

1 ***Supplementary information***

2 **Eugenol diffusion coefficient and its potential to control *Sitophilus zeamais* in rice**

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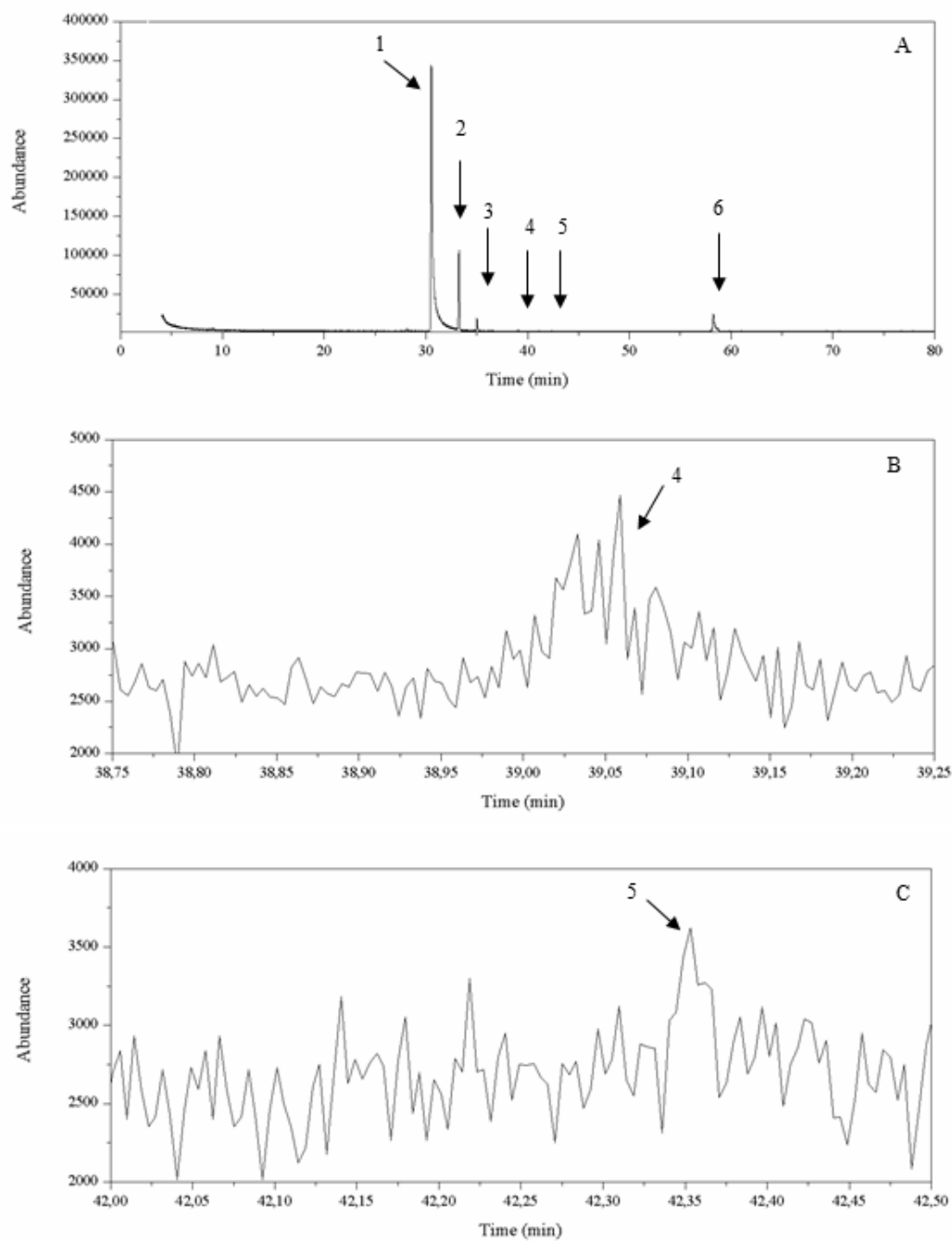
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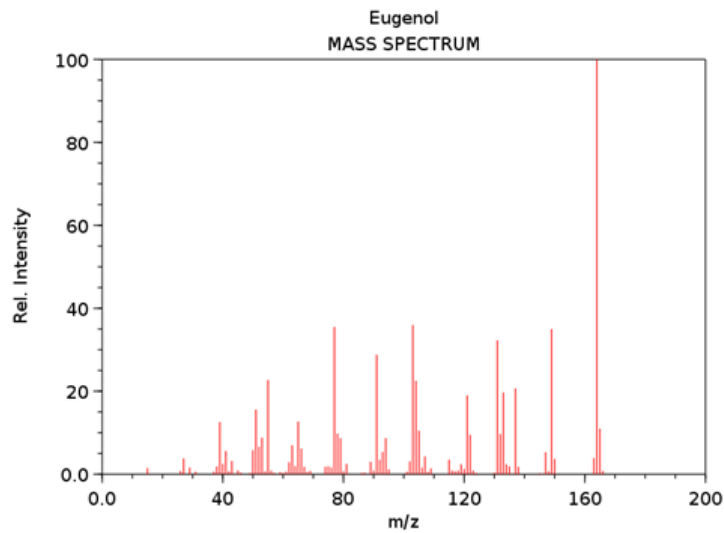
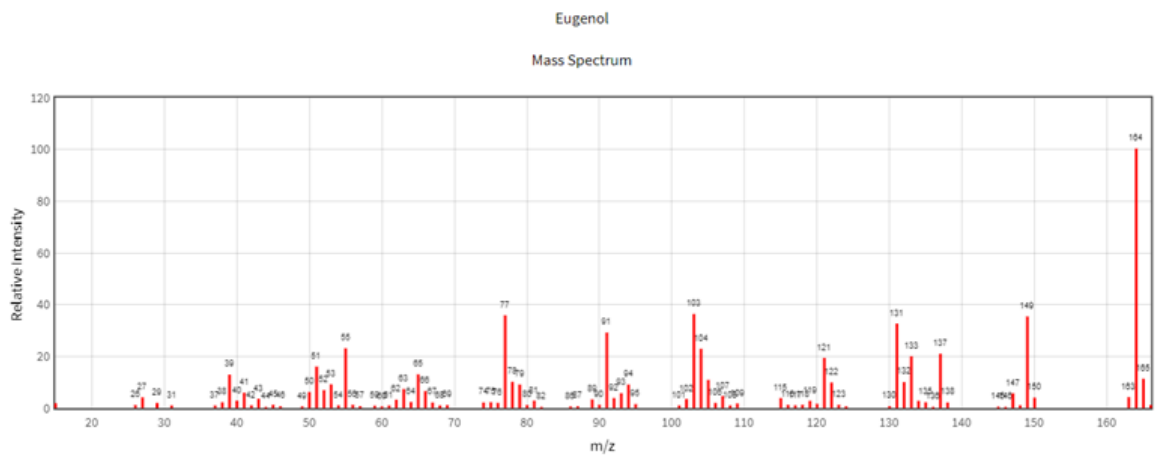
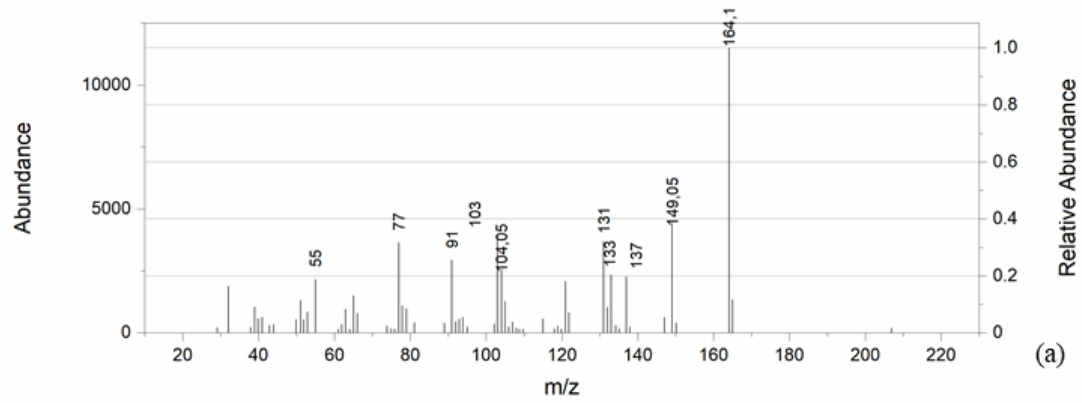
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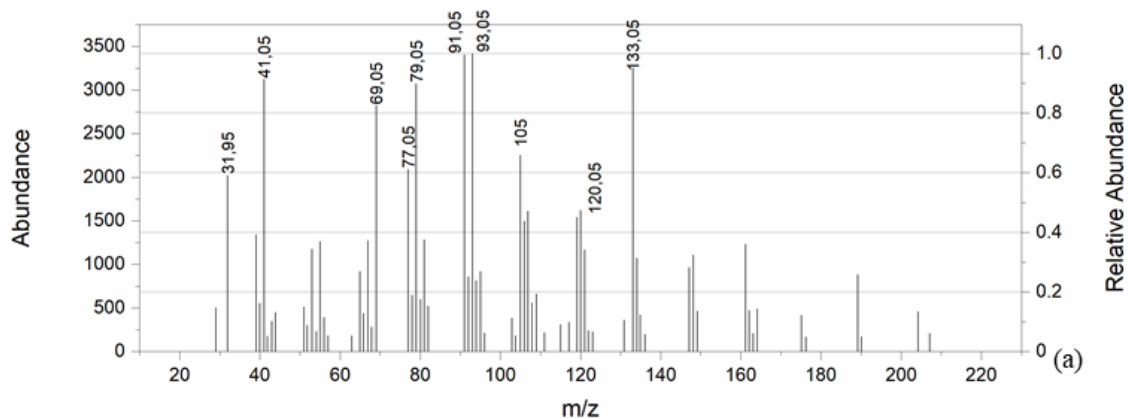
14 **Figure S1** Chromatogram obtained from the injection of the essential oil of clove into gas
 15 chromatograph coupled to mass spectrometry (A), with zoom at the Retention time (Rt) related
 16 to the peaks number 4 (B) and number 5 (C). The numbers indicate the peaks of the following
 17 compounds and Rt (min), respectively: 1: eugenol, 30.55 min; 2: β -caryophyllene, 33.24 min;
 18 3: α -caryophyllene, 35.01 min; 4: epizonarene, 39.06 min; 5: caryophyllene oxide, 42.35 min;
 19 6: hexadecanol, 58.24 min.



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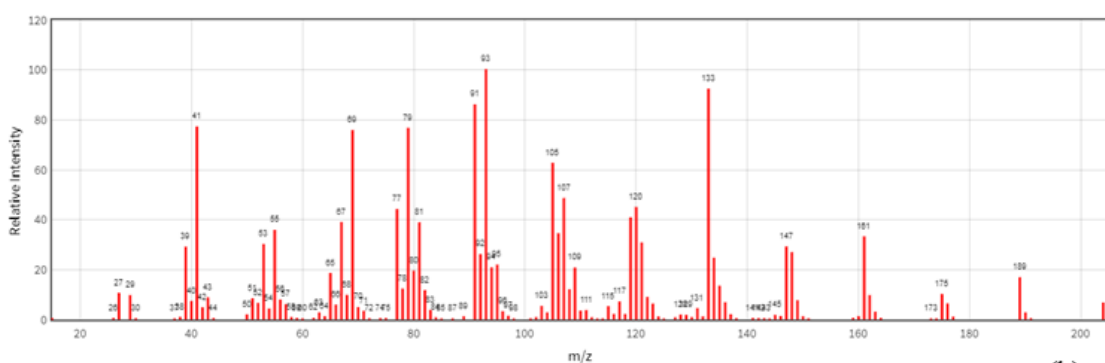
21 **Figure S2** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
 22 time of 30.55 min (a), identified as eugenol, and the m/z plots for the identified compound
 23 according to the NIST library (b) and (c).

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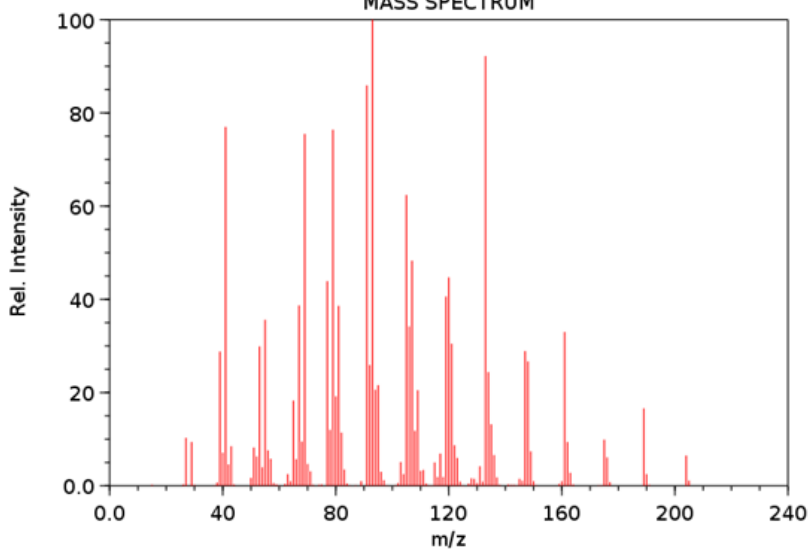


Caryophyllene

Mass Spectrum



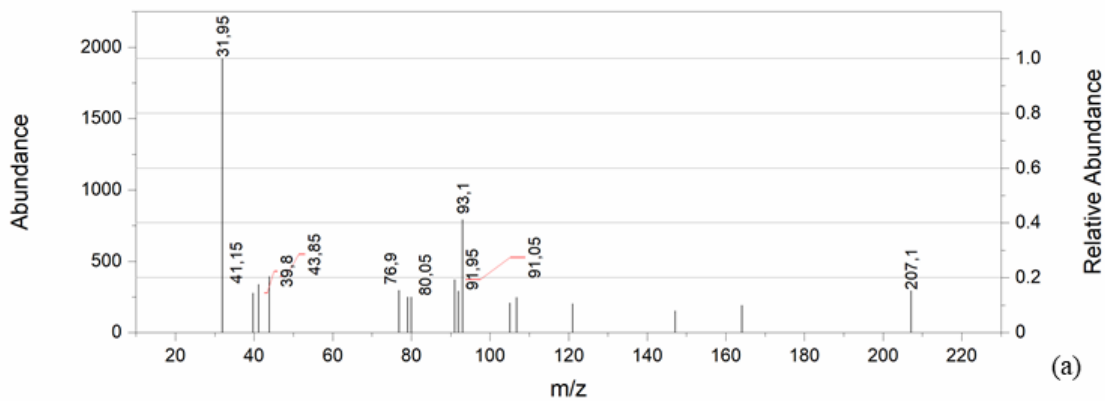
Caryophyllene
MASS SPECTRUM



25

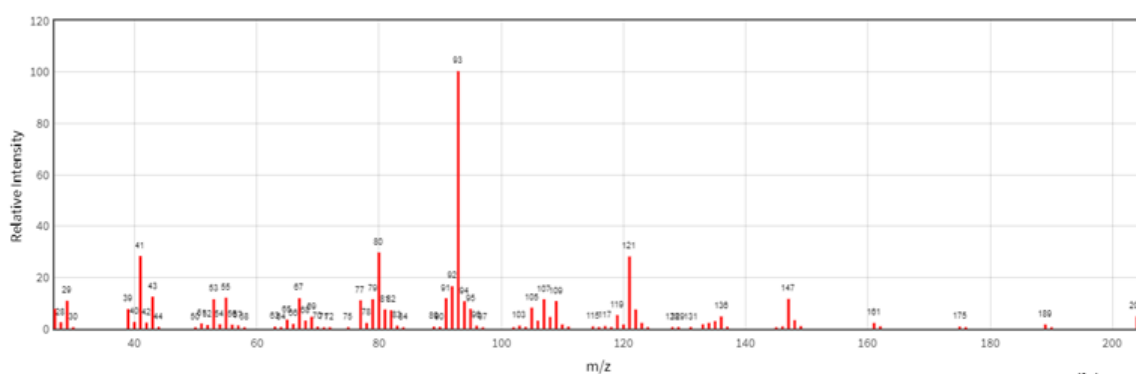
26 **Figure S3** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
 27 time of 33.24 min (a), identified as β -caryophyllene (caryophyllene), and the m/z plots for the
 28 identified compound according to the NIST library (b) and (c).

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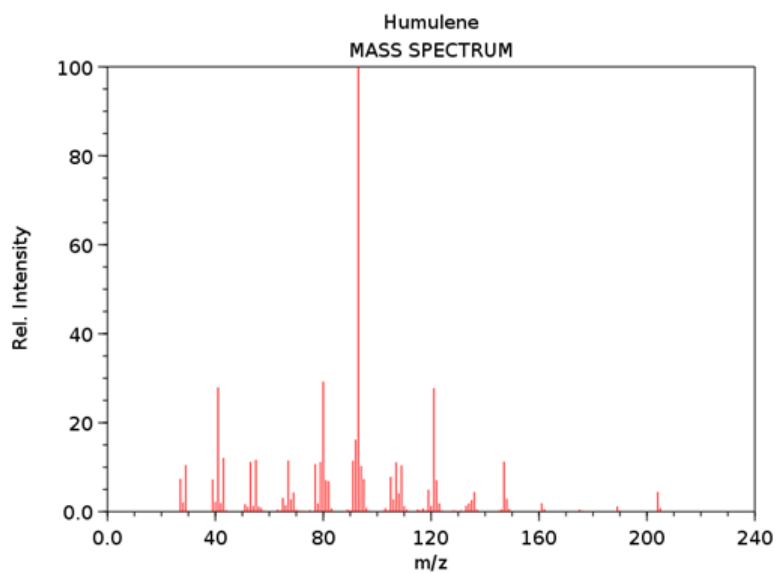


Humulene

Mass Spectrum



(b)

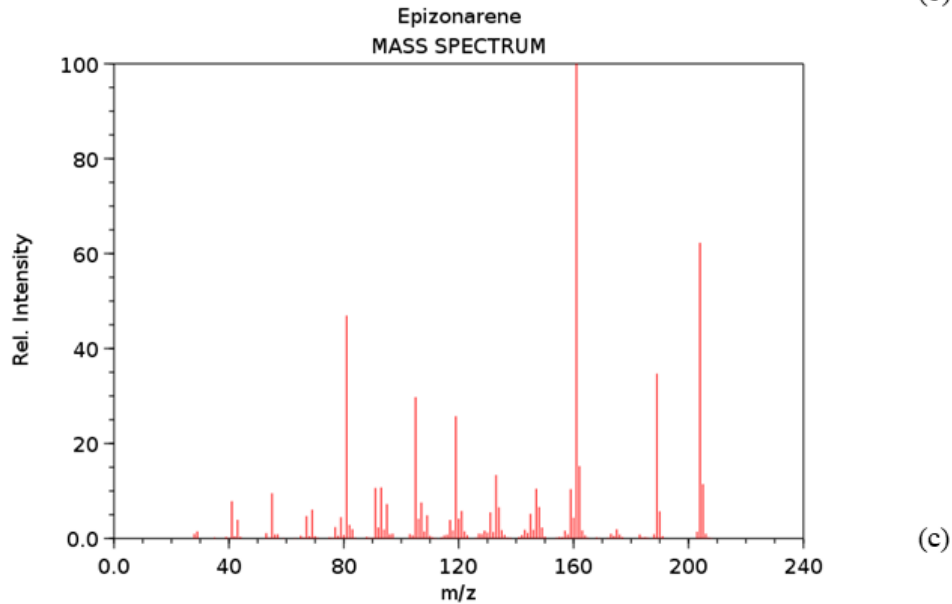
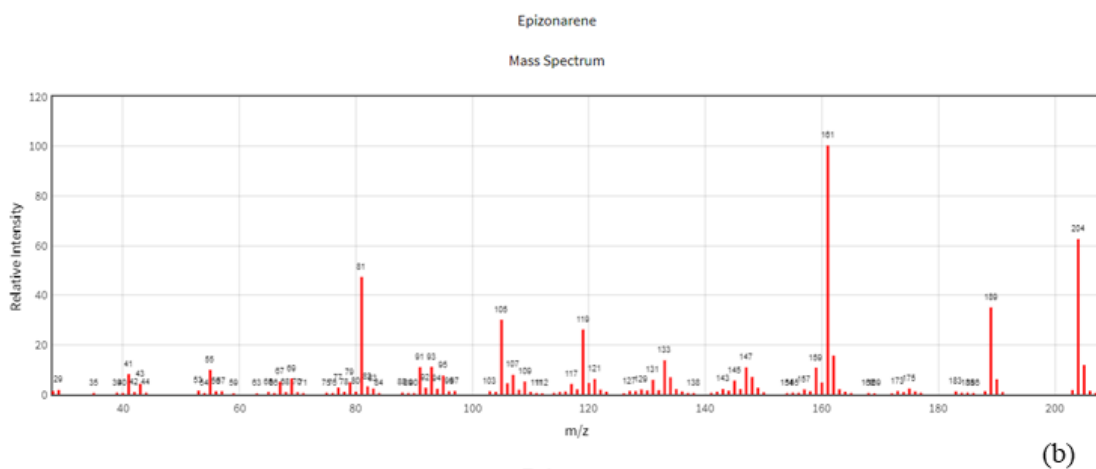
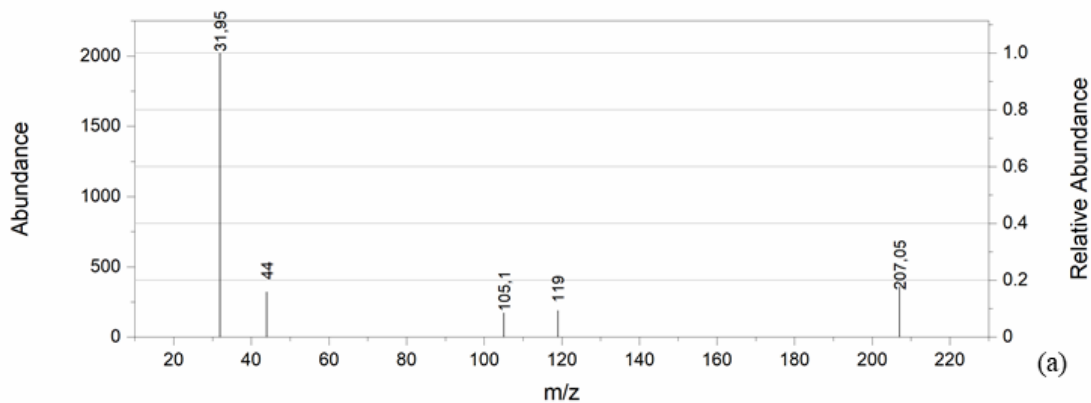


(c)

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31 **Figure S4** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
 32 time of 35.01 min (a), identified as α -caryophyllene (humulene), and the m/z plots for the
 33 identified compound according to the NIST library (b) and (c).

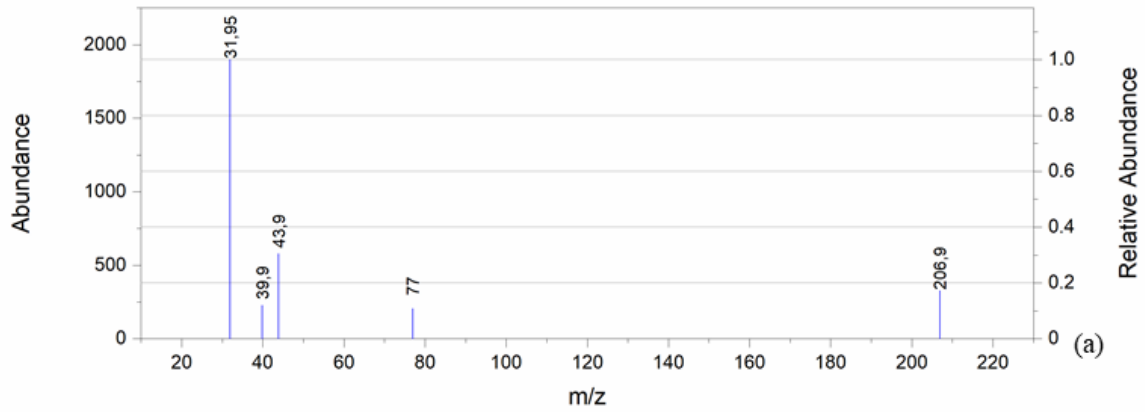
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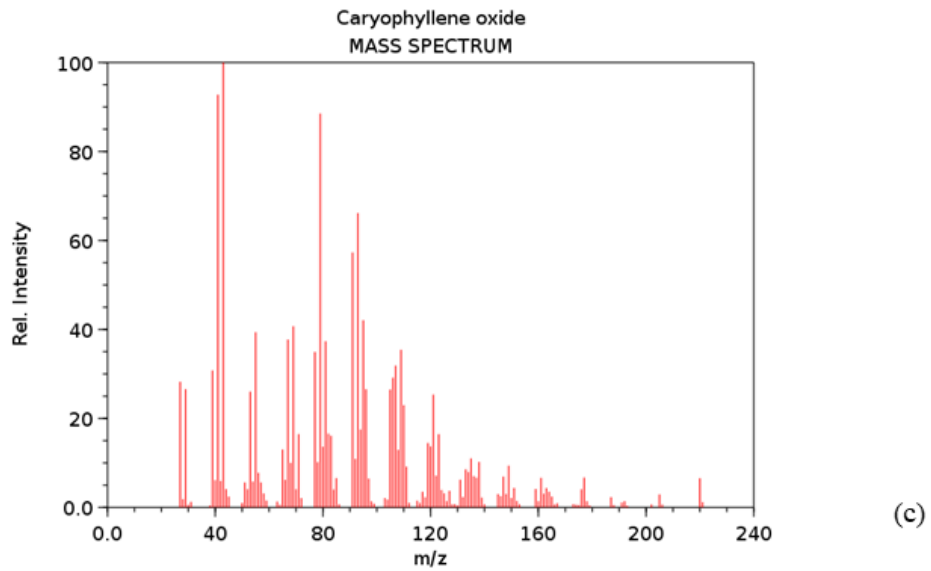
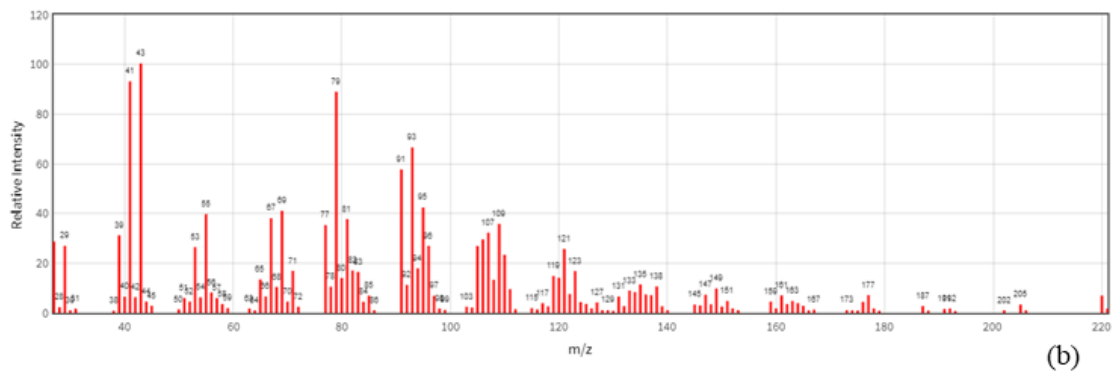
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36 **Figure S5** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
 37 time of 39.06 min (a), tentatively identified as epizonarene, and the m/z plots for the identified
 38 compound according to the NIST library (b) and (c).

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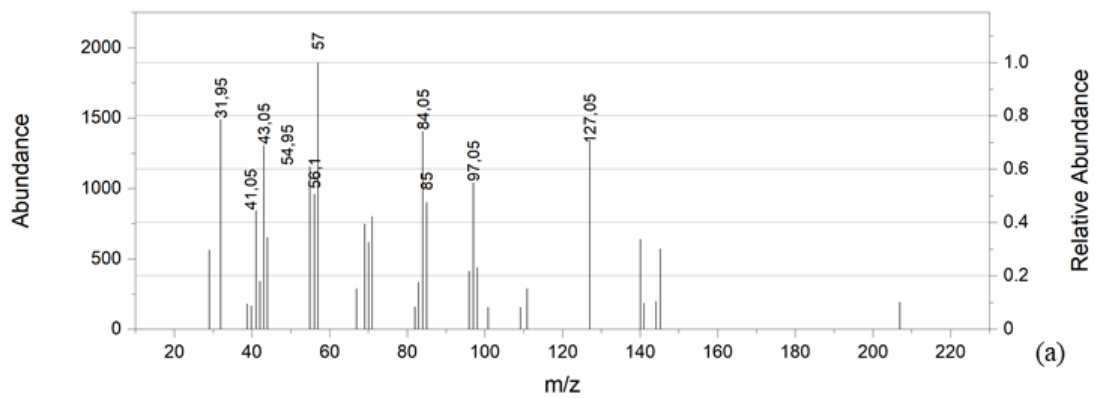
Caryophyllene oxide
Mass Spectrum



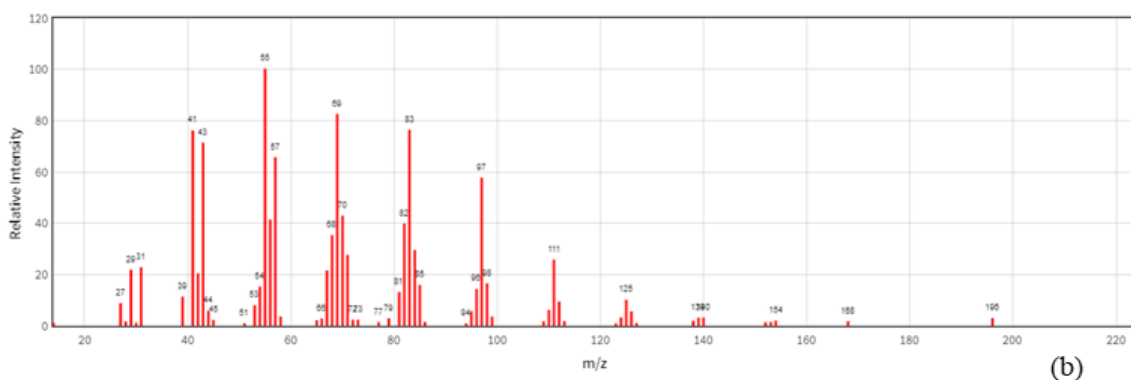
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41 **Figure S6** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
 42 time of 42.35 min (a), tentatively identified as caryophyllene oxide, and the m/z plots for the
 43 identified compound according to the NIST library (b) and (c).

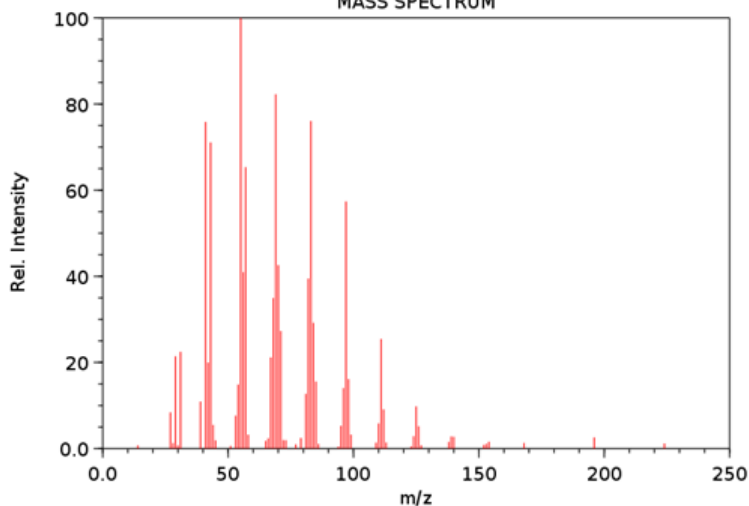
44



1-Hexadecanol
Mass Spectrum



1-Hexadecanol
MASS SPECTRUM



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46 **Figure S7** Mass to charge ratio (m/z) plot related to the chromatographic peak with retention
47 time of 58.24 min (a), tentatively identified as hexadecanol, and the m/z plots for the identified
48 compound according to the NIST library (b) and (c).

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51 **Figure S8** Experimental apparatus used to determine the diffusion coefficient of eugenol
52 through rice.