Supplementary Material

Green synthesis, characterization, and antimicrobial applications of silver nanoparticles as fluorescent nanoprobes for the spectrofluorimetric determination of ornidazole and miconazole

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Supplementary Figures captions

Fig. S1 Optical images of Ag-NPs under normal light (a) and UV light (b)

Fig. S2 UV-visible absorption spectrum of $AgNO_3$ (a) and Ag-NPs (b)

Fig. S3 Particle size distribution of Ag-NPs using DLS (a) and elemental analysis results of Ag-NPs using EDX (b)

Fig. S4 Effect of temperature on Ag-NPs

Fig. S5 Effect of pH (a), volume of Britton-Robinson buffer (b), incubation time (c), and temperature (d) on the relative quenched fluorescence intensity of Ag-NPs by ONZ (20.0 μM) and MIZ (50.0 μM)

Fig. S6 The response of possible interfering excipients

Fig. S7 The selectivity of Ag-NPs towards ONZ and MIZ in presence of different metal ions

Fig. S8 Fluorescence emission spectra of the Ag-NPs in spiked human plasma upon the addition of different concentrations of ONZ (from top to bottom:0.0, 20.0, 30.0, 40.0 μM)

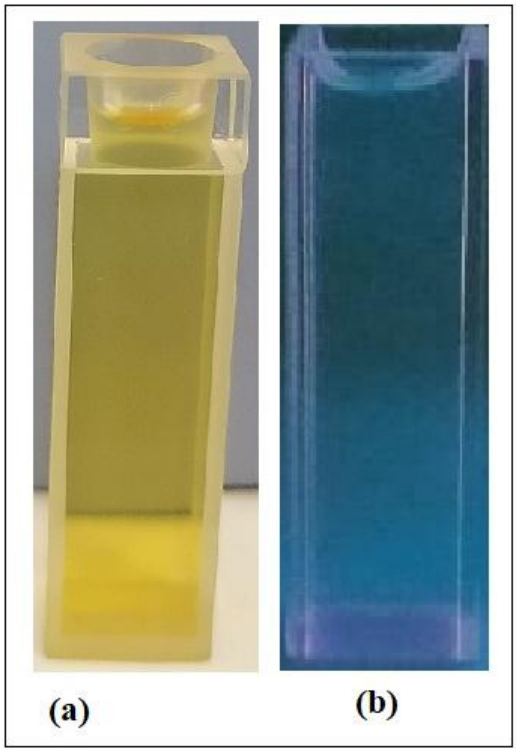
(a)
(b)

Fig. S1

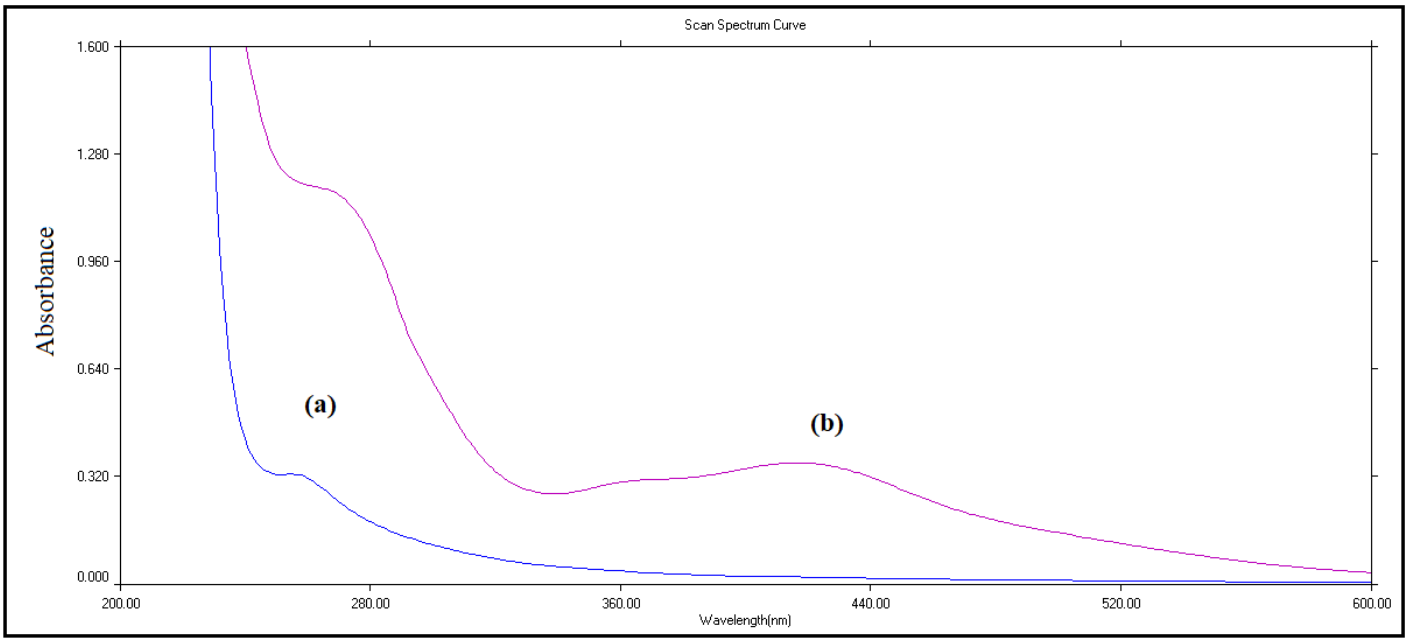
Scan Spectrum Curve
Absorbance
1.600
1.280
0.960
0.640
0.320
0.000
(a)
(b)
200.00
280.00
360.00
440.00
520.00
600.00
Wavelength(nm)

Fig. S2

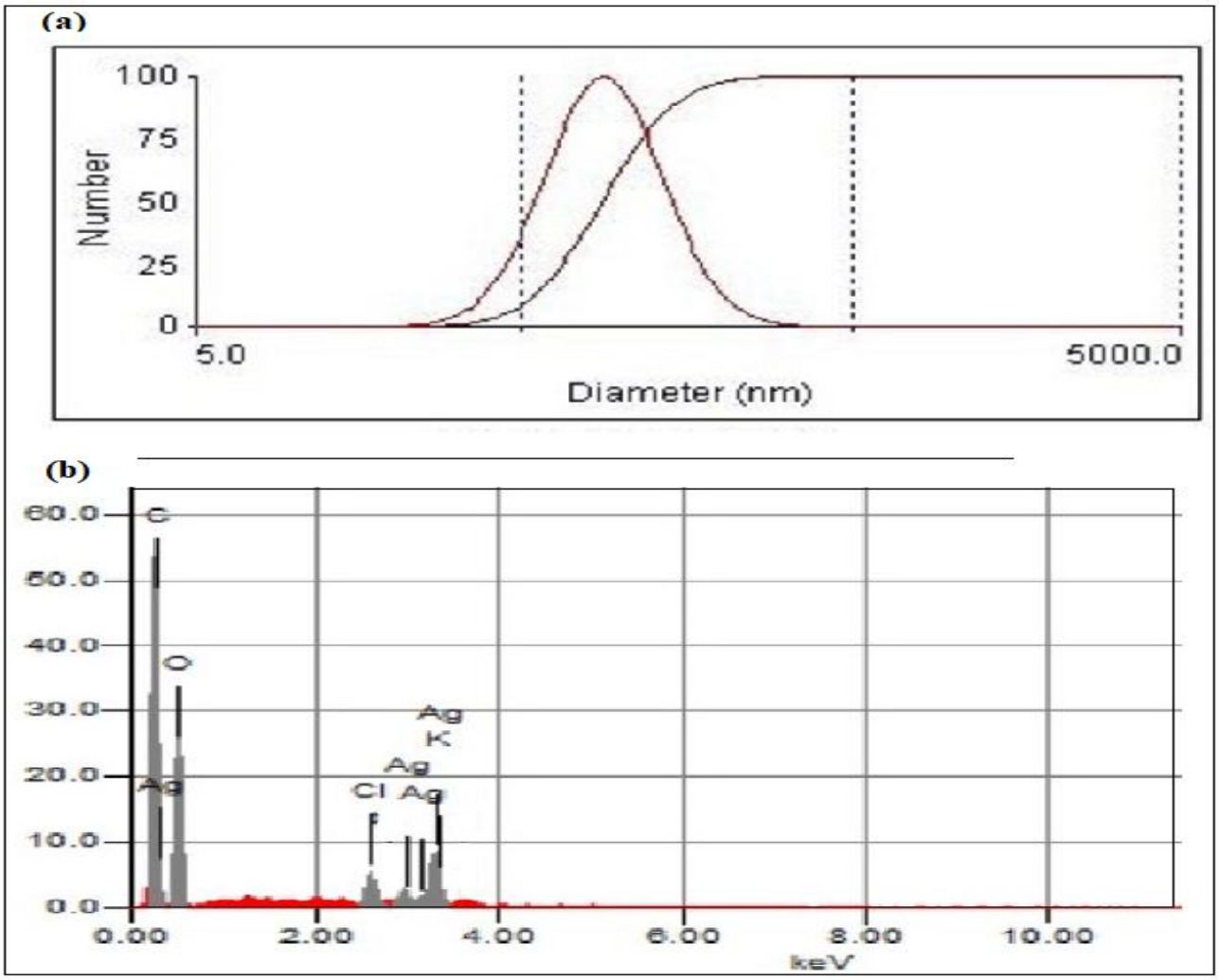
(a)
100
75
50
25
0
Number
5.0
5000.0
Diameter (nm)
(b)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
C
O
Ag
Ag
K
Ag
Cl
Ag
0.00
2.00
4.00
6.00
8.00
10.00
keV

Fig. S3

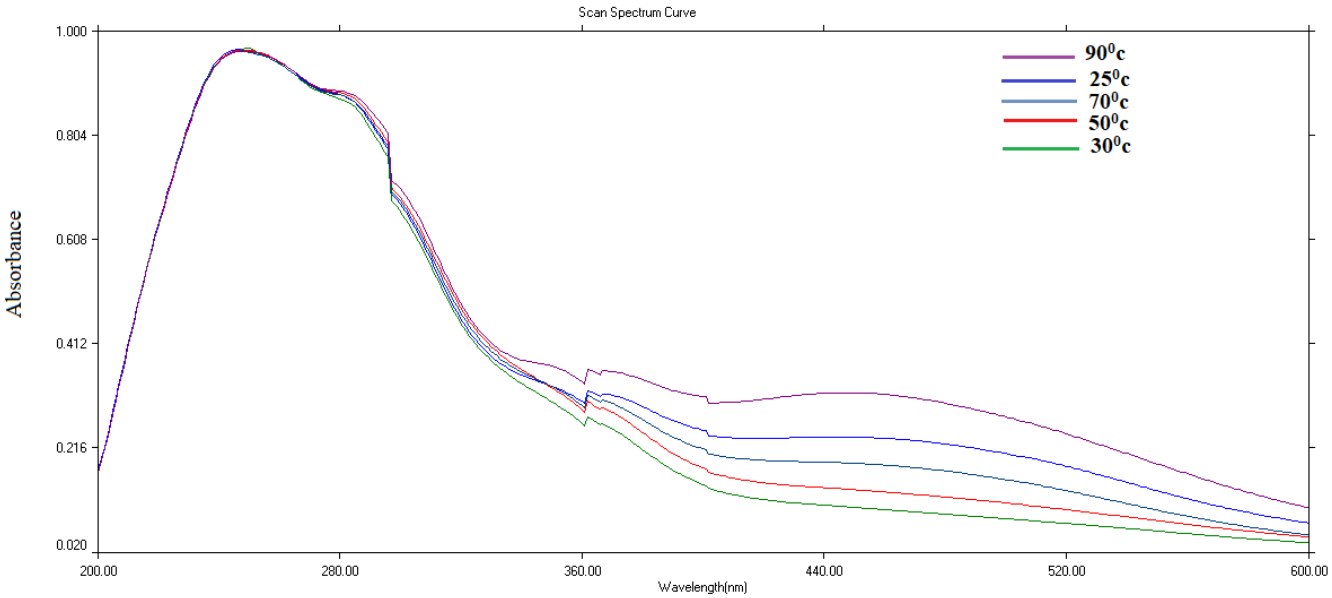
Scan Spectrum Curve
1.000
0.804
0.608
0.412
0.216
0.020
Absorbance
200.00
280.00
360.00
440.00
520.00
600.00
Wavelength(nm)
90⁰c
25⁰c
70⁰c
50⁰c
30⁰c

Fig. S4

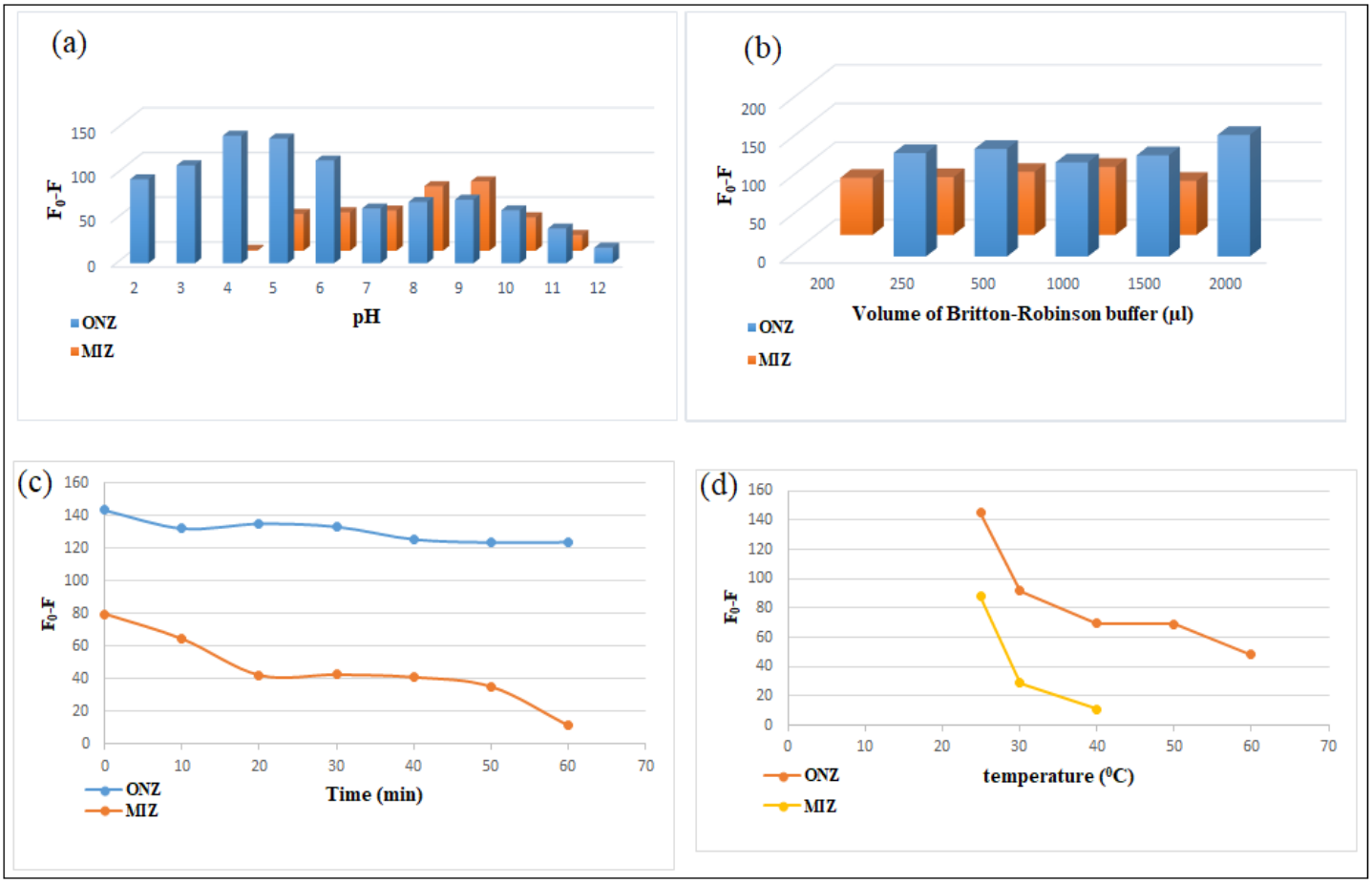
(a)
F0-F
pH
ONZ
MIZ
(b)
F0-F
Volume of Britton-Robinson buffer (µl)
ONZ
MIZ
(c)
F0-F
Time (min)
ONZ
MIZ
(d)
F0-F
temperature (0C)
ONZ
MIZ

Fig. S5

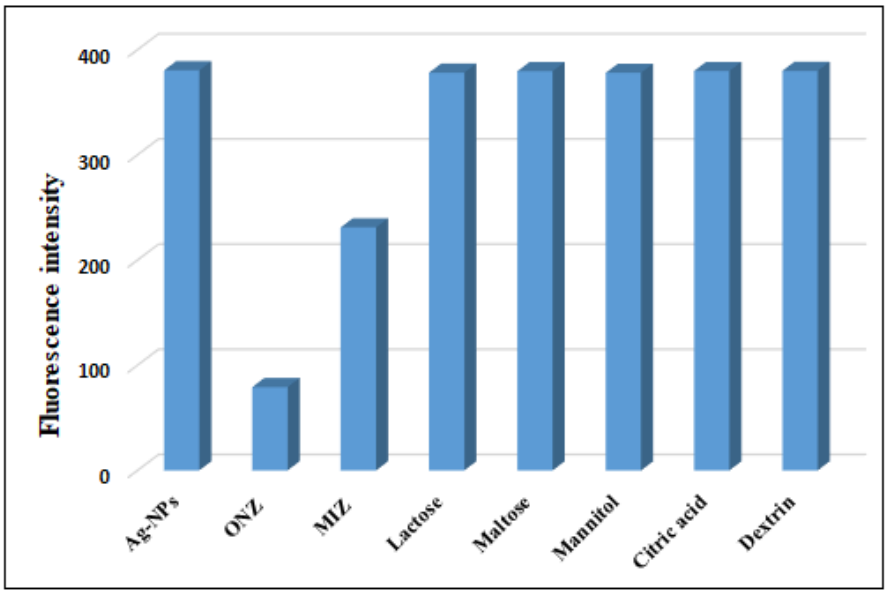
Fluorescence intensity
Ag-NPs
ONZ
MIZ
Lactose
Maltose
Mannitol
Citric acid
Dextrin

Fig. S6

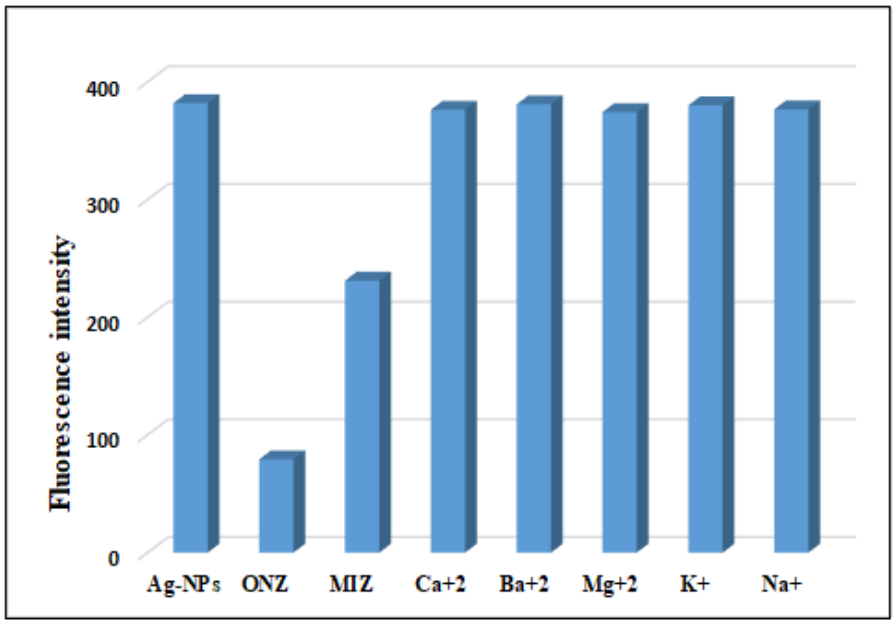
Fluorescence intensity
400
300
200
100
0
Ag-NPs
ONZ
MIZ
Ca+2
Ba+2
Mg+2
K+
Na+

Fig. S7

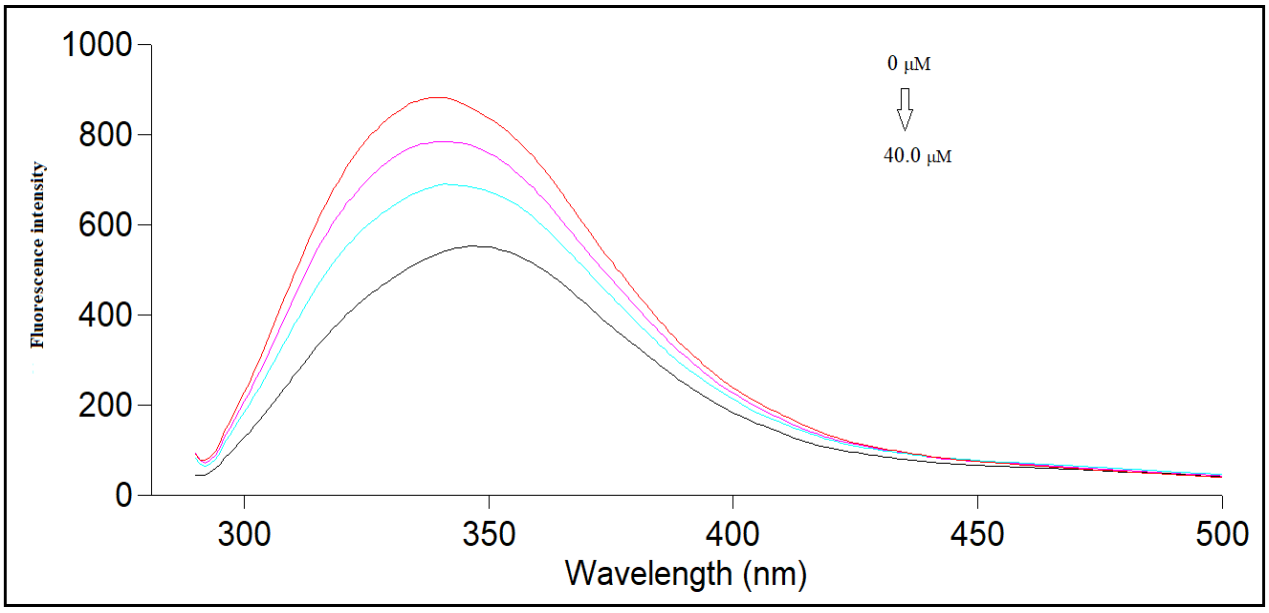
Fluorescence intensity
1000
800
600
400
200
0
300
350
400
450
500
Wavelength (nm)
0 µM
40.0 µM

Fig. S8

Table S1: Intra-day and inter-day precision data for the determination of the studied drugs by the proposed method

Analyte	Conc. taken (µM)	Intra-day precision			Inter-day precision		
		Conc. found[a] ± S.D (µM)	% RSD	% error	Conc. found[a] ± S.D (µM)	% RSD	% error
ONZ	20.0	19.79±1.03	1.04	0.60	19.85±0.54	0.55	0.32
	40.0	40.42±0.59	0.59	0.34	40.19±1.11	1.10	0.64
	60.0	59.92±0.56	0.56	0.32	60.03±0.31	0.31	0.18
MIZ	40.0	40.04±1.12	1.11	0.64	39.79±0.76	0.77	0.44
	60.0	60.36±0.35	0.34	0.20	59.79±1.11	1.11	0.64
	80.0	79.02±0.97	0.98	0.57	80.41±1.25	1.25	0.72

[a] Each result is the average of three separate determinations.

Table S2: Robustness evaluation of the proposed method

Factor	**ONZ**	
1- Volume of Ag-NPs (500 µL ± 5)	**% Recovery**	**%RSD**
495 µL	101.25	0.78
500 µL	101.74	0.79
505 Ml	101.42	0.49
2- Britton-Robinson buffer pH (4 ± 0.2)	**% Recovery**	**%RSD**
pH = 3.8	101.67	1.59
pH = 4	101.74	0.79
pH = 4.2	102.47	0.71
3- Volume of Britton-Robinson buffer (2 mL ± 0.1)	**% Recovery**	**%RSD**
1.9 mL	101.24	0.72
2 mL	101.74	0.79
2.1 mL	101.55	0.57
Factor	**MIZ**	
1- Volume of Ag-NPs (500 µL ± 5)	**% Recovery**	**%RSD**
495 µL	99.23	0.92
500 µL	99.02	1.92
505 µL	100.78	0.97
2- Britton-Robinson buffer (pH 9 ± 0.2)	**% Recovery**	**%RSD**
pH = 8.8	101.07	0.68
pH = 9	99.02	1.92

pH = 9.2	100.63	0.63
3- Volume of Britton-Robinson buffer (1 mL ± 0.1)	**% Recovery**	**%RSD**
0.9 mL	100.93	0.67
1 mL	99.02	1.92
1.1 mL	100.07	1.36