Artificial Sweeteners and Sugar Ingredients as Reducing Agent for Green Synthesis of Silver Nanoparticles (Supplementary Information)

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*The datasets generated during the current study are available from the corresponding author on reasonable request.

Supplementary Information

UV-vis Characterization during the Course of Reactions

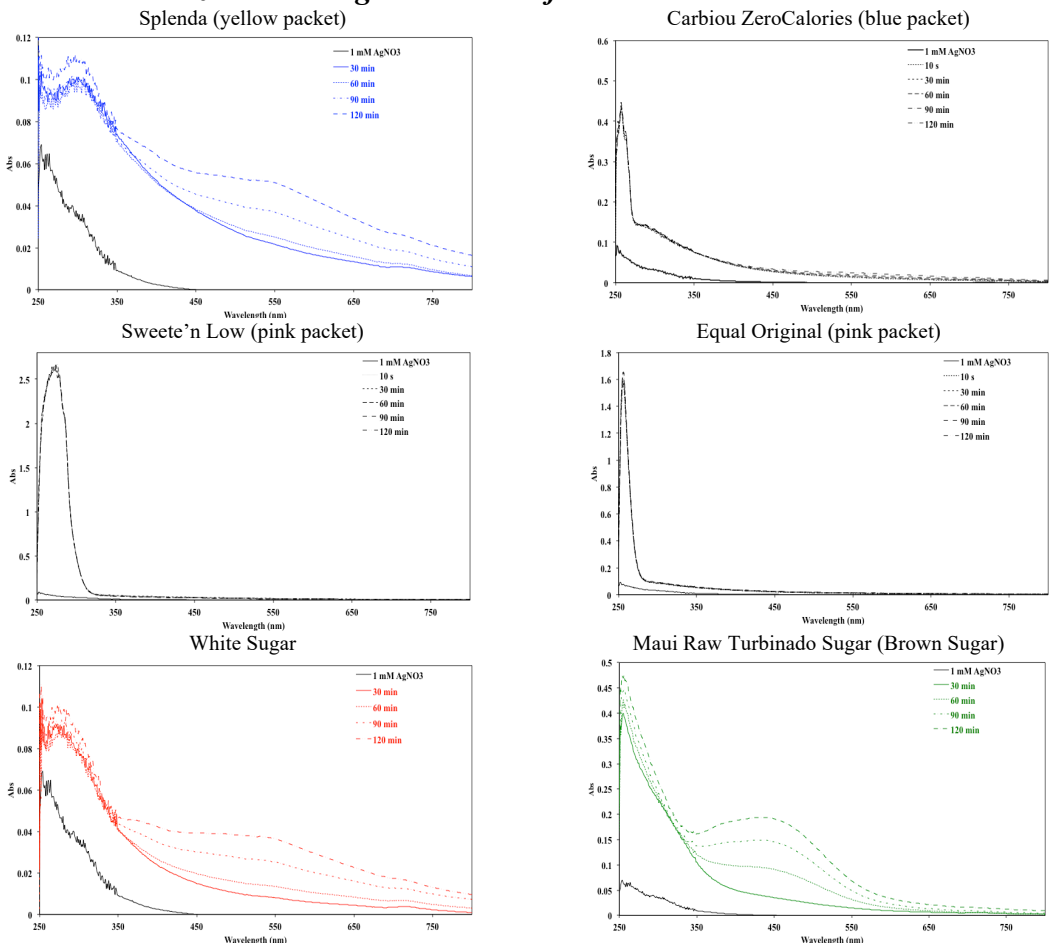


Figure S1: UV-vis characterization during the synthesis of AgNPs (1 mM $AgNO_3$, 2 wt.% sugar substitutes or artificial sweeteners, T= 25 °C, 2 h reaction time).

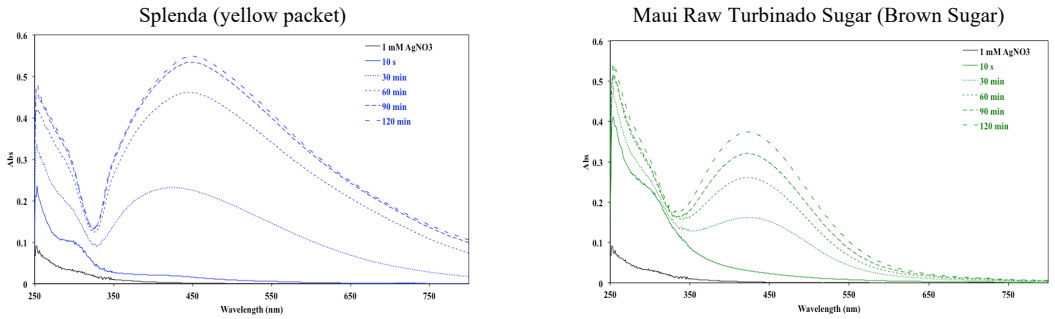


Figure S2: UV-vis characterization during the synthesis of AgNPs (1 mM $AgNO_3$, 1.6 mM PVP, 2 wt.% sugar substitutes or artificial sweeteners, T= 50 °C, 2 h reaction time).

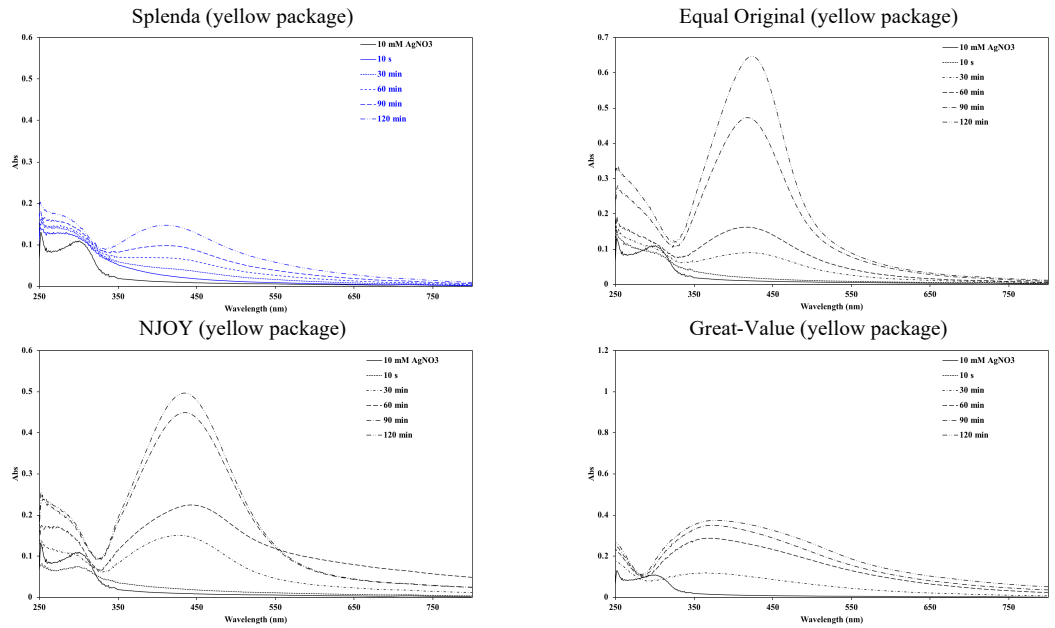


Figure S3: UV-vis characterization during the synthesis of AgNPs (10 mM $AgNO_3$, 16 mM PVP, 2 wt.% sugar substitutes or artificial sweeteners, T= 50 °C, 2 h reaction time).

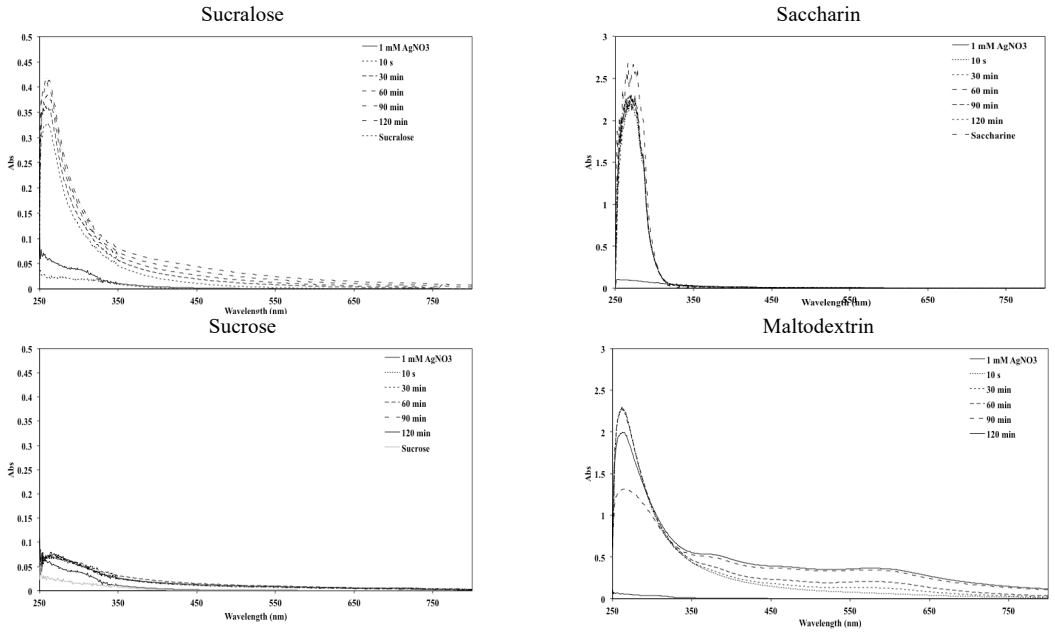


Figure S4: UV-vis characterization during the synthesis of AgNPs (1 mM $AgNO_3$, T= 50 °C, 2 h reaction time).

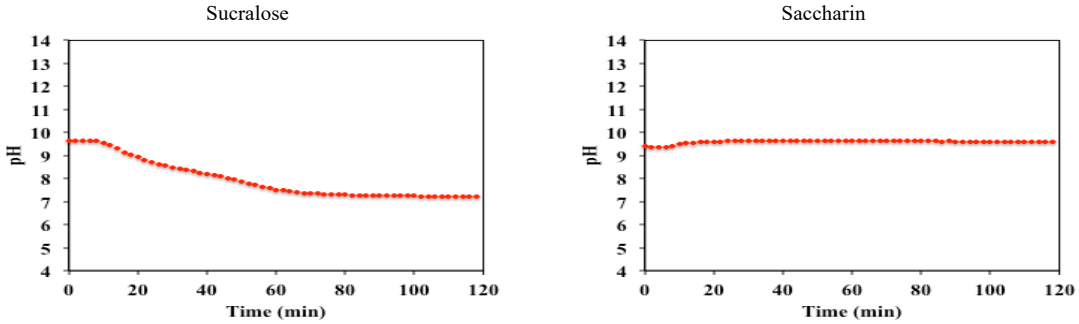


Figure S5: pH measurement during the synthesis of AgNPs in presence of NaOH (10 mM $AgNO_3$, T= 50 °C, 2 h reaction time).

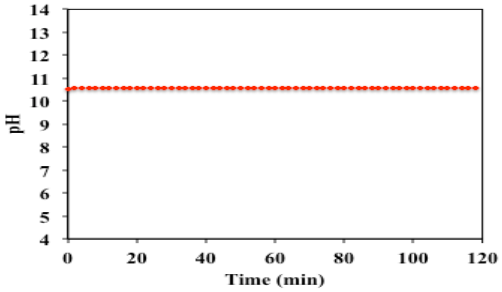


Figure S6: pH measurement during the synthesis of AgNPs utilizing NaOH as reducing agent (10 mM $AgNO_3$, T= 50 °C, 2 h reaction time).

Table S1: UV-vis result summary.

Reducing Agent and its concentration (2 wt.%)	$AgNO_3$ Concentration (mM)	PVP Concentration (mM)	Reaction Temperature (°C)	Reaction Time (hr)	UV-vis Peak Range (nm)	Figure Number
Splenda (yellow packet)	1	_	50	2	475-575	Figure 1
Carbiou Zero Calories (blue packet)	1	_	50	2	_	Figure 1
Sweete'n Low (pink packet)	1	_	50	2	350-450	Figure 1
Equal Original (pink packet)	1	_	50	2	_	Figure 1
White Sugar	1	_	50	2	450-600	Figure 1
Maui Raw Turbinado Sugar (Brown Sugar)	1	_	50	2	350-500	Figure 1
Splenda (yellow packet)	1	_	25	2	450-650	Figure S1
Carbiou Zero Calories (blue packet)	1	_	25	2	_	Figure S1
Sweete'n Low (pink packet)	1	_	25	2	_	Figure S1
Equal Original (pink packet)	1	_	25	2	_	Figure S1
White Sugar	1	_	25	2	450-650	Figure S1
Maui Raw Turbinado Sugar (Brown Sugar)	1	_	25	2	350-550	Figure S1
Splenda (yellow packet)	10	_	50	2	350-650	Figure 2
Maui Raw Turbinado Sugar (Brown Sugar)	10	_	50	2	350-550	Figure 2
Splenda (yellow packet)	1	1.6	50	2	350-650	Figure S2
Maui Raw Turbinado Sugar (Brown Sugar)	1	1.6	50	2	350-550	Figure S2
Splenda (yellow packet)	10	_	50	2	350-650	Figure 3
Equal Original (yellow packet)	10	_	50	2	350-550	Figure 3
NJOY (yellow packet)	10	_	50	2	350-400	Figure 3
Great-Value (yellow packet)	10	_	50	2	350-700	Figure 3
Splenda (yellow packet)	10	16	50	2	350-500	Figure S3
Equal Original (yellow packet)	10	16	50	2	350-500	Figure S3
NJOY (yellow packet)	10	16	50	2	350-550	Figure S3
Great-Value (yellow packet)	10	16	50	2	350-650	Figure S3
Sucralose	10	_	50	2	_	Figure 4
Saccharin	10	_	50	2	_	Figure 4
Sucrose	10	_	50	2	_	Figure 4
Maltodextrin	10	_	50	2	450-650	Figure 4
Sucralose	1		50	2		Figure S4
Saccharin	1	_	50	2	_	Figure S4
Sucrose	1	_	50	2	_	Figure S4
Maltodextrin	1	_	50	2	500-650	Figure S4
Sucralose 10 µL NaOH	10	_	50	2	_	Figure 5
Saccharin 40 µL NaOH	10	_	50	2	350-500	Figure 5
NaOH	10		50	2	300-600	Figure 6

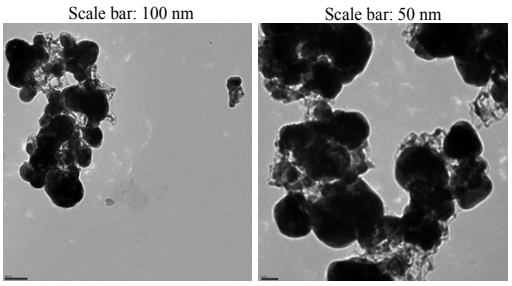


Figure S7: TEM images of the synthesized AgNPs utilizing Maui Turbinado brown sugar as reducing agent (1 mM $AgNO_3$, T= 50 °C, 2 h reaction time).

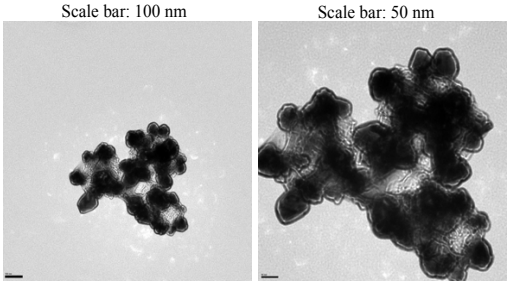
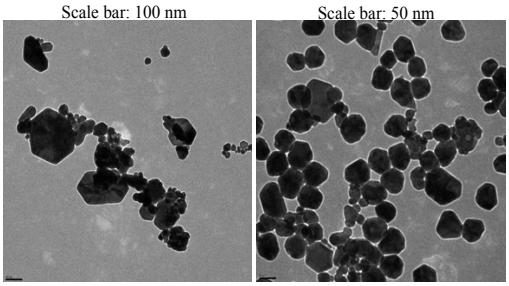


Figure S8: TEM images of the synthesized AgNPs utilizing Splenda (yellow packet) as reducing agent (1 mM $AgNO_3$, T= 50 °C, 2 hrs reaction time).

(A) Sucralose in presence of NaOH (10 mM $AgNO_3$, 10 µl NaOH, T= 50 °C, 2 h reaction time)



(B) Saccharin in presence of NaOH (10 mM $AgNO_3$, 40 µl NaOH, T= 50 °C, 2 h reaction time)

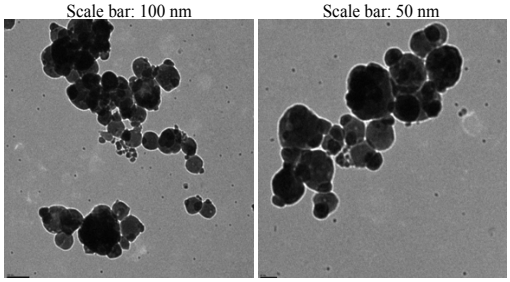


Figure S9: TEM images of the synthesized AgNPs utilizing sucralose (A) and saccharin (B).