Supplementary Data:

Table S1: Ingredient list used in the preparation of beverages for a 250 mL serving size

Ingredient List:	**SSB (250 mL)**	**RAB (250 mL):**
Coconut Water	135.6 mL (51.05%)	150 mL (58.7%)
Pomegranate Juice	27.12 mL (10.21%)	30 mL (11.7%)
Lemon Juice	22.6 mL (8.51%)	25 mL (9.8%)
Raspberry Juice	13.56 mL (5.11%)	15 mL (5.9%)
Green Tea	27.12 mL (10.21%)	30 mL (11.7%)
Inulin	5.5 g (2.07%)	5.5 g (2.15%)
Sugar	35 g (13.18%)	-
Reb-A	-	0.175 g (0.07%)

Table S2: The effect of pasteurisation on the pH, water activity, and °Brix values

Test	**Beverage type**	**Before Pasteurisation**	**After Pasteurisation**
pH	Sugar	3.39 ±0.00	3.39 ± 0.00
	Reb-A	3.39 ±0.00	3.39 ±0.00
Water Activity (a_w)	Sugar	0.944 ± 0.01	0.973 ± 0.00
	Reb-A	0.965 ± 0.00	0.983 ± 0.01
°Brix	Sugar	20.0 ± 0.0	20.5 ± 0.7
	Reb-A	8.0 ± 0.0	8.1 ± 0.1

(Note: Results are expressed as the mean ± standard deviation (SD) as results were measured in triplicate. For pH three measurements of the same batch were recorded. For °Brix Repeat measurements for beverages were taken on different production days. ANOVA and the post-hoc Tukey test was applied to assess differences between beverages and the effect of pasteurisation as data is parametric).

Table S3: The colour values (L*, a*, b*), colour intensity (C*), and total colour difference (ΔE*)

Beverage	**Treatment**	**L***	**a***	**b***	**C***	**ΔE***
Sugar	Before Pasteurisation	25.24 ± 0.69	12.32 ± 0.88	3.76 ±0.43	12.88	0.42
	After Pasteurisation	24.88 ± 0.66	12.11 ± 0.82	3.81 ± 0.41	12.70	
Reb-A	Before Pasteurisation	21.24 ± 0.64	10.36 ± 0.91	2.65 ± 0.47	10.69	2.20
	After Pasteurisation	22.74 ± 1.30	11.73 ± 1.03	3.49 ± 0.51	12.24	
Sugar vs Reb-A	Before Pasteurisation	-	-	-	-	4.59
Sugar vs Reb-A	After Pasteurisation	-	-	-	-	2.20

(Note: Results for L*, a*, and b* are expressed as mean ± SD from triplicate measurements, Colour differences are unrecognizable ($0 < \Delta E^* < 1$), experienced observer can perceive the differences ($1 < \Delta E^* < 2$), inexperienced observer can perceive the differences ($2 < \Delta E^* < 3.5$), Every observer can easily see the difference ($3.5 < \Delta E^* < 5$), and an observer recognizes two different colours ($\Delta E^* > 5$) [1].

Table S4: Antioxidant results of the SSB and RAB following pasteurisation

Beverage Type	Treatment	TPC (mg GAE/L)	FRAP (mg AAE/L)	DPPH (mg AAE/L)	TAC (mg CYEL)
SSB	Before Pasteurisation	1014.4 ±18.9	1694.5 ±38.6	187.9 ±16.5	16.4 ±1.7
	After Pasteurisation	1035.6 ±53.8	1733.9 ±19.7	294.9 ±1.3	13.1 ±2.4
RAB	Before Pasteurisation	1117.4 ±78.9	1737.5 ±57.1	250.5 ±9.4	23.9 ± 2.0
	After Pasteurisation	1144.1 ±36.0	1863.9 ±32.1	349.5 ±17.9	16.3 ± 5.0

(Note: Results are expressed using the average values represented by as mean ± SD, all data was treated as parametric and ANOVA analysis was applied obtaining p-values).

Table S5: Antioxidant activity of SSB and RAB after normalisation of SSB values to match RAB fruit/tea extract content

Antioxidant Tests	SSB adjusted	RAB measured
TPC (mg GAE/L)	1190.9	1144.1
FRAP (mg AAE/L)	1994.0	1863.9
DPPH (mg AAE/L)	339.1	349.5
TAC (mg CYE/L)	15.04	16.31

Note: Adjusted SSB values were obtained by multiplying the measured after-pasteurisation antioxidant activity values for SSB by the ratio of total fruit/tea extract volume in RAB to that in SSB (244.5 mL ÷ 212.7 mL = 1.15), allowing direct comparison at equivalent extract concentrations.

These normalised values demonstrate that both SSB and RAB have very similar antioxidant activity when expressed per equivalent fruit/tea extract content, indicating that the differences seen in the final product is primarily due to the higher extract concentration in the RAB formulation.
In practical terms, however, a real-life serving of the final RAB beverage delivers a higher total antioxidant intake owing to its greater fruit/tea extract content.

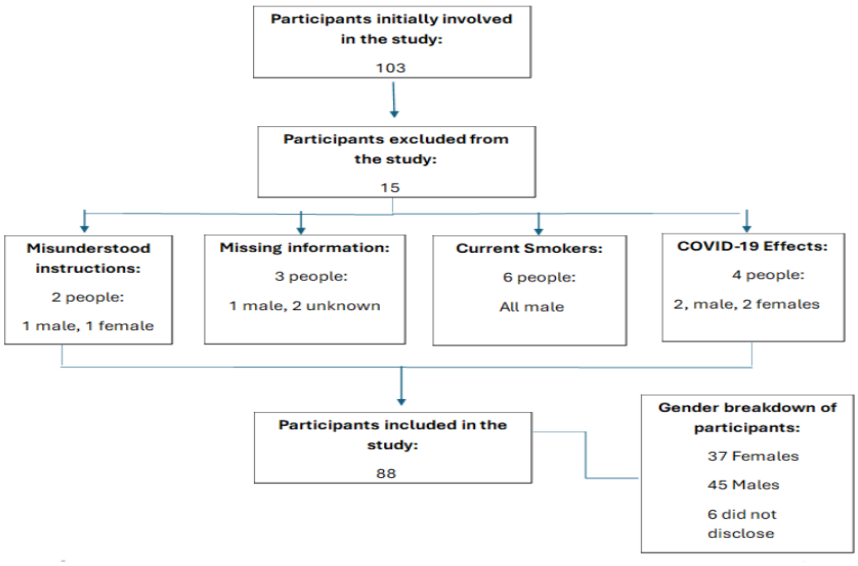

Figure S1: Flowchart of participants involved in the sensory analysis and reasons for exclusions.

Table S6: Summary of the sensory analysis results for each parameter for the SSB and RAB.

Parameter	Measures	Sugar Beverage	Reb-A Beverage	p-value
Odour	Mean ± SD:	6.4 ± 1.6	6.2 ± 1.6	0.310
	Variance:	2.64	2.57	
	Coefficient of Variation (CV)%:	25.2	25.9	
	Minimum:	3	3	
	Maximum:	9	9	
Colour	Mean ± SD:	7.7 ± 1.2	7.6 ± 1.3	0.591
	Variance:	1.31	1.70	
	CV%:	14.9	17.2	
	Minimum:	4	3	
	Maximum:	9	9	
Taste	Mean ± SD:	7.44 ± 1.6	6.9 ± 1.5	0.001
	Variance:	2.57	2.31	
	CV%:	21.5	22.1	
	Minimum:	2	2	
	Maximum:	9	9	
Overall Impression	Mean ± SD:	7.5 ± 1.3	6.9 ± 1.4	0.001
	Variance:	1.69	1.99	
	CV%:	17.3	20.4	
	Minimum:	3	2	
	Maximum:	9	9	

(Note: To compare both beverages, the Mann-Whitney U test was applied as the data is non-parametric and the p-values were expressed).

Figure S2: Minimum numbers of judgments to establish significance for paired difference and duo–trio tests [2].

Paired difference and duo–trio tests

Number of trials (n)	Probability levels	
	0.05	0.01
37	24	26
38	25	27
39	26	28
40	26	28
41	27	29
42	27	29
43	28	30
44	28	31
45	29	31

Table 4.3 (continued)

Paired difference and duo–trio tests

Number of trials (n)	Probability levels	
80	48	51
90	54	57

Table S7: Summary of preference test between genders and total participants for both beverages

Preference Test	Male	Female	Not Disclosed	Total
Sugar Beverage	36	24	2	62
Reb-A Beverage	9	13	4	26
Total	45	37	6	88
Probability Test (1% confidence)	Minimum 31	Minimum 26	Minimum 6	Minimum 57 (out of 90)

(Note: A 1% confidence level was selected due to the high variability between scores on the parameters for each beverage).

References

1. Pielak M., Czarniecka-Skubina E., Głuchowski A. Effect of sugar substitution with steviol glycosides on sensory quality and physicochemical composition of low-sugar apple preserves. *Foods*. 2020;9(3) DOI: https://doi.org/10.3390/foods9030293
2. Lawless H.T., Heymann H. *Sensory evaluation of food: Principles and practices*. Springer Science & Business Media; 2010.