

Supporting Info

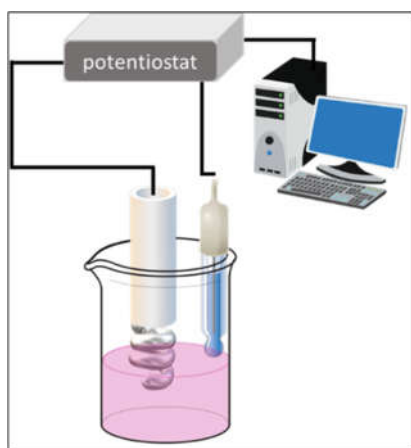
Gold Nanoparticles Synthesis Using Stainless Steel as Solid Reductant: A Critical Overview

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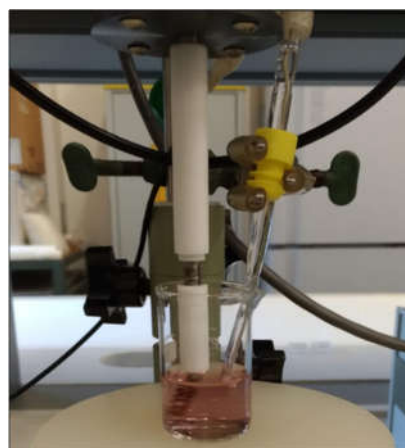
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(a)



(b)

Figure 1. Experimental setup for AuNPs syntheses. (a) Schematic representation; (b) real setup.

Table S1. Surface chemical composition of steel surface before and after their use, obtained by XPS. Error is expressed as the larger value between the error associated to a single quantification and one standard deviation; error on Fe, Si, Cr, Ni, and Au percentages is $\pm 0.2\%$; error on the abundance of other elements is $\pm 0.5\%$.

	430		410		304	
	Not Used	Used	Not Used	Used	Not Used	Used
C%	58.1	41.4	59.5	37.1	67.1	55.8
O%	28.5	26.0	29.6	23.0	23.0	27.2
Si%	9.0	/	2.9	3.7	1.4	2.4
Au%	/	17.4	/	30.1	/	5.5
Fe%	1.2	8.2	2.9	6	2.9	5.2
Cr%	1.3	4.2	1.1	2.4	1.3	2.2
Cl%	0.4	2.9	0.5	1.5	1.3	1.5
Na%	0.3	/	2.1	0.5	/	/
Ca%	1.2	/	1.4	/	2.2	/
Ni%	/	/	/	/	0.3	< 0.2

Table S2. Surface chemical composition of colloids synthesized with AISI 430, 410, and 304, obtained by XPS. Error is expressed as the larger value between the error associated to a single quantification and one standard deviation; error on Fe, Si, Cr, Ni, and Au percentages is $\pm 0.2\%$; error on the abundance of other elements is $\pm 0.5\%$.

	430-AuNPs	410-AuNPs	304-AuNPs
C%	33.5	29.4	39.8
O%	34.7	33.8	32.5
Si%	7.9	18.3	18.3
Au%	1.4	0.6	1.0
Fe%	7.2	3.8	4.1
Cr%	1.8	1.1	1.0
Cl%	10.4	8.5	5.3
Na%	0.4	0.6	
N%	0.9	1.0	
Mg%	1.8	3.2	1.8
Ni%			0.3

Table S3. Surface chemical composition of washed gold nanocolloids, obtained by XPS. Error is expressed as the larger value between the error associated to a single quantification and one standard deviation; error on Fe, Si, Cr, and Au percentages is $\pm 0.2\%$; error on the abundance of other elements is $\pm 0.5\%$

	At. %
	washed
C	22.6
O	37.6
Si	34.8
Au	1.0
Fe	1.6
Cr	0.3
Cl	0.8

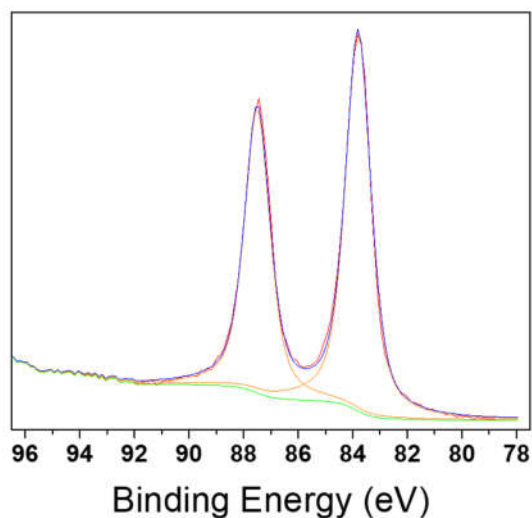


Figure S2. Au4f high resolution regions in washed 430-AuNP colloid.

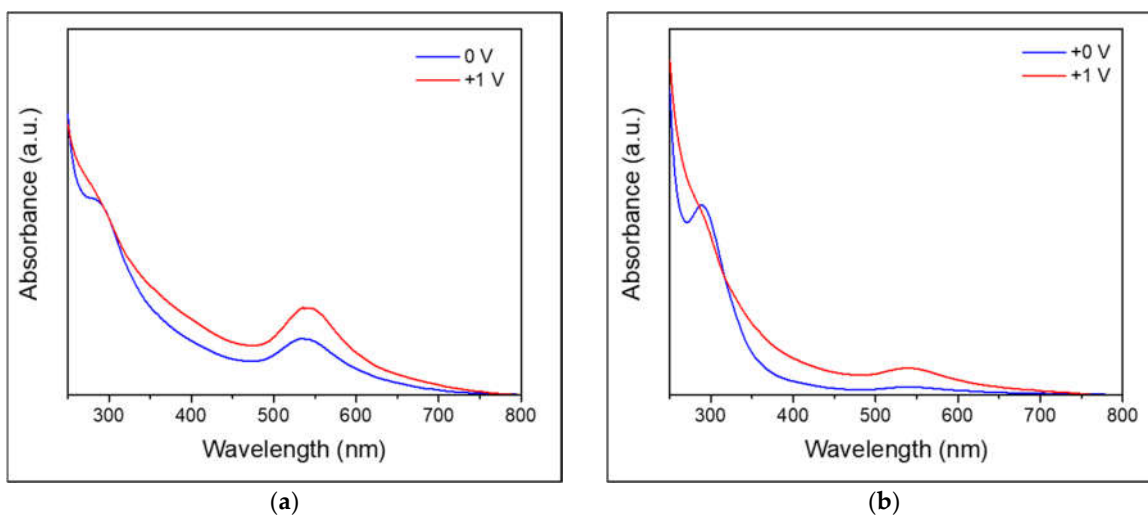


Figure S3. UV-Vis absorption spectra of AuNPs synthesized applied an external potential to stainless steel: (a) AISI 430; (b) AISI 304.

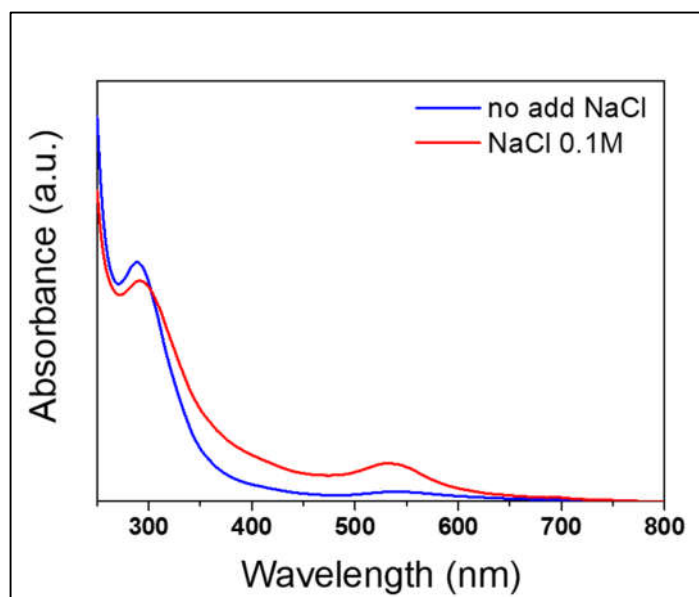


Figure S4. Comparison of UV-Vis absorption spectra of gold colloids synthesized using AISI 304 stainless steel, with and without adding NaCl.