

Table S1. The average (+SD) concentration of each CHC component per weevil (μg) of both sexes from the spring and summer populations of both species.

| Peak No. | Compound name | LI | LI lib | <i>P. strobi</i> | | | | <i>P. nemorensis</i> | | | |
|----------|---------------------------|------|--------|------------------|--------------|--------------|--------------|----------------------|--------------|--------------|--------------|
| | | | | Spring | | Summer | | Spring | | Summer | |
| | | | | Male | Female | Male | Female | Male | Female | Male | Female |
| 1 | Pentacosane | 2572 | 2574 | 2.45 ± 0.36 | 3.69 ± 0.86 | 1.29 ± 0.53 | 0.69 ± 0.16 | 1.78 ± 0.72 | 2.79 ± 0.58 | 2.50 ± 1.29 | 3.47 ± 1.62 |
| 2 | 3-Methylpentacosane | | | 0.12 ± 0.07 | 0.40 ± 0.05 | 0.05 ± 0.03 | 1.49 ± 0.94 | ND | 0.05 ± 0.05 | ND | 0.37 ± 0.24 |
| 3 | Hexacosane | | | 0.68 ± 0.06 | 1.00 ± 0.21 | 1.41 ± 0.54 | 3.10 ± 1.37 | 0.60 ± 0.49 | 0.77 ± 0.23 | 2.42 ± 0.93 | 1.91 ± 0.35 |
| 4 | 6,9-Heptacosadiene | 2674 | 2676 | 0.07 ± 0.07 | 0.21 ± 0.16 | 0.09 ± 0.06 | ND | 0.04 ± 0.04 | 0.32 ± 0.22 | 0.12 ± 0.07 | 0.16 ± 0.11 |
| 5 | Heptacosane | | | 18.02 ± 1.56 | 19.17 ± 4.45 | 10.23 ± 1.72 | 5.96 ± 1.02 | 15.95 ± 4.15 | 19.43 ± 3.67 | 7.76 ± 0.37 | 5.30 ± 0.88 |
| 6 | 13-Methylheptacosane | 2730 | 2733 | 2.63 ± 0.61 | 2.17 ± 0.60 | 1.21 ± 0.26 | 1.91 ± 0.76 | 1.10 ± 0.66 | 1.94 ± 0.66 | 1.89 ± 0.56 | 1.09 ± 0.36 |
| 7 | 11,15-Dimethylheptacosane | 2757 | 2757 | 0.77 ± 0.26 | 0.83 ± 0.22 | ND | ND | 0.12 ± 0.12 | 0.39 ± 0.32 | ND | ND |
| 8 | 3-Methylheptacosane | 2772 | 2773 | 3.29 ± 0.83 | 3.95 ± 0.28 | 1.36 ± 0.35 | 0.84 ± 0.32 | 1.82 ± 0.78 | 3.61 ± 0.37 | 0.68 ± 0.22 | 1.11 ± 0.36 |
| 9 | Octacosane | | | 2.44 ± 0.22 | 2.57 ± 0.34 | 5.92 ± 0.74 | 3.26 ± 0.51 | 2.66 ± 0.48 | 2.86 ± 0.30 | 5.21 ± 0.67 | 3.42 ± 0.57 |
| 10 | 6,9-Nonacosadiene | 2876 | 2876 | 4.31 ± 0.89 | 8.06 ± 1.45 | 6.36 ± 1.63 | 5.54 ± 0.87 | 3.09 ± 0.61 | 5.52 ± 0.55 | 5.11 ± 1.15 | 7.90 ± 1.14 |
| 11 | Nonacosane | | | 10.67 ± 1.29 | 6.03 ± 0.68 | 21.35 ± 4.50 | 12.74 ± 3.60 | 20.41 ± 6.99 | 6.97 ± 1.37 | 18.43 ± 1.79 | 9.72 ± 0.74 |
| 12 | 13-Methylnonacosane | 2930 | 2931 | 4.76 ± 0.12 | 4.55 ± 0.52 | 1.94 ± 0.46 | 1.90 ± 0.45 | 4.00 ± 0.79 | 5.19 ± 0.50 | 3.01 ± 0.61 | 2.67 ± 0.43 |
| 13 | 5-Methylnonacosane | 2956 | 2951 | 0.31 ± 0.10 | 0.82 ± 0.22 | ND | ND | ND | 0.31 ± 0.20 | ND | ND |
| 14 | 3-Methylnonacosane | 2973 | 2973 | 2.32 ± 0.53 | 2.92 ± 0.37 | 4.24 ± 0.47 | 3.17 ± 0.66 | 2.36 ± 1.38 | 2.20 ± 0.67 | 3.36 ± 0.30 | 3.48 ± 0.92 |
| 15 | 10-Hentriacontane | 3077 | 3081 | 6.72 ± 1.10 | 7.23 ± 0.70 | 7.83 ± 1.38 | 8.25 ± 0.56 | 5.56 ± 0.62 | 5.12 ± 0.23 | 7.71 ± 0.84 | 6.71 ± 1.69 |
| 16 | 13-Methylhentriacontane | 3127 | 3129 | 7.24 ± 1.70 | 4.90 ± 0.44 | 7.95 ± 3.92 | 12.92 ± 3.02 | 5.76 ± 1.22 | 5.89 ± 0.55 | 4.67 ± 0.41 | 5.53 ± 0.37 |
| 17 | 5-Methylhentriacontane | 3151 | 3150 | 7.07 ± 1.21 | 6.39 ± 0.58 | 6.76 ± 1.07 | 8.60 ± 0.32 | 6.36 ± 1.37 | 9.58 ± 1.54 | 6.42 ± 0.20 | 9.80 ± 2.08 |
| 18 | Tritriacontadiene | 3252 | 3256 | 0.74 ± 0.09 | 0.67 ± 0.12 | 1.54 ± 0.38 | 2.55 ± 0.51 | 0.52 ± 0.20 | 0.92 ± 0.31 | 1.37 ± 0.08 | 1.57 ± 1.61 |
| 19 | 9-Tritriacotadiene | 3278 | 3277 | 4.16 ± 1.43 | 2.48 ± 0.18 | 3.36 ± 0.46 | 3.86 ± 0.51 | 2.93 ± 0.62 | 2.22 ± 0.39 | 3.52 ± 0.28 | 4.08 ± 0.49 |
| 20 | 15-Methyltritriacontane | 3327 | 3327 | 2.62 ± 0.29 | 2.18 ± 0.43 | 2.01 ± 0.48 | 2.67 ± 0.18 | 2.21 ± 0.41 | 2.77 ± 0.29 | 2.96 ± 0.51 | 3.66 ± 0.28 |
| 21 | 5-Methyltritriacontane | 3352 | 3350 | 18.61 ± 1.62 | 19.78 ± 3.29 | 15.08 ± 2.62 | 20.55 ± 0.64 | 22.68 ± 4.76 | 21.13 ± 2.86 | 22.87 ± 2.28 | 28.03 ± 3.02 |

Mean ± SD; n = 5; "LI" represents the calculated linear retention indices in the study, "LI lib" represent the reference found in NIST library.