

**Supplementary material for:**

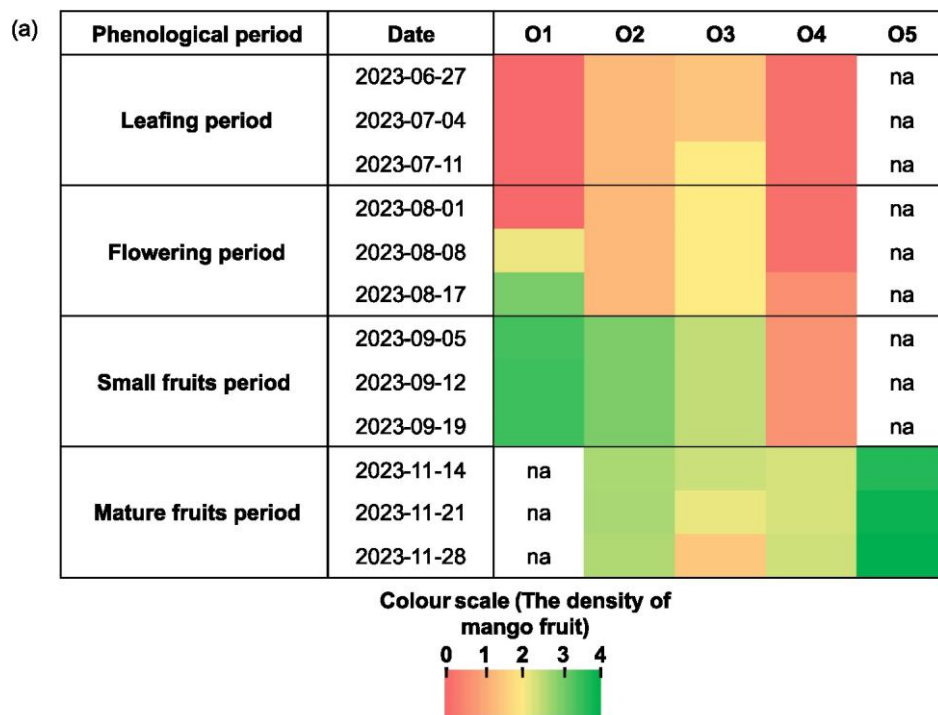
## A Spatio-Temporally Distinct Chemical Landscape in a Mango Orchard with High *Fopius arisanus* Parasitism

by David Arzac<sup>1</sup>, Laura Moquet<sup>1</sup>, H  l  ne Delatte<sup>1</sup>, Marie-Ludders Moutoussamy<sup>1</sup>, and Vincent Jacob<sup>1\*</sup>

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Figure S1



(b)

| Phenological period  | Date       | O1     | O2      | O3         | O4         | O5  |
|----------------------|------------|--------|---------|------------|------------|-----|
| Leafing period       | 2023-06-27 | L      | FI-SFr  | SFr        | L          | na  |
|                      | 2023-07-04 | FI     | FI-SFr  | SFr        | L          | na  |
|                      | 2023-07-11 | FI     | FI-SFr  | FI-SFr     | FI         | na  |
| Flowering period     | 2023-08-01 | FI     | FI-SFr  | FI-SFr     | FI         | na  |
|                      | 2023-08-08 | FI-SFr | FI-SFr  | FI-SFr     | FI         | na  |
|                      | 2023-08-17 | FI-SFr | FI-SFr  | FI-SFr     | L-FI       | na  |
| Small fruits period  | 2023-09-05 | SFr    | SFr-LFr | FI-SFr-LFr | L-SFr      | na  |
|                      | 2023-09-12 | SFr    | SFr-LFr | SFr-LFr    | L-SFr      | na  |
|                      | 2023-09-19 | SFr    | SFr-LFr | FI-SFr-LFr | FI-SFr     | na  |
| Mature fruits period | 2023-11-14 | na     | FI-LFr  | FI-SFr-LFr | FI-SFr     | LFr |
|                      | 2023-11-21 | na     | FI-LFr  | FI-SFr-LFr | FI-SFr     | LFr |
|                      | 2023-11-28 | na     | FI-LFr  | FI-SFr-LFr | FI-SFr-LFr | LFr |

Figure S1: Mango fruit density and tree phenology across orchards and sampling periods. (a) Qualitative assessment of the density of mango fruit presence in each orchard at each sampling period. Color scale: 0: no fruit; 1: few fruits; 2: moderately abundant; 3: abundant; 4: very abundant; na: not assessed. (b) Description of mango tree phenology in each orchard and at each period. O1 to O5: Orchard 1 to Orchard 5; L: no flowers or fruits; FI: presence of flowers; SFr: presence of small fruits; LFr: presence of large fruits; na: not assessed.

Figure S2

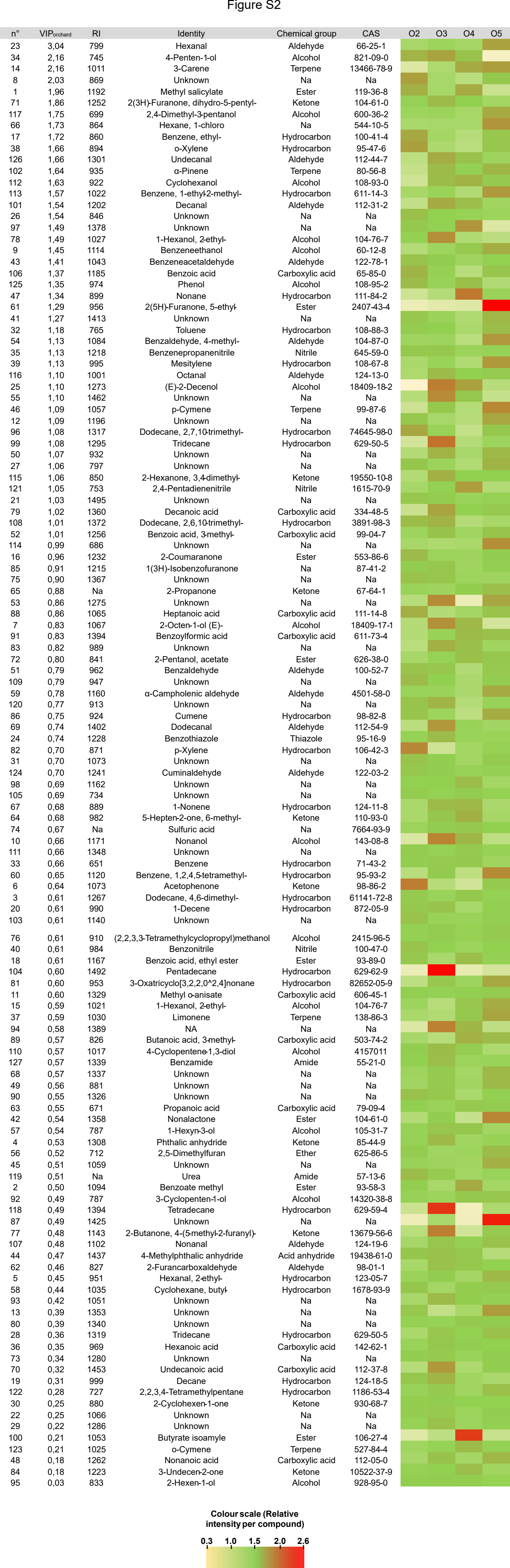


Figure S2: List of the 127 putatively identified compounds, ranked by decreasing importance in distinguishing orchards during the mature fruit period. This ranking is ordered by decreasing value of  $VIP_{\text{orchard}}$ , based on the PLS-DA performed across orchards during the mature fruits period (Figure 5). For each compound, the putative identification chemical group and CAS number are indicated (Na: not attributed). For the construction of the heatmap, the mean peak value of each compound was calculated for each orchard. Then, each of these values was normalized by the mean value of that compound across the four orchards (O2: Orchard 2; O3: Orchard 3; O4: Orchard 4; O5: Orchard 5). Note that only the mean is represented but not the variability, which may explain why some compounds with low  $VIP_{\text{orchard}}$  value appear to differ across orchards.

Figure S3

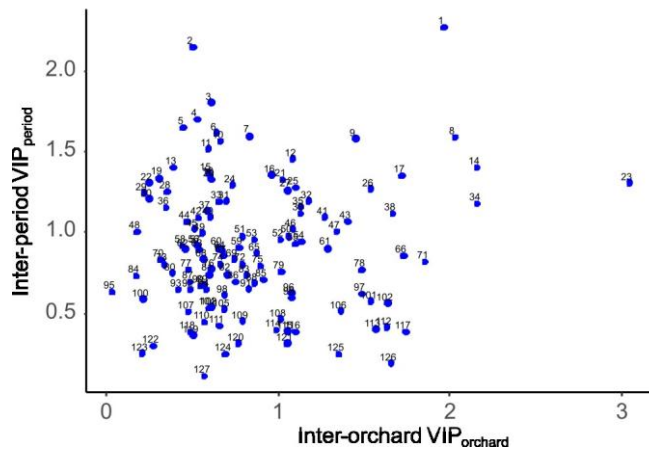


Figure S3: Projection of  $VIP_{period}$  scores (Variable Importance in Projection) obtained from the PLS-DA performed across phenological period, all orchards combined, in function of the  $VIP_{orchard}$  scores from the PLS-DA between orchards during the mature fruits period.

| Phenological periods                 | Leafing |    |    |    | Flowering |    |    |    | Small fruits |    |    |    | Mature fruits |    |    |    |
|--------------------------------------|---------|----|----|----|-----------|----|----|----|--------------|----|----|----|---------------|----|----|----|
| Orchards                             | O1      | O2 | O3 | O4 | O1        | O2 | O3 | O4 | O1           | O2 | O3 | O4 | O2            | O3 | O4 | O5 |
| <i>Annona squamosa</i>               | +       | -  | -  | -  | +         | -  | -  | -  | +            | -  | -  | -  | -             | -  | -  | -  |
| <i>Citrus aurantiifolia</i>          | -       | -  | -  | +  | -         | -  | -  | +  | -            | -  | -  | +  | -             | -  | +  | -  |
| <i>Crotalaria sp.</i>                | -       | -  | +  | -  | -         | -  | +  | -  | -            | -  | +  | -  | -             | +  | -  | -  |
| <i>Eucalyptus sp.</i>                | -       | +  | +  | -  | -         | +  | +  | -  | -            | +  | +  | -  | +             | +  | -  | -  |
| <i>Lantana camara</i>                | -       | +  | -  | +  | +         | +  | +  | +  | +            | +  | +  | +  | -             | +  | +  | -  |
| <i>Leucaena leucocephala</i>         | +       | +  | -  | +  | +         | +  | +  | +  | +            | +  | +  | +  | +             | +  | +  | +  |
| <i>Mangifera sp.</i><br>(Américaine) | -       | -  | -  | -  | -         | -  | -  | -  | -            | -  | -  | -  | -             | -  | -  | +  |
| <i>Mangifera sp.</i> (Auguste)       | -       | -  | -  | -  | -         | -  | -  | -  | -            | -  | -  | -  | -             | -  | -  | +  |
| <i>Mangifera sp.</i> (Thaï)          | -       | -  | +  | -  | -         | -  | +  | -  | -            | -  | +  | -  | -             | +  | -  | -  |
| <i>Musa sp.</i>                      | +       | -  | -  | -  | +         | -  | -  | -  | +            | -  | -  | -  | -             | -  | -  | -  |
| <i>Passiflora edulis</i>             | -       | -  | -  | +  | -         | -  | -  | +  | -            | -  | -  | +  | -             | -  | +  | -  |
| <i>Physalis sp.</i>                  | -       | +  | -  | -  | -         | -  | -  | +  | -            | -  | -  | -  | -             | -  | -  | -  |
| <i>Schinus sp.</i>                   | -       | -  | +  | -  | -         | -  | +  | -  | -            | +  | +  | -  | -             | +  | -  | +  |
| <i>Selenicereus undatus</i>          | -       | +  | -  | -  | -         | +  | -  | -  | -            | +  | -  | -  | +             | -  | -  | -  |
| <i>Tamarindus indica</i>             | -       | -  | +  | +  | -         | -  | +  | +  | -            | -  | +  | +  | -             | +  | +  | -  |
| <i>Urochloa maxima</i>               | +       | +  | +  | +  | +         | +  | +  | +  | +            | -  | +  | +  | +             | +  | +  | +  |
| Level of plant cover                 | 1       | 2  | 1  | 2  | 1         | 2  | 2  | 2  | 1            | 1  | 1  | 2  | 1             | 2  | 2  | 1  |

Table S1: Plant species and vegetation cover recorded within a 25 m radius around each mango orchard during the four phenological periods. “+” and “-” indicate plant presence and absence, respectively, regardless of fruiting status. Vegetation cover was visually scored as follows: 0: no vegetation cover; 1: vegetation cover lower than 30 cm; 2: vegetation cover higher than 30 cm. O1: Orchard 1; O2: Orchard 2; O3: Orchard 3; O4: Orchard 4; O5: Orchard 5.