Erratum: Use of plant-derived essential oil compounds and naturally-occurring apple flavor compounds to control foodborne pathogens in apple juice

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Date: 4/7/2013

Cause: Error in calculation concerning FIC indices in chapters 3 and 4. Please note the following corrections.

Edited Text:

Page	Section	Correction
ii	Abstract (line 18 of text)	Omit text: "Eugenol was the only compound that acted synergistically with the apple aroma compounds". Justification: None of the EO compounds interacted synergistically with apple aroma compounds.
68	Abstract (line 18 of text)	SAD classified all combinations as being indifferent in nature.
76	Results (line 19 of text)	SAD classified all interactions as being indifferent in nature.
76	Results (line 20 of text)	Omit text: "Thymol/ cinnamaldehyde and thymol/ eugenol combinations were the only exceptions, with each producing antagonistic effects for *L. monocytogenes*". Justification: Data for combinations containing high concentrations of thymol are not reported.
87	Table 2	See attached table
89	Abstract (line 17 of text)	Omit text: "Synergistic relationships were identified for combinations containing high concentrations of eugenol (0.8 or 1.6 mg/mL)". Justification: Eugenol- containing combinations did not produce synergistic interactions.
95	Results (lines 16 -17 of text)	Omit text: "Combination testing revealed that low concentrations (0.2 or 0.4 mg/mL of thymol or eugenol in combination with hexanal and *trans*-2-hexenal resulted in antagonistic effects". Justification: Eugenol-containing combinations did not produce synergistic effects .
95	Results (lines 3-4 of text)	Omit text: "Eugenol was the only exception, with all combinations producing synergistic effects (FIC <0.5)". Justification: All combinations produced indifferent interactions.
99	Discussion (lines 7- 8 of text)	Omit text: "While eugenol-containing combinations produced a number of synergistic effects, the majority of EO combinations resulted in antagonistic effects".

		Justification: Eugenol-containing combinations did not produce synergistic effects.
99	Discussion (lines 20-22)	Omit text: "The use of eugenol, in combination with hexanal, 1-hexanol and trans-2-hexenal offers new possibilities for preserving fresh food products. This synergistic relationship may lower the effective concentrations needed to preserve foods, without altering the natural profile of the food product". Justification: Eugenol did not interact synergistically with apple aroma compounds.
104	Table 2	Omit table: "Fractional inhibitory concentration (FIC) indices and antimicrobial interactions for combinations containing low concentrations of essential oil (EO) compounds". Insert attached table.
105	Table 3	Omit table: "Fractional inhibitory concentration (FIC) indices and antimicrobial interactions for combinations containing high concentrations of essential oil (EO) compounds."
127	Conclusions and Future Directions (lines 13-15 of text)	Omit text: "The most interesting finding, however, was that eugenol (at concentrations of 0.8 and 1.6 mg/mL was the only essential oil compound that produced synergistic relationships in combination with the apple aroma compounds". Justification: Eugenol (at a concentration of 0.8 and 1.6 mg/mL) did not interact synergistically with apple aroma compounds.

Edited Tables:

Page: 87 (Table 2)

Title: Antimicrobial Interactions for Combinations of Essential Oil Compounds against Three Foodborne Pathogens

Corrected Table:

Antimicrobial Interactions for Combinations of Essential Oil Compounds against Three Foodborne Pathogens

Interaction Type						
	L. monocytogenes		*S.* Typhimurium		*S. aureus*	
Combination	SGE	SAD	SGE	SAD	SGE	SAD
Thy+Cin	Ant	Ind (3.16)	Ant	Ind (2.15)	Ant	Ind (2.16)
Thy+Eug	Ant	Ind (2.00)	Ant	Ind (1.58)	Ant	Ind (1.92)
Eug+ Cin	Ant	Ind (1.98)	Ant	Ind (1.77)	Ant	Ind (1.78)

Thy (thymol); Cin (cinnamaldehyde); Eug (eugenol); SGE (spiral gradient endpoint); SAD (standard agar dilution)
Ant (Antagonism); Ind (Indifferent interactions)
Numbers in parenthesis are FIC values generated by the checkerboard method of analysis.

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Title: Fractional Inhibitory concentration (FIC) indices and antimicrobial interactions for combinations containing low concentrations of essential oil (EO) compounds

Corrected Table:

Fractional inhibitory concentration (FIC) indices and antimicrobial interactions for combinations containing low concentrations of essential oil (EO) compounds

Combination	FIC Indexes					
	L. monocytogenes		*S.* Typhimurium		*S. aureus*	
	FIC	Interpretation	FIC	Interpretation	FIC	Interpretation
Thy + Hexanal	1.50	IND	1.50	IND	1.50	IND
Thy + Hexanol	1.00	IND	1.00	IND	1.00	IND
Thy + Hexenal	0.63	IND	1.00	IND	1.00	IND
Eug + Hexanal	0.63	IND	1.13	IND	1.13	IND
Eug + Hexanol	1.13	IND	1.13	IND	1.13	IND
Eug + Hexenal	0.63	IND	0.63	IND	0.63	IND
Cin + Hexanal	1.02	IND	0.75	IND	1.02	IND
Cin + Hexanol	1.02	IND	0.56	IND	1.02	IND
Cin + Hexenal	1.13	IND	1.00	IND	1.13	IND

Abbreviations: FIC, Fractional Inhibitory Concentration; SYN, synergy (FIC≤0.5); IND, indifference (FIC >0.5<4); ANT, antagonism (FIC≥4)

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Title: Fractional Inhibitory concentration (FIC) indices and antimicrobial interactions for combinations containing high concentrations of essential oil (EO) compounds

Correction: Omit table from document