTTTCAGA
CAAGAACCGTCAAAATATGTGGATCTCACTAACAAGTATGAAACCGGTTGTTCCCTTTAGCATAGGTAAGTGCCTCGTCAGGAGGCTGCGG
AAACATTCCTACTTGGTATCAGAGTGTACCTCATCAAGGATGACCTTCCAGTACCTGAAAGCCAGGAAGAAGTGAACAAGCTGTATTACCTG
CATCAGGCGTAAAGCTCTCACCATAGTTCTAGTGTAAACTTGGCATATTTTGTGCTAAAAGCTGTGTTCTCGCTTCTGCT

>Snon-Fatty-acyl CoA reductase 3

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GAACTGGCTTATGGGAAGGTGCTACTCGAGAAAGTGTCTAGAAAATGTCCGGACATCGATCAGATTCTTCTCTCGTGGAGCAAAGAAGGG
CAAGAACCGAAACAGAGACTGGAAGAGATCTCAGTGGAGTCTTCCGACAGGTCCGCGCAATGAGAGGAGGCGTTGAGCCTCTGCTGGA
GAAGGTGACCCTCGTGAACGGTGACGTCTCAGA

>Snon-Fatty-acyl CoA reductase 4

ATGGCGCCMTAGTGAATATATCTGAGTACTATGCCGTAATAACGCTGTTTCATGACCGGAGCGACTGGTTTCATGGGTAAAAGTATGGTGGAGA
AGCTTCTAAGATGCTGCCCTGACATCAAGAAGATGTATCTACTCATGAGGCCAAAGAAAGGCCACAATAGTAAAGAACGACTGGATGACTGTT
GAGTTATCGGATCTCGATCGTGTGAAAGCAGAGTCTCCGAAAGCTTCTCGACAAGTACAGGTAGTAGCCGGAGACATTTCTGTCCCGGACTG
GAGTGTGACGAGGATCGAGCGCTCATTCAGAAGCAGGACAGATTAATCTTCCATTGTGTCTGCTGCGTCAAGTTCGACATGTTTCTCCGGAT
GCTGTCAAAATGAAACACAGCGGGGACCAAGAAAGTATGAAACTGGCTGAAGGAGTGAAGAAATTAAGTGTCTGCTCCGCTTCAGCTCAT
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TATGAGGGGAAAGTTCCCATAGTGGTTCGCGCGGCTATCTATGCTGGCAGCCTACAAGGAGCCTAGCTGGATGGGTGGACAATTTGAACG
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GAGCTCGTGGATAGCGCACCAGCTGGCGATGTTCTTCACTACAGTGTCCGCGTCTCTTGGTATGCTCATGTCTCTATGGGAAGAAGA

CTTTCATGATTAATAAATCCAGAAGCGAATCAACTACGGCTCGGAAATTTCTGCAGTACTACACGACCAAGGAATGGCACTTCACAAATGACAACCT
YGTGGCGTCCAGCAGAGGATCTCCAAGAGTGACAACCAACGTTTTACACTGATATGAAGGACATGGACTGGAGCATGTACATCAGGAAGCTAC
ATCAAGGGGGCTCGGAGTACTGCTGCAAGAAGACCCCGCCACTCTACCCGACGCCAGGAAATTACAGAAAACAAATTAATACTATCTCGACAAA
CAGTACAGATTATGATCGGTTTATTAGTATCATATTTCCGCTACTACTATTTTAATATGCTATACTCTGTGATAAGCTCA

>Snon-Fatty-acyl CoA reductase 5

ATGGGTGAACACAGCTGATTTCCGTCAGTGAAGCCATCGGCGAAAATTTAATGAAAGAAATAAATATTGTGCCGAGTGCATCGATAGTGCAG
ACGAGAATATGAACAATAAATATGACAATATGACGGATGTCCAGAAGTTTATAATGGGAAGAATAATTCTGATCACTGGCGCTACAGGTTTTCT
CGGCAAGATCCTAGTGGAGAAGCTTCTCCGGTGTGCCAGGCGTGGAACCTGTACTCTTGTGCGCAGAGAAGAGGGGGRAGGACATTTAC
AGTAGGATTGAAGAAATCTTTGATGACCTGTGTTCAATCAGCTAAAGGGAAGAGGTGCCGAAGTTCCGGCACAAAGTTGTTGGTGTGCCAGCAG
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CTAATGCACATATCGAGCGACATCGAACTCAGCTGTCCGAAATCGAGGAGGTTTATCCATGTGACCTGATTTGTAACAGTCACGC
AGATGATTGACAAGCTCTGTGATAAGCAGATCAATAAAATGTTACGAAAATCCTAGGACCATGGCCAAACAGTACACATTCACAAAAGCCTT
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AACCTCCGATCTTCAATTACGTCAGTTTTCAGTGGAGAACAGGATAACGTGGGGCGATTTTCAAGCACAAAATATGCAATGGATACATCACTACCC
CTTCTCTCAGGCTGTGTGGTACTTTTCATAAAGGCTGACGAAATCGGTGCTCATCTACAAAATCTACAAGTTACTCTTGACCTAAATACCCCGACG
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TCTGCACGAGGATTAATACTGTAAACAGTGAACAGCAGAGGCTTTGGGAGAAATAGCTCTGAAGCCGATAAAGCAGAAATATTCCACCGCAGC
GAGCGACATAAAGTTGGGAGGGGATTTCCAGGACTATCTGGCTGGCATCAGGAGGTTCTCTTCAAGGAGAGCGATGACACACTACCGACAGCC
AGGATTAAGTGAAAAGATTGTTCTATCTGCATCAGATAGCAGATTCTTTCTCTCATCTGGCGGCTACGCTCTATGGCGGATTTTATCTTCA
CTATGG

>Snon-Fatty-acyl CoA reductase 6

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CATGGCAAGGTGTTGGTCGAACGCATCCTATCGAGTGTCTGAGGTTGGACGCTCTACTTGTCTATGAGGATAAGAAGGGGACTCGCCC
CAGAAGAGGCTGGCACAACCAAGCAGTCACAGGTATTGACAAGTTCGCGCTCGTAACCACCGGCAGCTGGACAAAGTGTTCGCGGTACGCG
GAGATGTTCCAAGCCCATCTAGGCTGGTACTGAGGCGCTTTTACAGCTTAGAGAGGTGCCATAGTGTTCATTACGCGCTACTCTGAAG
TYYGATGAACCACCTACGGGTGCGGTCATTGATCAGAAATGTTCTGTTGTCGAAAAGACTCTGGAATAATGTGATAAAGCAGAAATATTGCGGCTT
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GGCACTTTACAACGGACAATGTAATAAATAACAGACCTGACGCTCTCGCTCAAGATGCTGACATTAATAATTAGTCCCAAACTATCAATTTGG
GAAATTCATTATGAAAATTTCTGTAATAGGAACAAGAAAATATCTTTACAAGAGAAGACCAAGACATCGACGTAGCAAAACATTTGCGCA
AGATGATTACGTGCATCAAGGAGTTTGTGTTCTCGTGATAACCTTCTTTGCGCGATGGCGCTCCAGAACCAATACATAAAAAACCTTTGTTTACC
GGCGTTTCCAGATGTCTGCTGCAATTTAAGCTCAGCTTACATGCGCATACGACAGAGC

>Snon-Fatty-acyl CoA reductase b

ATGGGCAAGGTGCTGGTGGAGCGTCTGCTGTGGAGTGCCTGCGAGCGTGTGTCGCTGCACCTGCTCTCCGCCACAAGAACAACCTCTCGCCG
ACAAGAGACTCGCCGAGCTCAAACAATCCAGGTGTCGACGTATCCGAAGGACTGCCCGCAGCAGTGGACAAGCTCAGCATGCTGGCCGG
GGACGTCACAGGGCAGGCCTCGGCTCGACGATCTATCAGTCAAGCTCAACAGGTGTCGGTGTGTTCCACTCAGCGCGCAGCGCTAAAG
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GCTGCACGTTCTCGACGGCTACAGTAACCGGAGCTGACGACCGTGGAGGAGCGGGTGTACGAGGCGCCGTTGCCGCTGCAGCAGTGTGAG
CCTCGTGGACGTGCTGCCCGGACCTGCTGGTGTGAGTACGCCCCAGGCTAATATCTCCGAAGCCAAACACATACAGTTACCAAAGCGATG
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AGAATGCACCTATATATGATCCACAAGGCGGTGAAGTTATAATAAATTTTTGGTTGGGTCGACTAGCGGTACGAACATTTTCTGCCATCAG
ACGGGATAAAGCAACAGCAATAAGAACA

>Snon-Fatty-acyl CoA reductase II

ATGGGTGAAGCCAAAATATCAAACGTAGCATCCTTTTTACGGGAAAATCTGTTTTATAACTGGCGGTACGGGATTTGTTGAAAGACTTTAAT
AGAAAAGTTGTTACAGCTGCAATGGGATTGACAAAATTTATGCTCTGGTACGTGATAAGCATGGCAAACAGGCCGAACGACTGGAGGCT
ATCACTACTTACCAGTTTTGACCGGATAAAAAGAACCAGAAGAGAGTGGAAAAAATACGGTCACTAGTGGGGATATTACTGGAGAGT
GTTTTGGATTGCCGGTGTATTTTTAAAGTATTTGAGGACGAGGATAGTACTTACTAGCAGCCACAGTTGCAATTCAGCTGCCACTT
AAAGATGCCATGAGGATAATTTAATGGTACGGAAAATGTAATTAATTTATGATCAGGATGAAAAAATTAAGAGGGTTTTGTGACTGTGCTCGA
CAGCTTTCTCAACTCAGACCGAAGGGAYATAGATGAAGTGTATACCAAATGCCTATGGGTTTAAAGAACCGCCAGACTTTTTGCTGAAAATGTA
CTMCATTAATGATGATGTCAGCAAAATTTTTGGGAAAATAAGCCTAATACCTACACTTTTTCAAAGGCGTGTGGGAAAGAACAAGTTATGAAGC
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AAATACAGAACCGGTAGGAAAGTCGTAGTGAAGTCTTTTTTACTAACCAAGTGGAGTTTCTGTGATAACCAATGGAGAAATGATTTA
AAAATATGTCTTATGTGGACAAAGAAATGTTAACCCTTTCAGCTGCAATCGATTAACCTGGGAAACCTGTATTAGAGATTACGTTTACGAGCTAG
GAAACTTGTGAAACATGAGAAA

Supplementary material S2

Maximum likelihood tree of candidate chemosensory proteins (CSPs) from *S. nonagrioides* and other Lepidoptera. Sequences used were from *B. mori* [63], *S. littoralis* [17, 18, 56], *H. melpomene* [58], *H. virescens* [47, 60, 61] and *P. xuthus* [65]. Signal peptide sequences were removed from the data set. Branch support was estimated by approximate likelihood-ratio test (aLRT) (circles: >0.95) [73]. Images were created using the iTOL web server [87]. The SnonCSPs identified in this study are in red.

