

**Table S5.** Differentially abundant families between pupal and newly emerged adult guts

Family	Pupa (triplicates)			1-day-old adult,no feeding (triplicates)			P value	Q value
	mean %	variance	std.err	mean %	variance	std.err		
<i>Chloroplast</i>	37.967	10.871	19.036	0.104	0.000	0.087	0	-0.00247
<i>Aeromonadaceae</i>	21.759	14.177	21.739	0.102	0.000	0.057	0	-0.00247
<i>Comamonadaceae</i>	2.294	0.042	1.180	0.069	0.000	0.049	1.80E-163	-0.00247
<i>Erythrobacteraceae</i>	1.679	0.023	0.872	0.000	0.000	0.000	2.21E-136	-0.00247
<i>Rhodobacteraceae</i>	1.149	0.012	0.631	0.042	0.000	0.031	1.08E-94	-0.00247
<i>Enterobacteriaceae</i>	0.761	0.007	0.488	69.380	3.028	10.047	0	-0.00247
<i>Propionibacteriaceae</i>	0.125	0.000	0.063	9.091	0.965	5.672	0	-0.00247

The differential abundant taxa between collections were detected with Metastats