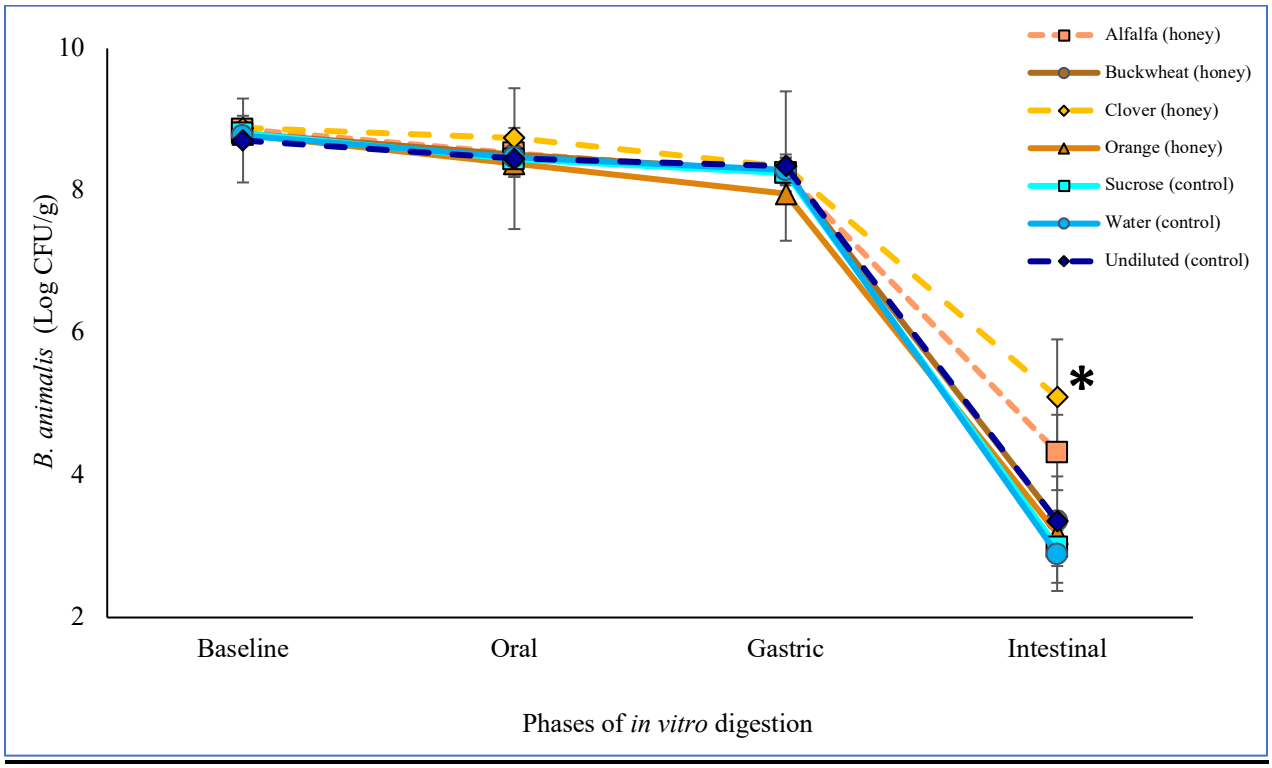
Online Supplemental Materials
Alvarado et al. Honey varietals differentially impact *Bifidobacterium animalis* ssp *lactis* survivability in yogurt through simulated in vitro digestion

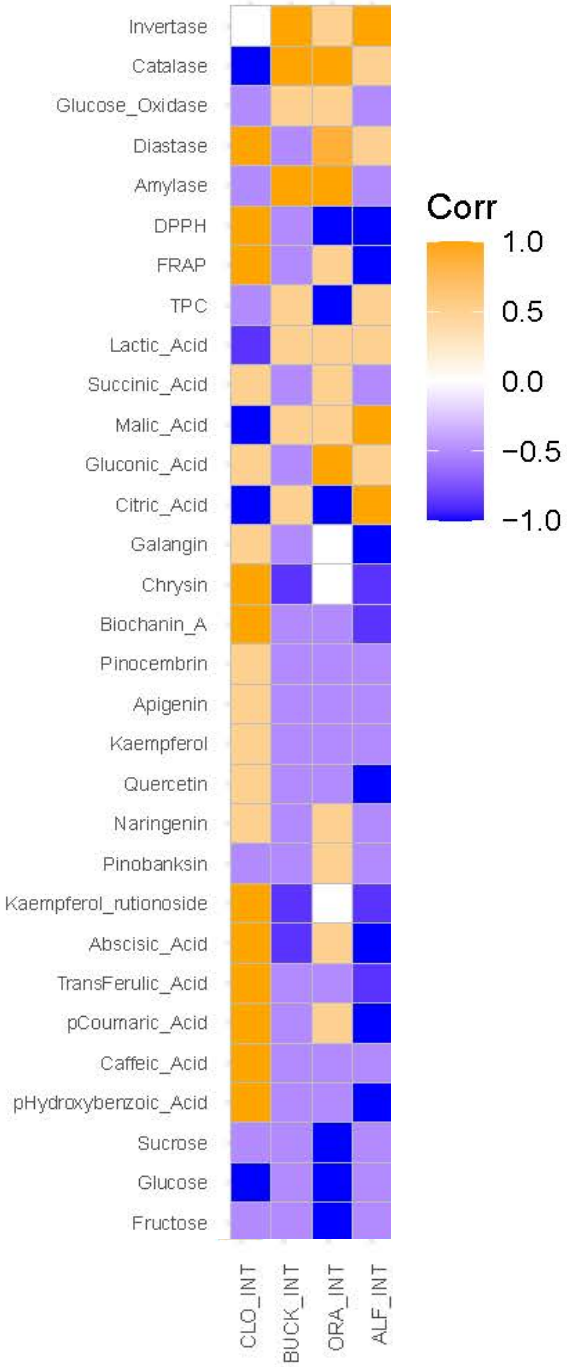
Supplementary Figures

Supplemental Figure 1. Effect of honey varietals (20% w/w) and controls on *B. animalis* survivability in yogurt (170g) through simulated *in vitro* digestion



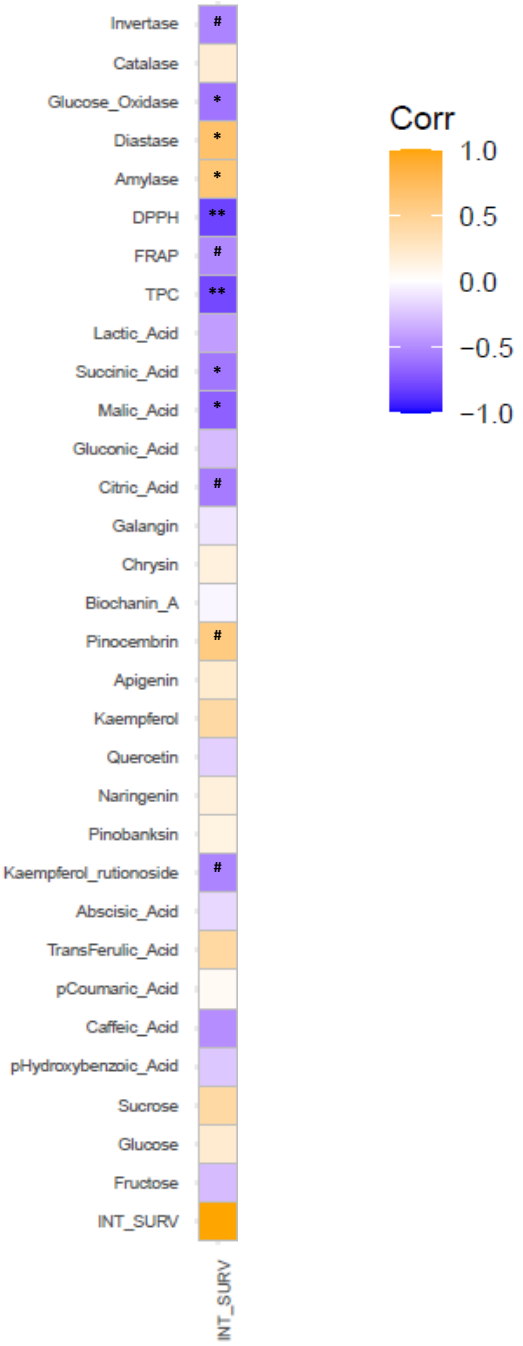
* Indicates significantly different from the control (undiluted yogurt) using Dunnett's test ($P < 0.05$)

<u>Supplemental Figure 2.</u> Associations between B. animalis survivability post-intestinal digestion and honey components



Heatmap displaying the results of Spearman correlational analysis between probiotic survival following the intestinal phase with each honey varietal and all the measured components of the honey. CLO_INT = clover intestinal survivability, BUCK = buckwheat, ORA = orange blossom, ALF = alfalfa

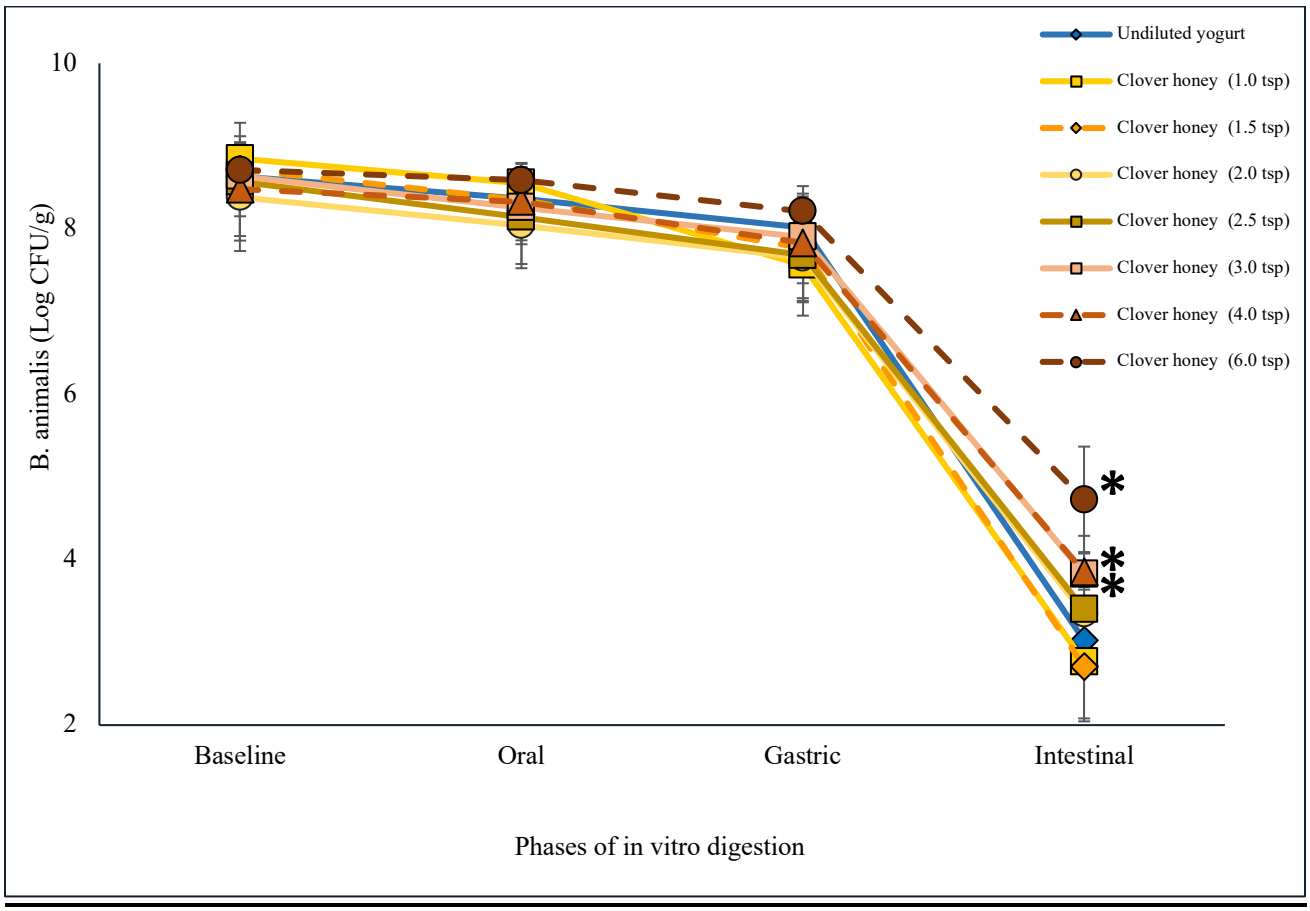
<u>Supplemental Figure 3.</u> Associations between honey compounds and post-intestinal survivability of B. animalis



	P-values	ρ-values
	INT_SURV	INT_SURV
INT_SURV	1	0.000
Fructose	-0.294	0.354
Glucose	0.210	0.514
Sucrose	0.413	0.184
pHydroxybenzoic_Acid	-0.245	0.444
Caffeic_Acid	-0.490	0.110
pCoumaric_Acid	0.049	0.886
TransFerulic_Acid	0.417	0.178
Abscisic_Acid	-0.172	0.594
Kaempferol_rutionoside	-0.527	0.078
Pinobanksin	0.133	0.683
Naringenin	0.161	0.619
Quercetin	-0.196	0.541
Kaempferol	0.413	0.184
Apigenin	0.224	0.485
Pinocembrin	0.573	0.056
Biochanin_A	-0.039	0.905
Chrysin	0.148	0.647
Galangin	-0.105	0.745
Citric_Acid	-0.573	0.056
Gluconic_Acid	-0.294	0.354
Malic_Acid	-0.685	0.017
Succinic_Acid	-0.594	0.046
Lactic_Acid	-0.424	0.170
TPC	-0.790	0.004
FRAP	-0.510	0.094
DPPH	-0.811	0.002
Amylase	0.629	0.032
Diastase	0.669	0.017
Glucose_Oxidase	-0.601	0.043
Catalase	0.203	0.528
Invertase	-0.532	0.075

Heatmap visualizing associations between honey components from Table 2 and intestinal survivability of B. animalis. Statistical analysis was conducted using Spearman's rank correlation. (P< 0.1 = #, P<0.05 = *, P<0.01 = **). CLO_INT = clover intestinal survivability, BUCK = buckwheat, ORA = orange blossom, ALF = alfalfa. TPC=Total Phenolic Content; FRAP=Ferric-reducing antioxidant power; DPPH=2,2-Diphenyl 1-1-picrylhydrazyl

Supplemental Figure 4. Effect of clover honey at different dosages on *B. animalis* survivability in yogurt (170g) through simulated in vitro digestion



* Indicates significantly different from the control (undiluted yogurt) using Dunnett's test ($P < 0.05$)

Supplementary Tables

Supplemental Table 1: Nutritional and microbial composition of the commercial yogurt.

	Activia Low-Fat Vanilla Yogurt (113g)
Energy, kcal	90
Nutrient	
Total Fat, g	1.5
Saturated Fat, g	1
Cholesterol, mg	5
Sodium, mg	55
Total Carbohydrate, g	15
Dietary Fiber, g	0
Total Sugars, g	12
Added Sugars, g	8
Protein, g	4
Potassium, mg	170
Calcium, mg	140
Vitamin D, µg	1.7
Iron, mg	0.1

Activia ®. Live cultures: L. Bulgaricus, L. Lactis, S. Thermophilus Live and Active: B. Lactis DN173-010/CNCM I-2494

Supplemental Table 2. Additional Sugar properties (mean ± SD)					
	Units	**Clover**	**Buckwheat**	**Orange**	**Alfalfa**
Total available carbohydrates	mg/100 mg	73.7 ± 1.07	71.1 ± 3.62	70.7 ± 1.09	69.5 ± 3.04
Moisture	Percent	17.7 ± 0.42	19.2 ± 0.72	17. ± 0.46	17 ± 0.00
Total carbohydrates P-S method	mg/100 mg	78.5 ± 2.73	78.9 ± 2.52	78.3 ± 2.27	79.3 ± 5.23

Supplemental Table 3. Honey physicochemical (mean ± SD)					
	Units	**Clover**	**Buckwheat**	**Orange**	**Alfalfa**
Free acidity	mmol acid/kg	ND	ND	ND	ND
Electrical conductivity	µsm/cm	ND	ND	ND	ND
Colour	absorbance at 560 nm	3.12 ± 0.18	5 ± 0	0.72 ± 0.01	0.42 ± 0.02
USDA Colour Designation	Colour	Dark Amber	Dark Amber	Amber	Light Amber
HMF	mg/100 g	0.358±0.056	0.192±0.035	0.290±0.007	0.544±0.112
HMF	mg/kg	ND	ND	ND	ND
Ash	Percent	0.13±0.003	0.43±0.16	0.09±0.02	0.11 ± 0.02
Total protein	mg/100g honey	38.5 ± 0.51	148 ± 2.36	33.0 ± 1.20	45.4 ± 1.68
Not detectable (ND)					

Supplemental Table 4. Additional Organic acids (mean ± SD)					
	Units	**Clover**	**Buckwheat**	**Orange**	**Alfalfa**
Maleic acid	mg/100g	ND	ND	ND	ND
Malonic acid	mg/100g	ND	ND	ND	ND
Not detectable (ND)					