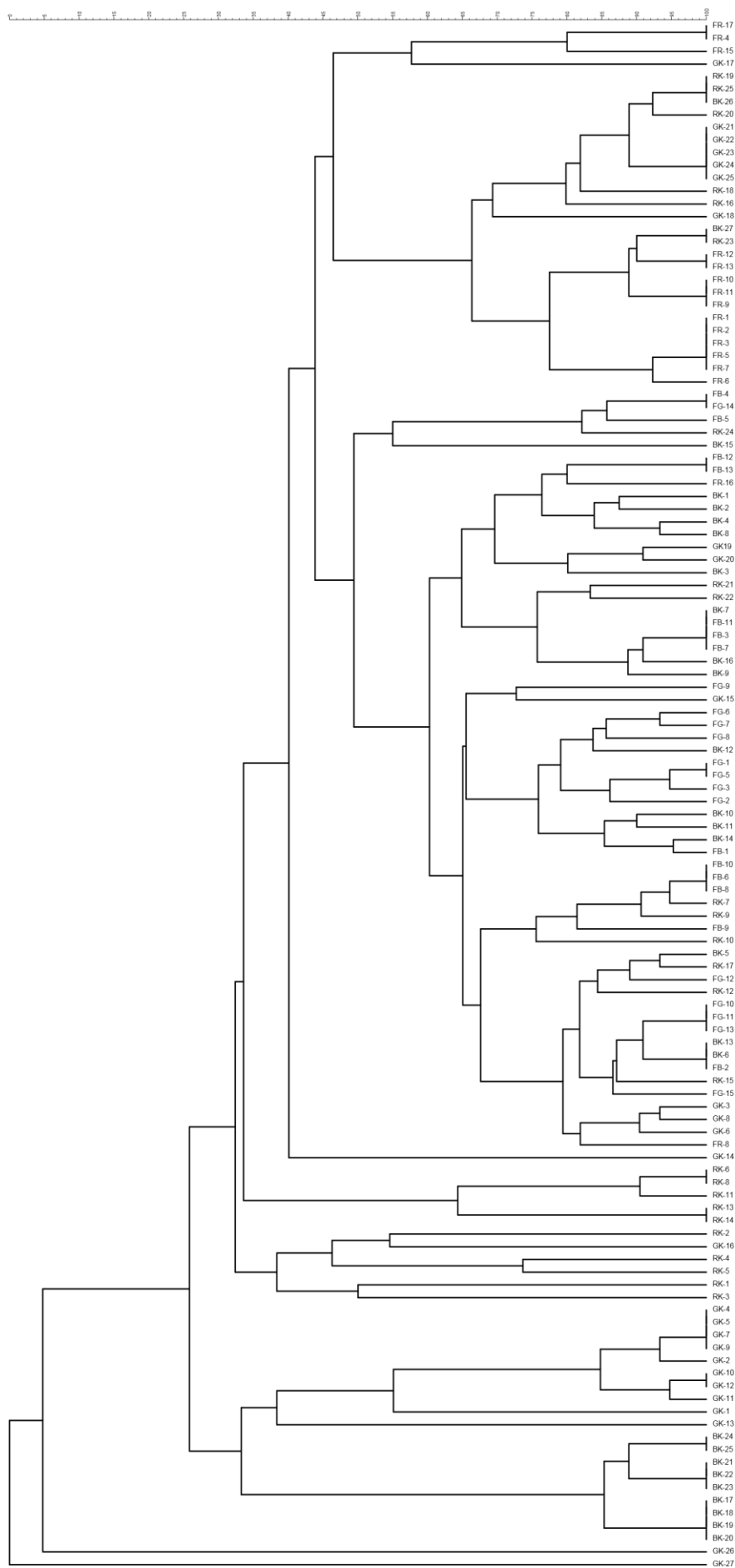


**Table S1.** Lactobacilli (LAB) and yeasts count on films and kombuchas at 7 and 14 days of fermentation. Different letters are significantly different ( $P \leq 0.05$ ); N.D= not detected

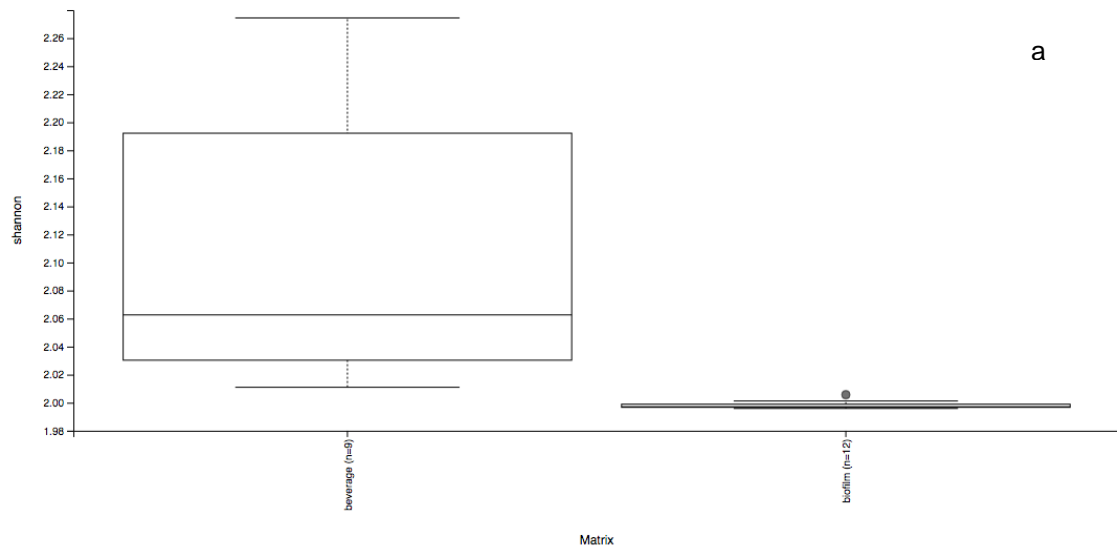
Substrate	Sample	LAB ( $\log_{10}$ cfu/mL)	Yeasts ( $\log_{10}$ cfu/mL)
Green Tea	F <sub>14</sub> G	N.D	7.97±0.08 <sup>a</sup>
	K <sub>14</sub> G	N.D	7.49±0.09 <sup>b</sup>
Black Tea	F <sub>14</sub> B	N.D	6.83±0.02 <sup>c</sup>
	K <sub>14</sub> B	N.D	6.91±0.06 <sup>c</sup>
Rooibois	F <sub>14</sub> R	N.D	7.08±0.01 <sup>c</sup>
	K <sub>14</sub> R	N.D	7.36±0.01 <sup>b</sup>

**Table S2.** Identification and grouping of isolated AAB strains from biofilms and kombucha obtained from fermentation of black. green and rooibos teas.

Isolates	ID (% similarity)	Cluster	Isolates
FR-3; FR-10	<i>Komagateibacter</i> spp. (99%)	1	FR 1.2.3.4.5.6.7.9.10.11.12.13.15.17 KB 26.27 KG 20.21.22.23.24.25 KR 18.19.20.23
FG-14	<i>Komagateibacter</i> spp. (99%)	2	FB4. FB5. FG14
FB-12 KB-16	<i>K. intermedius</i> (100%)	3	FB 3.4.5.7.11.12.13 FG 14 FR 16 KB 1.2.3.4.7.15.16 KG 19. 20 KR 21.22.24
KG-15	<i>Komagateibacter</i> spp. (99%)	4	FB 1 FG 1.2.3.4.5.6.7.8.9 KB 10.11.12.14 KG 15
KR-9	<i>K. intermedius</i> (100%)	5	FB 6.8.10 KR 7. 9
KR-17	<i>K. rhaeticus</i> (100%)	6	FB 2 FG 10.11.12.13.15 FR 8 KB 5.6.13 KG 3.6.8 KR 12. 15. 17
KR-11	<i>G. entanii</i> (100%)	7	KR 6.8.11.13.14
KR-1 KR-3	<i>G. entanii</i> (100%)	8	KR-1; KR-3
KR-2 KR-4 KR-5 KG-16	<i>K. intermedius</i> (100%)	8	KR-2; KR-4; KR-5; KG.16
KG-2 KG-5	<i>K. intermedius</i> (100%)	9	KG 1. 2. 4. 5. 7. 9. 10. 11. 12
KG-13	<i>G. entanii</i> (100%)	10	KG-13
KB-17	<i>K. intermedius</i> (100%)	11	KB 17. 18. 19. 20. 21. 22. 23. 24. 25



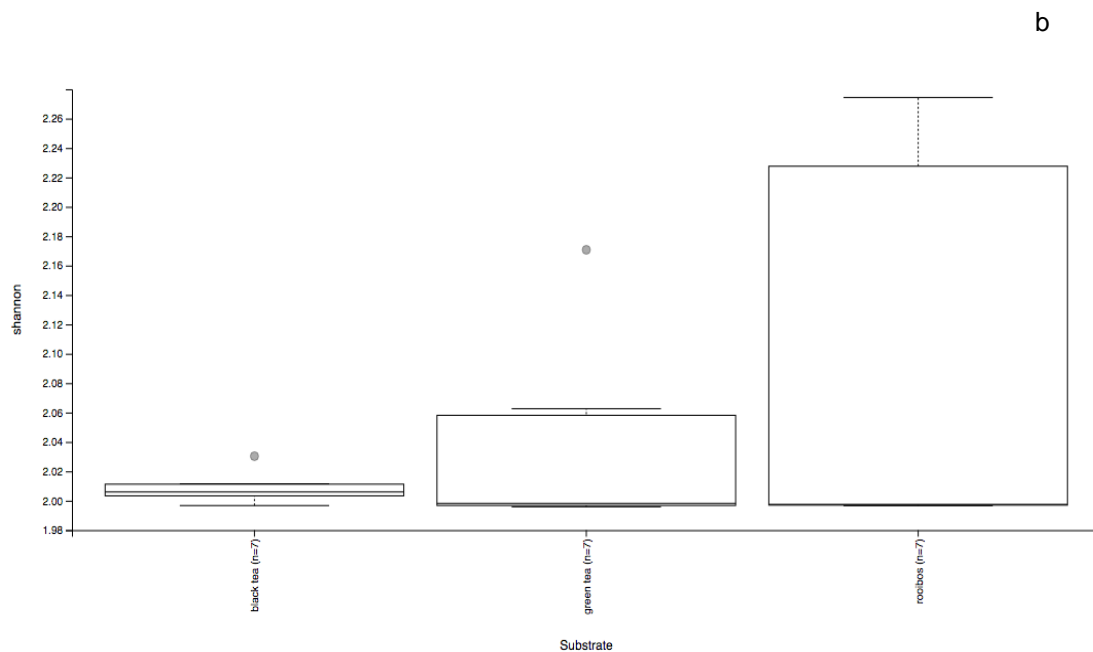
**Figure S1.** Cluster analysis of the AAB profiles obtained by RAPD-PCR. using Bionumerics 7.1 (Applied Maths. Sint-Martens-Latem. Belgium) with the Dice's Coefficient of similarity and the un-weighted pair group method arithmetic averages clustering algorithm (UPGMA).



### Kruskal-Wallis (pairwise)

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Group 1	Group 2	H	p-value	q-value
beverage (n=9)	biofilm (n=12)	14.727273	0.000124	0.000124



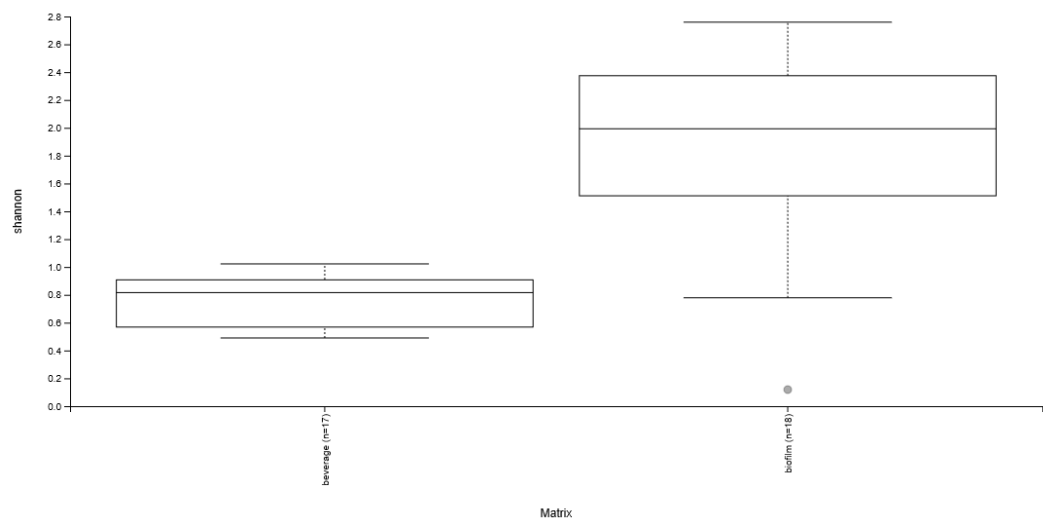
### Kruskal-Wallis (pairwise)

[Download CSV](#)

Group 1	Group 2	H	p-value	q-value
black tea (n=7)	green tea (n=7)	0.036735	0.848006	0.848006
black tea (n=7)	rooibos (n=7)	0.036735	0.848006	0.848006
green tea (n=7)	rooibos (n=7)	0.330612	0.565299	0.848006

**Figure S3.** Alpha diversity of bacterial Component a) Shannon diversity by matrix; b) Shannon diversity by substrate) with Kruskal-Wallis pairwise analysis

a

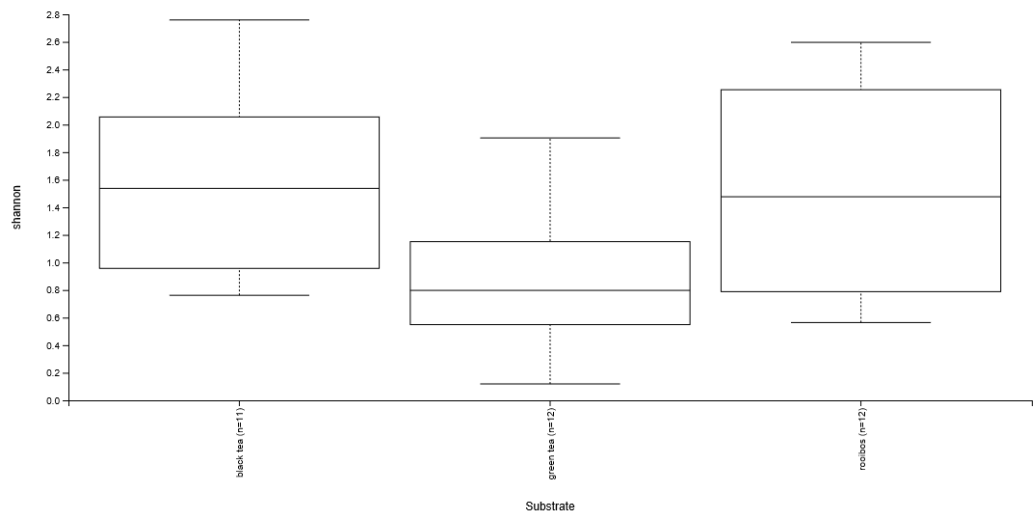


Kruskal-Wallis (pairwise)

[Download CSV](#)

		H	p-value	q-value
Group 1	Group 2			
beverage (n=17)	biofilm (n=18)	17.569717	0.000028	0.000028

**b**

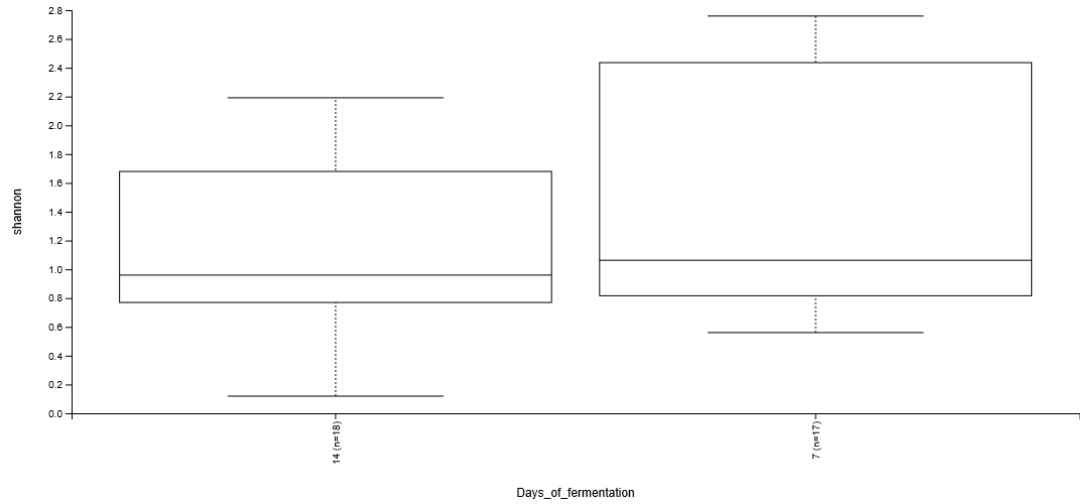


**Kruskal-Wallis (pairwise)**

[Download CSV](#)

		H	p-value	q-value
Group 1	Group 2			
black tea (n=11)	green tea (n=12)	5.761364	0.016382	0.049147
	rooibos (n=12)	0.185606	0.666599	0.666599
green tea (n=12)	rooibos (n=12)	3.853333	0.049647	0.074471

**c**



**Kruskal-Wallis (pairwise)**

[Download CSV](#)

		H	p-value	q-value
Group 1	Group 2			
14 (n=18)	7 (n=17)	1.046841	0.306236	0.306236

**Figure S4.** Alpha diversity of fungal component a) Shannon diversity by matrix; b) Shannon diversity by matrix; c) Shannon diversity by days of fermentation with the associated Kruskal-Wallis pairwise analysis

**Table S3.** Relative abundance of bacterial family in beverage and biofilm at 14 days (data expressed as % value)

	<b>K<sub>14</sub>B</b>	<b>K<sub>14</sub>G</b>	<b>K<sub>14</sub>R</b>	<b>F<sub>14</sub>B</b>	<b>F<sub>14</sub>G</b>	<b>F<sub>14</sub>R</b>
<b>Bifidobacteriaceae</b>	0.0204	0.0669	0.2648	0.0098	0.0052	0.0032
<b>Corynebacteriaceae</b>	0.0016	0.0046	0.0282	0.0015	-	-
<b>Propionibacteriaceae</b>	0.0081	0.0416	0.0825	0.0030	-	0.0024
<b>Coriobacteriaceae</b>	-	-	0.0049	-	-	-
<b>Bacteroidaceae</b>	0.0101	0.0149	0.1134	0.0019	-	0.0021
<b>Odoribacteraceae</b>	-	-	0.0058	-	-	-
<b>Rikenellaceae</b>	0.0060	0.0135	0.1095	0.0010	-	-
<b>Paenibacillaceae</b>	0.0080	0.0160	0.1150	-	-	-
<b>Staphylococcaceae</b>	0.0013	0.0039	0.0216	0.0010	-	-
<b>Lactobacillaceae</b>	0.0023	0.0067	0.0562	-	-	-
<b>Leuconostocaceae</b>	-	0.0020	0.0411	-	-	-
<b>Streptococcaceae</b>	0.0023	0.0087	0.0973	-	-	-
<b>Christensenellaceae</b>	-	-	0.0046	-	-	-
<b>Lachnospiraceae</b>	0.0059	0.0213	0.2208	0.0010	-	-
<b>Clostridiales family XIII incertae sedis</b>	-	-	0.0029	-	-	-
<b>Peptostreptococcaceae</b>	0.0021	0.0011	0.0023	-	-	-
<b>Methylobacteriaceae</b>	0.0019	0.0215	0.0029	-	-	-
<b>Rhizobiaceae</b>	-	0.0016	0.0054	-	-	-
<b>Rhodobacteraceae</b>	-	0.0015	0.0133	-	-	-
<b>Acetobacteraceae</b>	99.826	97.689	98.034	99.956	99.983	99.977
<b>Sphingomonadaceae</b>	-	0.0077	0.0222	-	-	-
<b>Comamonadaceae</b>	0.0020	0.0067	0.0076	-	-	-
<b>Enterobacteriaceae</b>	0.0092	0.0442	0.2627	0.0045	0.0025	0.0022
<b>Moraxellaceae</b>	-	0.0022	0.0021	-	-	-
<b>Akkermansiaceae</b>	0.0010	0.0052	0.0378	0.0013	-	-
<b>Others</b>	0.0036	0.0034	0.0055	0.0028	0.0035	0.0040

**Table S4.** - Relative abundance of yeasts family in biofilm at 14 days (data expressed as % value)

	<b>F<sub>7</sub>B</b>	<b>F<sub>7</sub>G</b>	<b>F<sub>7</sub>R</b>	<b>F<sub>14</sub>B</b>	<b>F<sub>14</sub>G</b>	<b>F<sub>14</sub>R</b>
<b>Pichiaceae</b>	60.9953	85.8813	40.0155	77.1077	92.2394	60.1906
<b>Saccharomycetaceae</b>	38.9819	14.0579	57.9034	22.8143	7.4258	31.8865
<b>Metschnikowiaceae</b>	0.0038	0.0037	0.4743	-	0.0024	0.0017
<b>Sporidiobolaceae</b>	-	-	0.0269	-	-	0.0112
<b>Malasseziaceae</b>	-	-	0.0318		0.0079	0.0900
<b>Pleosporaceae</b>	-	0.0071	-	0.0466	-	0.0012
<b>Aspergillaceae</b>	0.0049	-	0.2875	0.0231	0.1565	0.3238
<b>Debaryomycetaceae</b>	-	0.0028	-	-	-	-
<b>Dipodascaceae</b>	-	-	-	-	-	-
<b>Phaffomycetaceae</b>	-	-	-	-	-	-
<b>Cordycipitaceae</b>	-	-	0.0144	-	-	-
<b>Schizoporaceae</b>	-	-	0.1019	-	-	-
<b>Coriolaceae</b>	-	-	0.0000	-	0.0026	-
<b>Meruliaceae</b>	-	-	0.0163	-	0.0012	6.7560
<b>Mrakiaceae</b>	-	-	-	-	-	0.0139
<b>Tremellaceae</b>	-	-	-	-	-	-
<b>Trichosporonaceae</b>	-	-	-	-	-	-
<b>Others</b>	0.0078	0.0118	1.0341	0.0297	0.1633	0.7250



**Table S5.** Relative abundance of yeasts family in beverage at 14 days (data expressed as % value)

	<b>K<sub>7</sub>B</b>	<b>K<sub>7</sub>G</b>	<b>K<sub>7</sub>R</b>	<b>K<sub>14</sub>B</b>	<b>K<sub>14</sub>G</b>	<b>K<sub>14</sub>R</b>
<b>Pichiaceae</b>	91.3660	93.5626	93.3040	91.7686	95.7010	91.7128
<b>Saccharomycetaceae</b>	8.5638	6.2313	5.8145	8.2071	4.2126	8.1625
<b>Metschnikowiaceae</b>	0.0135	0.0892	0.0433	0.0029	0.0452	0.0131
<b>Sporidiobolaceae</b>	0.0054	-	-	-	-	-
<b>Malasseziaceae</b>	0.0039	-	0.0040	-	0.0013	-
<b>Pleosporaceae</b>	-	0.0052	0.0762	-	0.0081	-
<b>Aspergillaceae</b>	-	0.0028	0.0000	0.0009	0.0005	-
<b>Debaryomycetaceae</b>	-	0.0102	0.0214	-	0.0022	-
<b>Dipodascaceae</b>	-	-	0.1646	-	-	-
<b>Phaffomycetaceae</b>	-	0.0298	0.1174	-	-	0.0052
<b>Cordycipitaceae</b>	-	-	-	-	-	-
<b>Schizoporaceae</b>	-	-	-	-	-	-
<b>Coriolaceae</b>	-	-	0.0363	-	-	-
<b>Meruliaceae</b>	-	-	-	0.0017	-	0.0167
<b>Mrakiaceae</b>	-	-	-	-	-	-
<b>Tremellaceae</b>	-	-	-	-	-	0.0055
<b>Trichosporonaceae</b>	-	0.0048	0.0854	-	-	0.0023
<b>Others</b>	0.0388	0.0641	0.3506	0.0109	0.0288	0.0474

**Table S6.** Pairwise Kruskal-Wallis comparisons of alpha diversity of fungal component by Shannon index at 7 and 14 days separate

<b>7 days samples</b>				
<b>Group 1</b>	<b>Group 2</b>	<b>H</b>	<b>p-value</b>	<b>q-value</b>
Kombucha (n=8)	Biofilm (n=9)	12	0.00053201	0.00053201
KB (n=5)	KG (n=6)	1.633333333	0.20124262	0.60372786
KB (n=5)	KR (n=6)	0.133333333	0.71500065	0.71500065
KG (n=6)	KR (n=6)	0.41025641	0.52183939	0.71500065
<b>14 days samples</b>				
<b>Group 1</b>	<b>Group 2</b>	<b>H</b>	<b>p-value</b>	<b>q-value</b>
Kombucha (n=9)	Biofilm (n=9)	5.475633528	0.01928337	0.01928337
KB (n=6)	KG (n=6)	5.76923077	0.01630917	0.04892752
KB (n=6)	KR (n=6)	0	1	1
KG (n=6)	KR (n=6)	4.33333333	0.03737299	0.05605948

**Table S7.** Beta diversity – Fungal pairwise ANOSIM by Bray-Curtis Dissimilarity. at 7 and 14 days separate

<b>7 days samples</b>						
Group 1	Group 2	Sample size	Permutations	R	p-value	q-value
Kombucha	Biofilm	17	999	0.25998264	0.011	0.011
KB	KG	11	999	0.336	0.034	0.051
KB	KR	11	999	0.39466667	0.028	0.051
KG	KR	12	999	0.24814815	0.066	0.066
<b>14 days samples</b>						
Group 1	Group 2	Sample size	Permutations	R	p-value	q-value
Kombucha	Biofilm	18	999	0.06824417	0.064	0.064
KB	KG	12	999	0.21296296	0.004	0.006
KB	KR	12	999	0.28148148	0.003	0.006
KG	KR	12	999	0.18148148	0.024	0.024