

Support Information for

Analysis of Sugars and Sweeteners via Terahertz Time-Domain Spectroscopy

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Table S1. Comparison of the peaks/bands of sugars and sweeteners studied in the present work with those described in the literature.

Sugar / sweetener	Main peaks/bands (THz)						
	Fructose						
This work			1.704	2.127		2.658	
Reference 17			1.72	2.14			
Reference 42			1.71	2.13			
	Glucose						
This work		1.435		2.065	2.512	2.658	2.942
Reference 39		1.42		2.05	2.51	2.64	2.91
	Sucrose						
This work		1.442	1.827		2.542		3.388
Reference 31		1.47					
Reference 43		1.50	1.90				
	Lactose						
This work	0.527	1.373			2.550	2.881	3.257
Reference 23	0.53						
Reference 42	0.53	1.37					
Reference 44	0.53	1.38			2.56		
Reference 45	0.53						
	Saccharin						
This work			1.988			2.664	3.450
Reference 25			1.98				

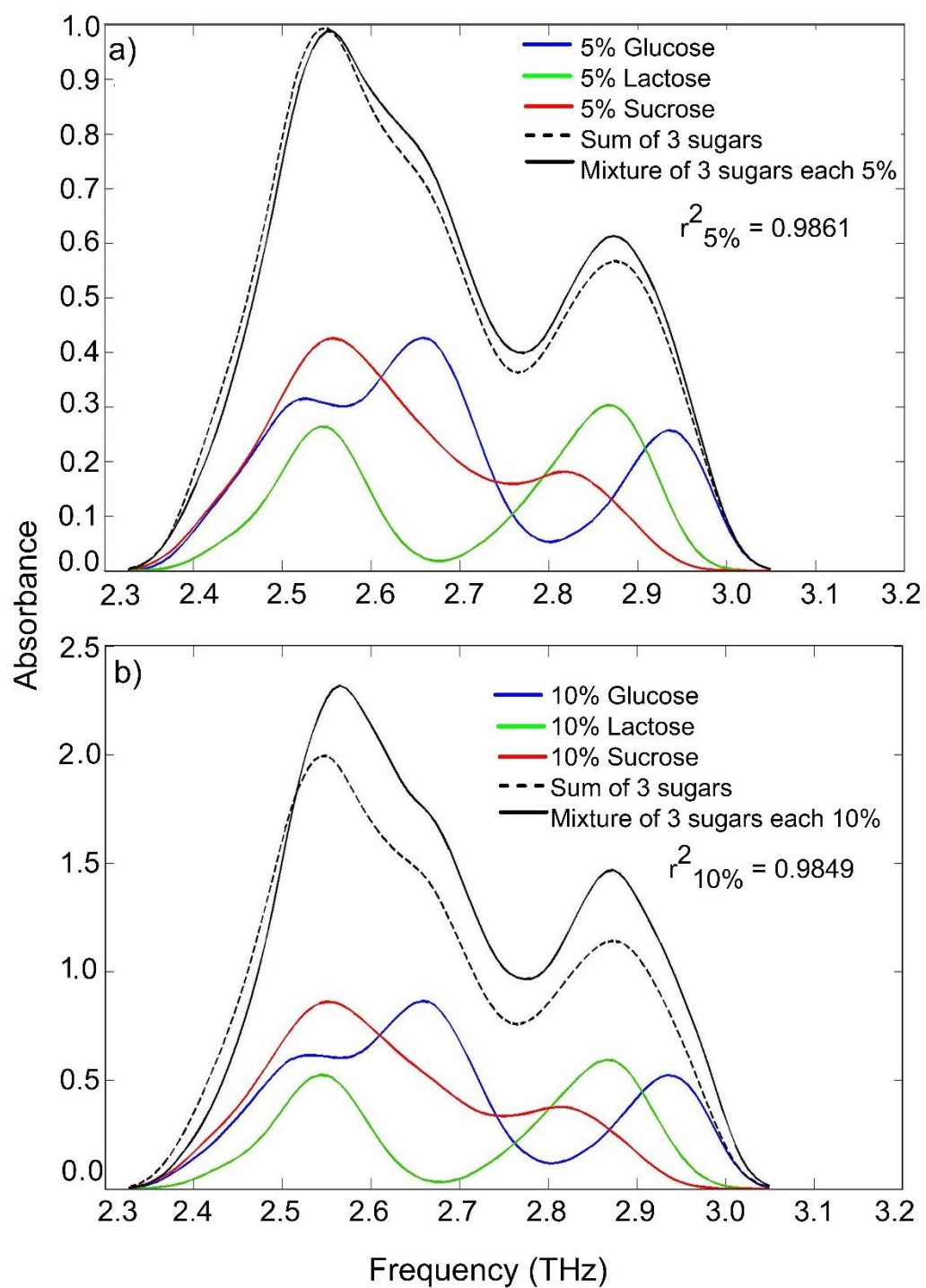


Figure S1. Gaussian peak fitting of individual sugars and mixture (M1) from 2.33 to 3.05 THz, and characteristic sub-peaks. (a) Coefficient of determination (i.e., similarity) between 5% and (b) 10% sugar mixture – M1 (solid line) and the simulated mixture curve from pure sugar spectra (dashed line);

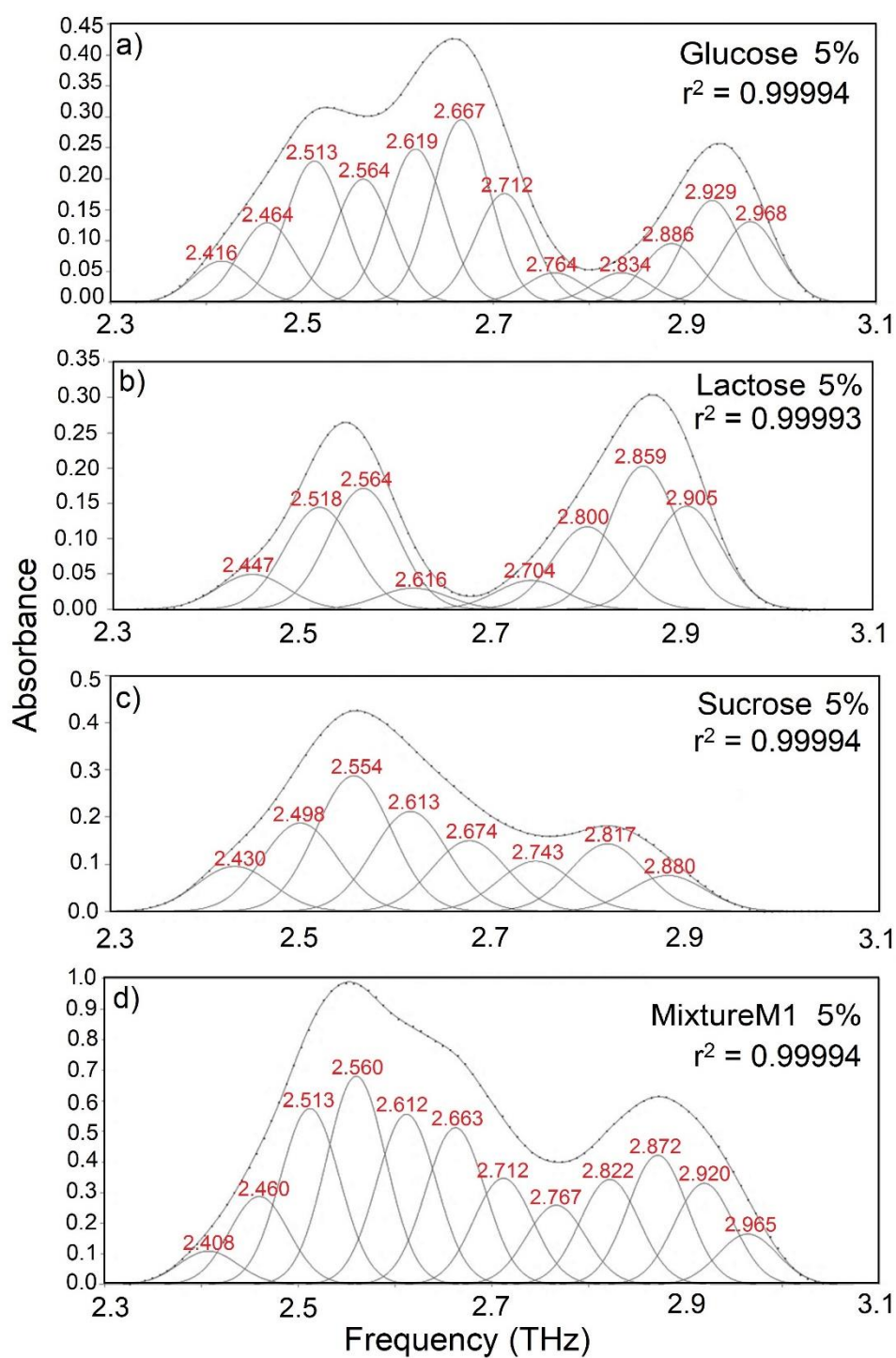


Figure S2. Gaussian peak fitting of individual sugars and mixture (M1) from 2.33 to 3.05 THz, and characteristic sub-peaks. (a) sub-peaks of glucose (5%); (b) sub-peaks of lactose (5%), (c) sub-peaks of sucrose (5%) and (d) sup-peaks of mixture 1 (5%).

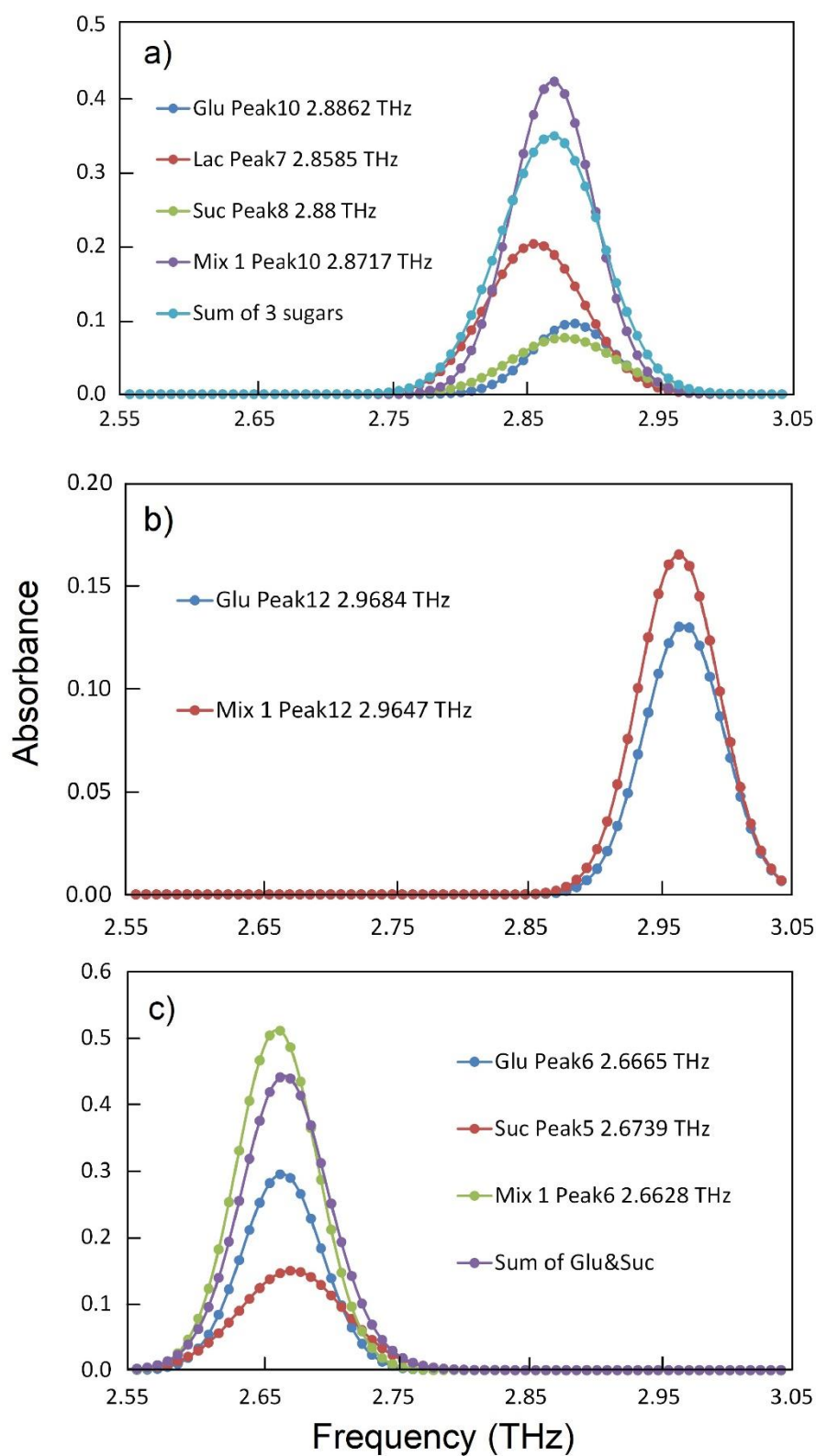


Figure S3. (a) Sub-peaks 10 of glucose, 7 of lactose, 8 of sucrose, 10 of the mixture at concentration of 5% and the sum of the three sub-peaks cited of pure sugars; (b) Sub-peaks 12 of glucose and mixture 1 (ternary) in 5%; (c) Sub-peaks 6 of glucose, 5 of sucrose and 6 of mixture in 5% and sum of the two sub-peaks cited from the pure sugars.

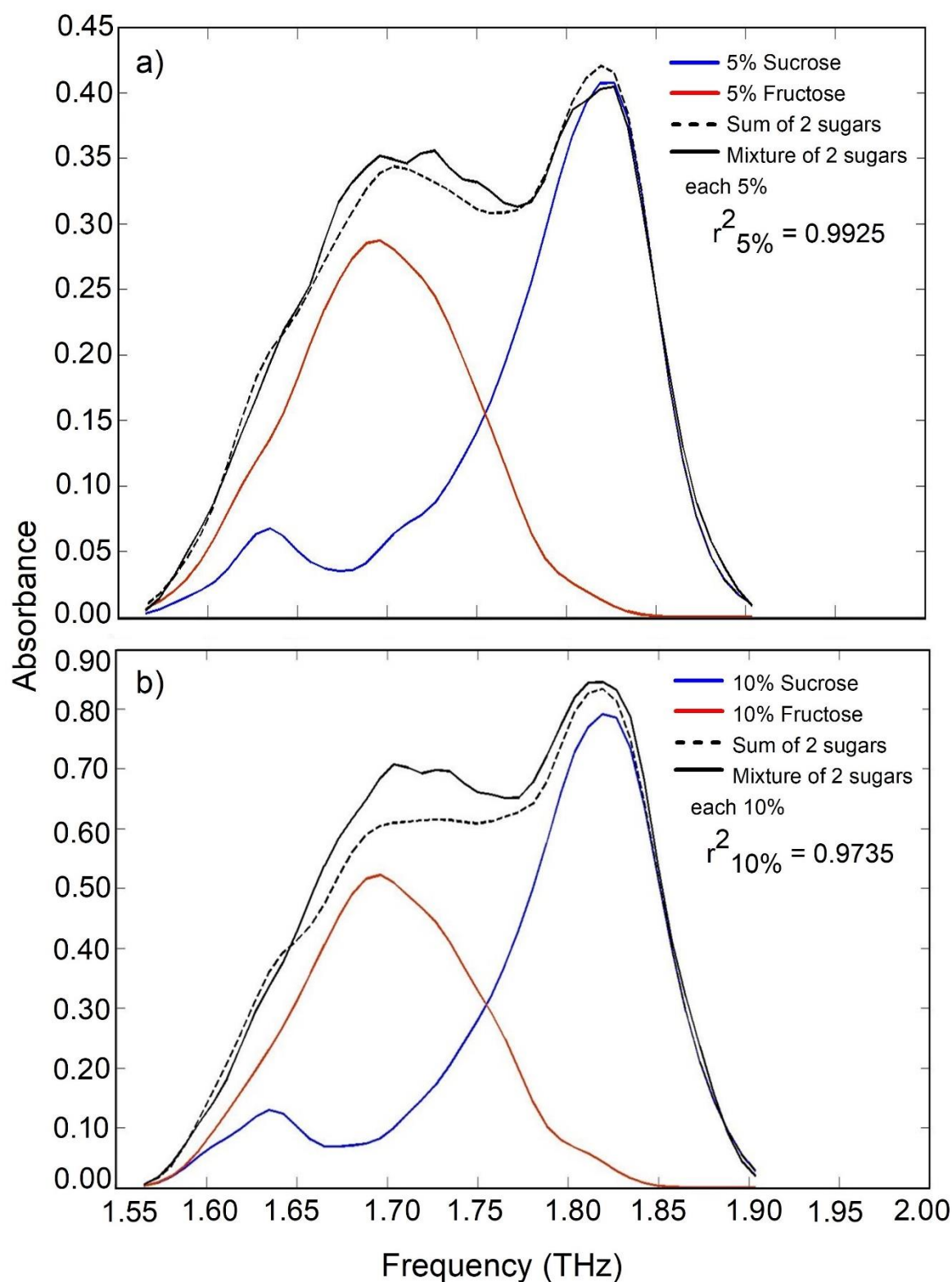


Figure S4. Gaussian peak fitting of individual sugars and mixture (M2) from 1,56 to 1,91 THz, and characteristic sub-peaks. (a) Coefficient of determination (i.e., similarity) between 5% and (b) 10% sugar mixture – M2 (solid line) and the simulated mixture curve from pure sugar spectra (dashed line).

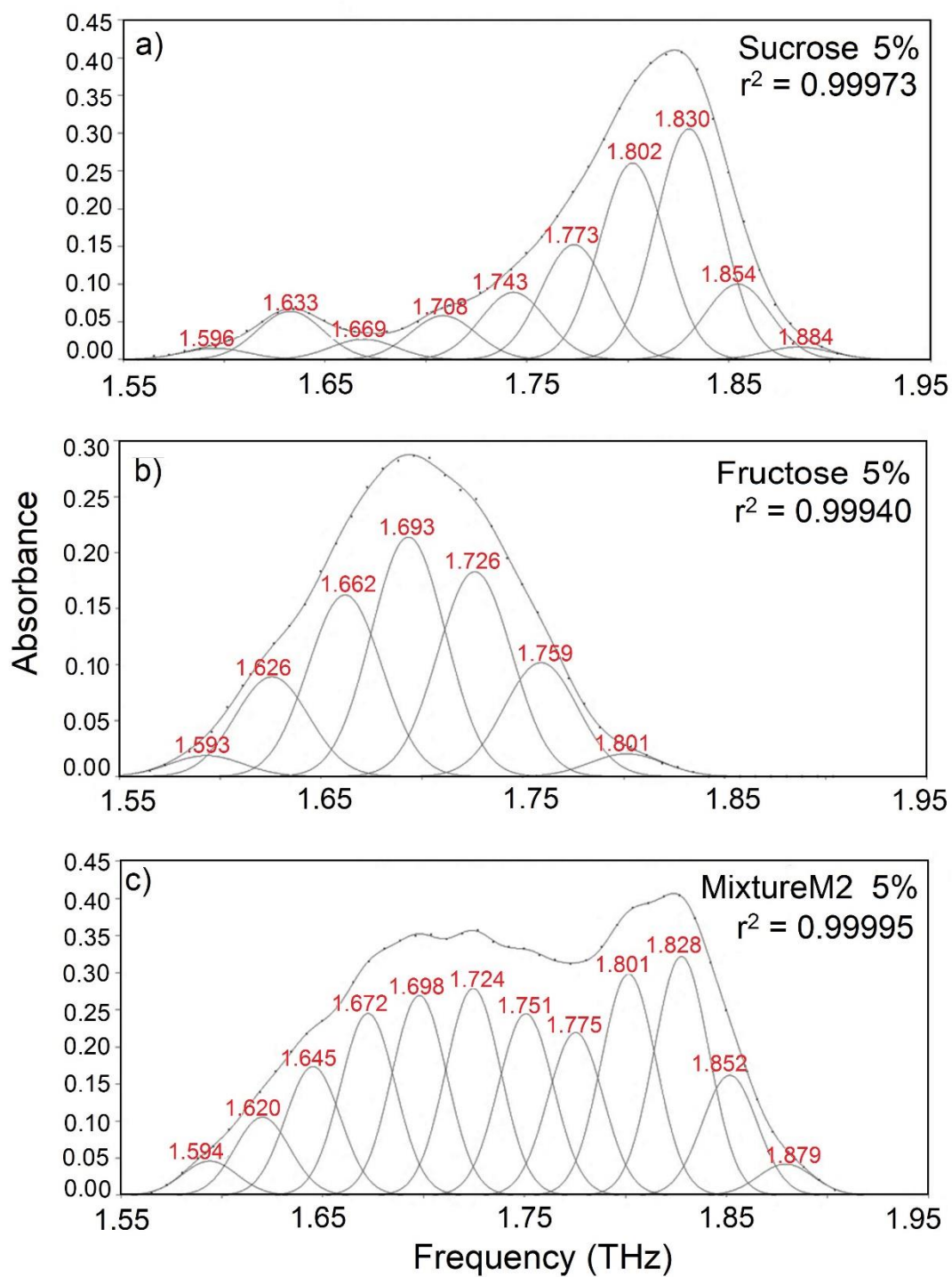


Figure S5. Gaussian peak fitting of individual sugars and mixture (M2) from 1,56 to 1,91 THz, and characteristic sub-peaks. a) sub-peaks of sucrose, highlighting the sub-peaks with the center at 1.83, 1.85 and 1.88 THz (5%); b) sup-peaks of fructose, highlighting the sub-peak with the center at 1.69 THz (5%) and (c) sub-peaks of mixture 2 (5%).

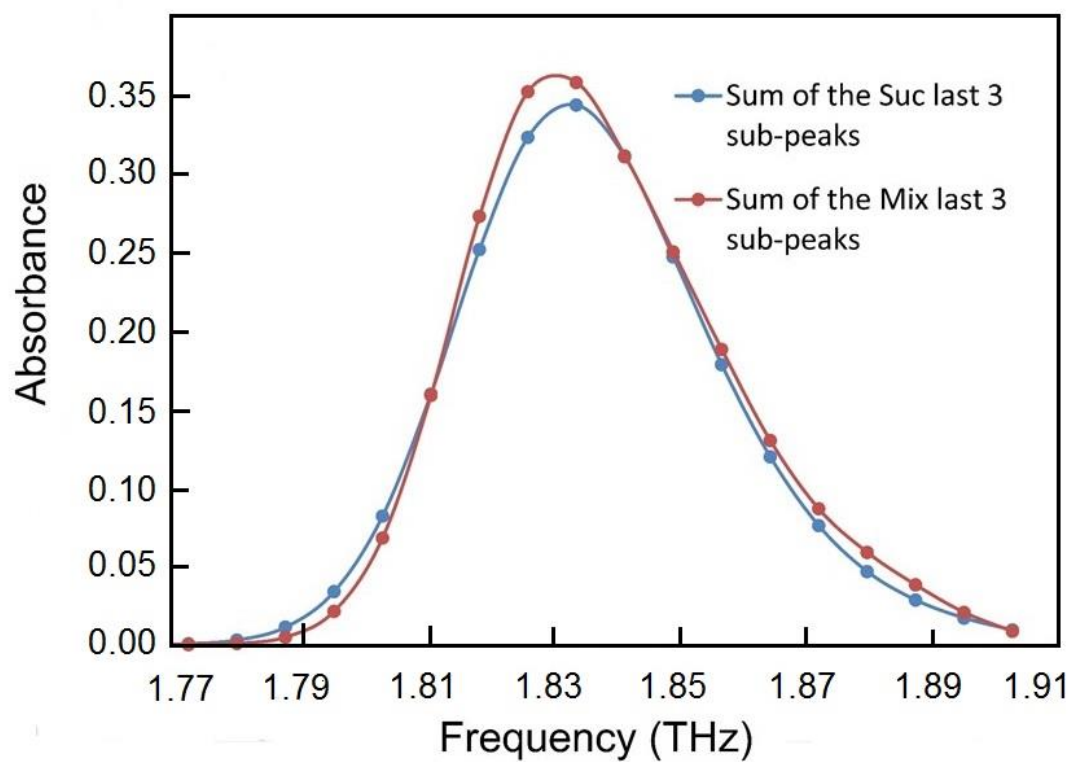


Figure S6. Sum of the last sub-peaks of pure sucrose and the sum of the last sub-peaks of mixture 2 in 5%.