

Supplementary

Table S1. OTU statistics for gut microbiome samples of adult honeybee workers of *A.m.carnica*(C1-C5)

and *A.m.jemenitica* (J1-J5).

Sample name	No. tags	No. OTUs
C1	61242	55
C2	59904	49
C3	62694	61
C4	62913	54
C5	69815	154
J1	54270	47
J2	59215	52
J3	55643	45
J4	56287	46
J5	59502	51
Total	601485	117

Table S3. Statistical analysis (t test) at phylum level between gut microbiome of adult honeybee workers of *A.m.carnica*(A.M.C) and *A.m.jemenitica*(A.M.J).

Phylum	Average relative abundance(A.M.C)	Average relative abundance(A.M.J)	P-value
Actinobacteria	9.9462362	6.4824688	0.208133
Bacteroidetes	1.3256144	0.4242898	0.420635
Cyanobacteria	0.0348738	0.0046542	0.031746
Firmicutes	57.278132	48.569838	0.06698
Proteobacteria	31.402252	44.518749	0.037724
TM7	0.0060158	0	-
Tenericutes	0.000573	0	-
Thermi	0.0063024	0	-

Table S4. Statistical analysis (t test) at species level between gut microbiome of adult honeybee workers of *A.m.carnica*(A.M.C) and *A.m.jemenitica*(A.M.J).

species	Average relative abundance(A.M.C)	Average relative abundance(A.M.J)	P-value
<i>Bacteroides_fragilis</i>	0.1568376	0.0016822	0.655836
<i>Bacteroides_ovatus</i>	0.2062484	0.00101	0.372748
<i>Blautia_producta</i>	0.1177438	0.0024168	0.517904
<i>Commensalibacter_intestini</i>	0.0034778	3.1556746	0.066955
<i>Melissococcus_plutonius</i>	3.3557112	0.000674	0.034454*
<i>Ruminococcus_gnavus</i>	0.1689268	0	-
<i>Saccharibacter_floricola</i>	0.4808742	0	-
<i>Snodgrassella_alvi</i>	1.3992314	17.900698	0.008948*

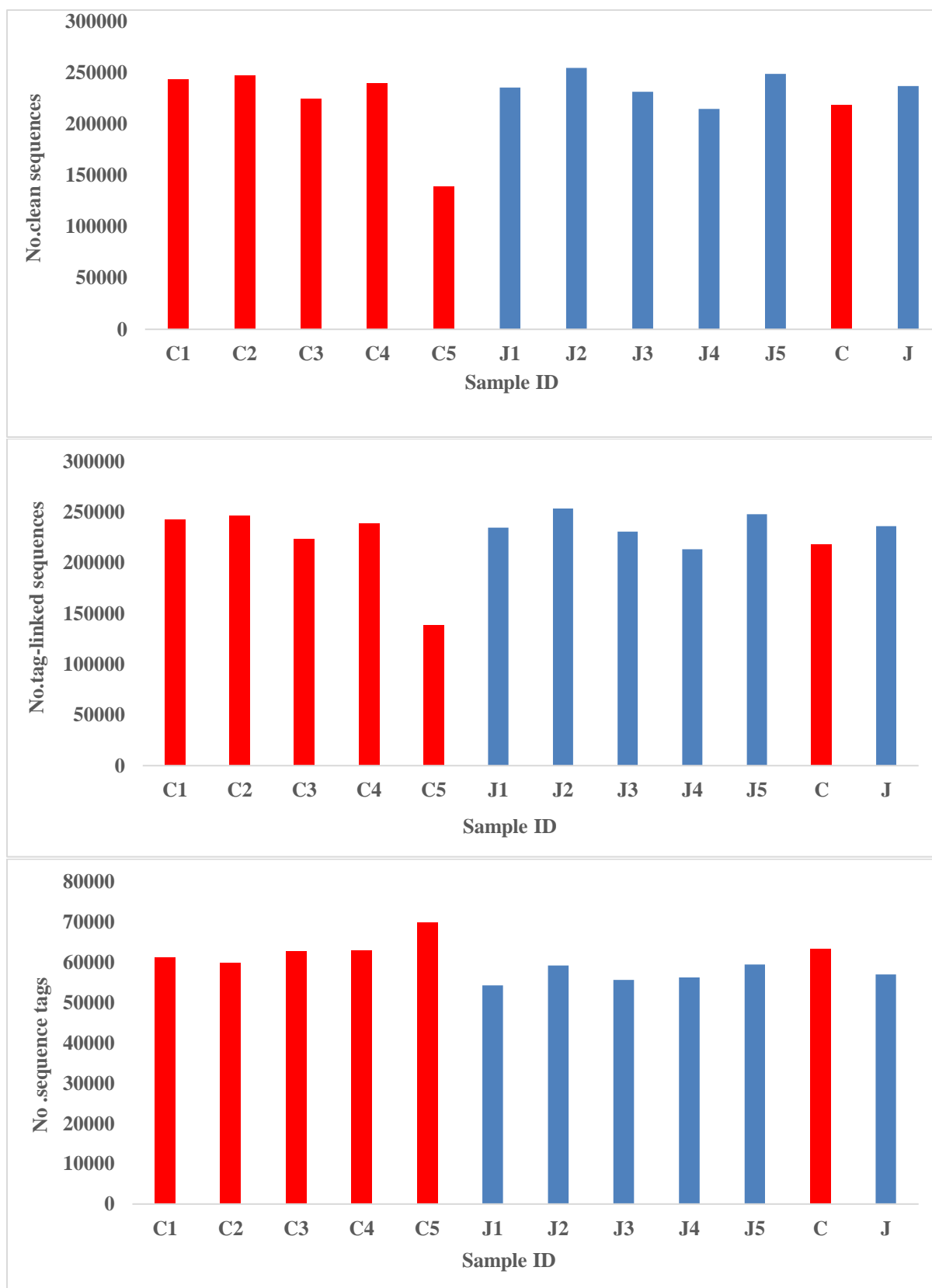


Figure S1. Comparison among numbers of clean sequences, tagged sequences, and recovered sequence tags at the sample and group levels for gut microbiome of adult honeybee workers of *A.m.carnica* (C1-C5, red) and *A.m.jemenitica* (J1-J5, blue).

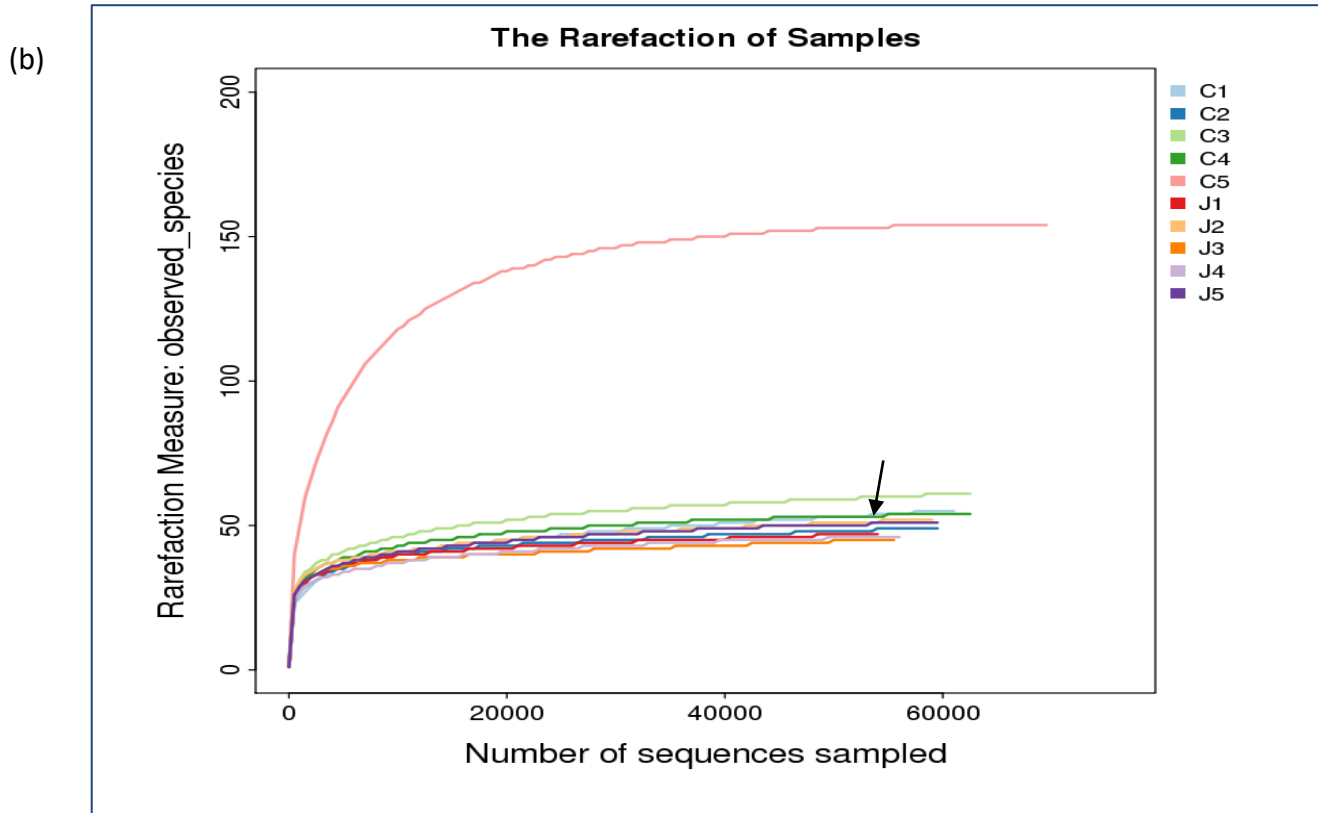
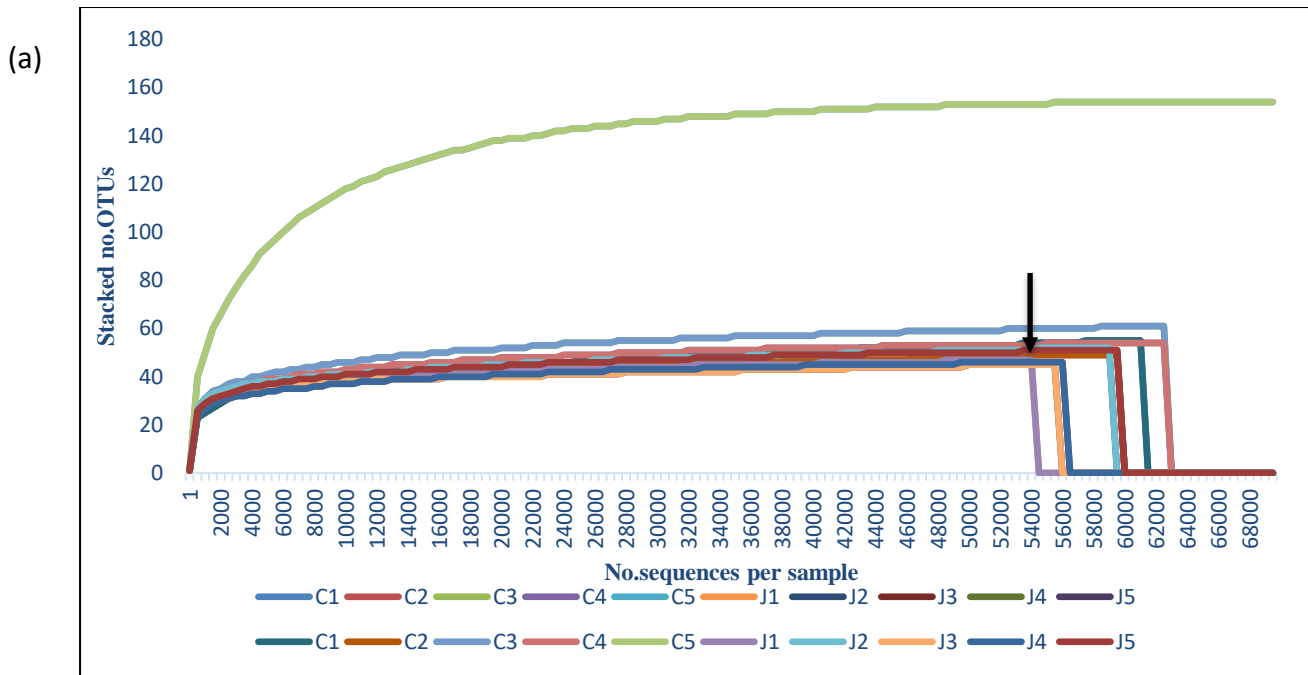


Figure S2. (a) Stacked number of OTUs, (b) number of observed species as rarefaction measures. The arrows point at the suitable sample size (54,000 sequence reads) for analysing taxonomy abundance. (C1 -C5)=*A.m.carnica*, (J1 - J5)=*A.m.jemenitica*.

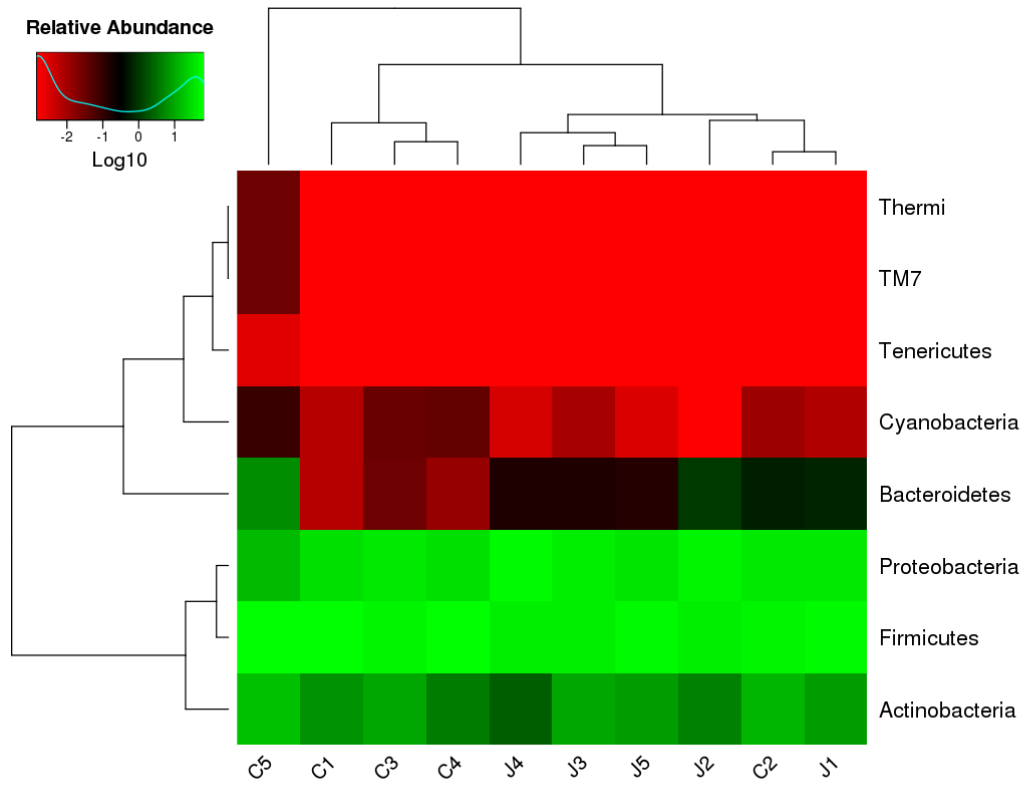


Figure S3. Heat map at the phylum level for gut microbiome of adult honeybee workers of *A.m.carnica*(C1-C5) and *A.m.jemenitica*(J1-J5).

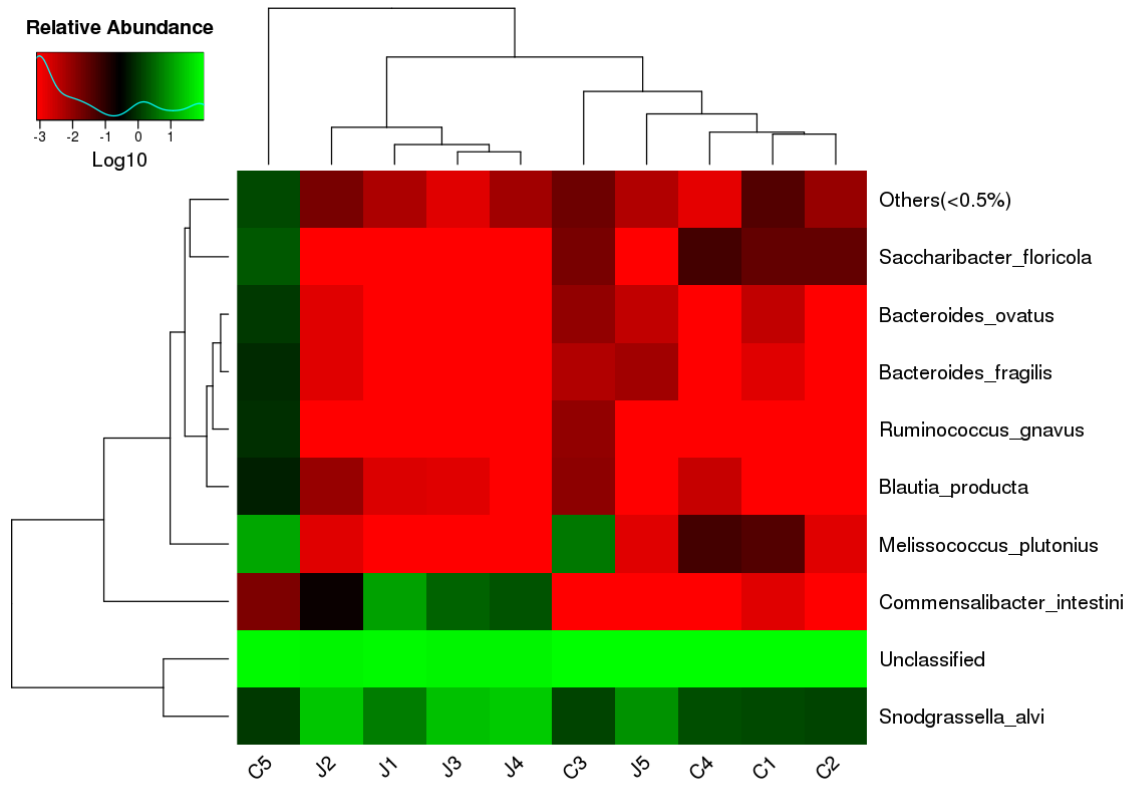


Figure S4. Heat map at the species level for gut microbiome of adult honeybee workers of *A.m.carnica*(C1-C5) and *A.m.jemenitica*(J1-J5).