

Supplementary Material

# Abnormal antennal olfactory sensilla phenotypes involved in olfactory deficit in *Bactrocera correcta* (Diptera: Tephritidae)

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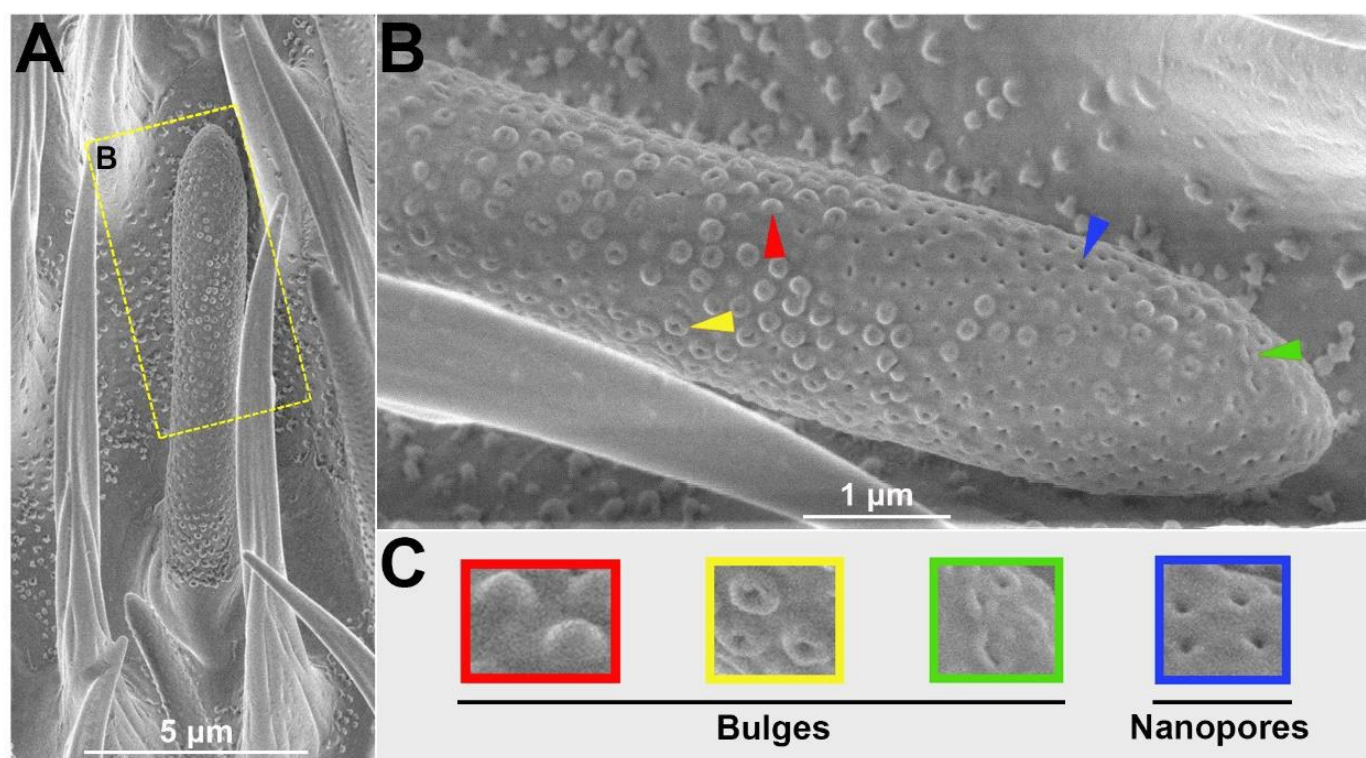
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**Figure S1.** Different collapse-like bulges and nanopores coexisted in the single basiconic sensillum in LTC. (A) A SEM image of a basiconic sensillum. (B) Magnified image of a part (yellow dotted box) of the basiconic sensillum, showing full bulges (red arrowhead), slight collapse-like bulges (yellow arrowhead), heavy collapse-like bulges (green arrowhead) and pits (blue arrowhead). (C) Bulge and nanopore images extracted from (B).

**Table S1.** The size of the antennal flagellum in the WC and LTC groups.

Insects	Antennal flagellum	
	Length (µm)	Width (µm)

WC	571.9 ± 3.5 <sup>a</sup>	170.6 ± 2.3 <sup>a</sup>
LTC	566.9 ± 2.5 <sup>a</sup>	169.9 ± 2.6 <sup>a</sup>

Values represent means ± standard error, values followed by the same letter on the same column are not significantly different ( $p > 0.05$ ). Sixteen antennae from each group were measured.

**Table S2.** The mean number of five morphological types of antennal olfactory sensilla in the WC and LTC groups.

Sensilla types	Number of sensilla	
	WC	LTC
Trichoid I	1284.7 ± 28.0 <sup>a</sup>	1294.3 ± 25.2 <sup>a</sup>
Trichoid II	372.5 ± 5.9 <sup>c</sup>	392.7 ± 18.8 <sup>c</sup>
Basiconica I	227.8 ± 8.9 <sup>e</sup>	245.2 ± 20.4 <sup>e</sup>
Basiconica II	423.2 ± 31.6 <sup>b</sup>	472.8 ± 28.1 <sup>b</sup>
Grooved	318.8 ± 12.8 <sup>d</sup>	327.3 ± 19.4 <sup>d</sup>

Values represent means ± standard error, values followed by the different letters on the same column are significantly different ( $p < 0.05$ ). Six antennae from each group were examined.

**Table S3.** The mean nanopore number of four morphological types of olfactory sensilla in the WC and LTC groups.

Sensilla type	Number of nanopores	
	WC	LTC
Trichoid I	234.6 ± 5.1 <sup>b</sup>	118.3 ± 18.3 <sup>b</sup>
Trichoid II	136.6 ± 2.7 <sup>d</sup>	74.5 ± 11.6 <sup>c</sup>
Basiconica I	426.4 ± 4.4 <sup>a</sup>	176.8 ± 31.7 <sup>a</sup>
Basiconica II	194.4 ± 4.1 <sup>c</sup>	112.7 ± 16.9 <sup>b</sup>

Values represent means ± standard error, values followed by the different letters on the same column are significantly different ( $p < 0.05$ ). Twenty sensilla from each type of sensilla were examined.

**Table S4.** The EAG responses of the WC and LTC groups to two odorants.

Insects	EAG responses (mV)	
	Methyl eugenol	β-caryophyllene
WC	1.46 ± 0.13 <sup>a</sup>	1.35 ± 0.11 <sup>a</sup>
LTC	0.53 ± 0.05 <sup>b</sup>	0.42 ± 0.05 <sup>b</sup>

Values represent means ± standard error, values followed by the different letters on the same column are significantly different ( $p < 0.001$ ). Fifteen insects from WC or LTC were respectively used for EAG recording to each odorant.

**Table S5.** The total response rate and right response rate of the WC and LTC groups to two odorants.

Insects	Total response rate (%)		Right response rate (%)	
	Methyl eugenol	β-caryophyllene	Methyl eugenol	β-caryophyllene
WC	90.8 ± 3.0 <sup>a</sup>	93.3 ± 2.5 <sup>a</sup>	83.3 ± 2.1 <sup>a</sup>	80.8 ± 2.4 <sup>a</sup>
LTC	55.0 ± 3.7 <sup>b</sup>	60.0 ± 2.9 <sup>b</sup>	43.3 ± 2.1 <sup>b</sup>	48.3 ± 2.1 <sup>b</sup>

Values represent means ± standard error, values followed by the different letters on the same column are significantly different ( $p < 0.001$ ). Six replications from WC or LTC were respectively used for behavioral bioassay to each odorant.