

Supporting Information

**Bactericidal Magnetic Nanoparticles with Iodine Loaded on Surface
Grafted Poly(N-vinylpyrrolidone)**

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Table S1 Table of bactericidal efficiency with various time and concentration against *S. aureus* (bacteria suspension of concentration about 10^{10} CFU/ml) at room temperature

Sample	Concentration (g/l)	Time (min)	CFU (ml ⁻¹)	Effective rate (%)
Original cell (<i>S.aureus</i>)	0	-	$(1.255 \pm 0.015) \times 10^{10}$	0
Fe₃O₄@SiO₂	5	3	$(1.15 \pm 0.03) \times 10^{10}$	8.36 ± 2.39
Fe₃O₄@PVP	5		$(1.205 \pm 0.025) \times 10^{10}$	3.98 ± 1.99
Fe₃O₄@PVP-I	1		$(0.84 \pm 0.03) \times 10^{10}$	33.07 ± 2.39
	2		$(0.47 \pm 0.02) \times 10^{10}$	62.55 ± 1.59
	3	3	$(3.3 \pm 0.02) \times 10^9$	73.71 ± 1.59
	4		$(1.34 \pm 0.003) \times 10^9$	89.32 ± 0.24
	5		0	100
	6		0	100
	1		$(0.755 \pm 0.025) \times 10^{10}$	39.84 ± 1.99
	2		$(0.515 \pm 0.025) \times 10^{10}$	58.96 ± 1.99
	5	3	0	100
		4	0	100
	5		0	100

Table S2 Table of bactericidal efficiency with various time and concentration against *E. coli* (bacteria suspension of concentration about 10^{10} CFU/ml) at room temperature

Sample	Concentration (g/l)	Time (min)	CFU (mL ⁻¹)	Effective rate (%)
Original cell (<i>E. coli</i>)	0	-	$(0.99 \pm 0.02) \times 10^{10}$	0
Fe₃O₄@SiO₂	5	3	$(0.97 \pm 0.02) \times 10^{10}$	2.02± 2.02
Fe₃O₄@PVP	5		$(0.97 \pm 0.01) \times 10^{10}$	2.02± 1.01
Fe₃O₄@PVP-I	1		$(0.64 \pm 0.01) \times 10^{10}$	35.35± 1.01
	2		$(0.45 \pm 0.02) \times 10^{10}$	54.55± 2.02
	3	3	$(2.48 \pm 0.01) \times 10^9$	74.95± 1.01
	4		$(1.295 \pm 0.015) \times 10^9$	86.92± 0.15
	5		0	100
	6		0	100
	1		$(0.42 \pm 0.03) \times 10^{10}$	57.58± 3.03
	2		$(1.255 \pm 0.015) \times 10^9$	87.32± 0.15
	5	3	0	100
		4	0	100
		5	0	100

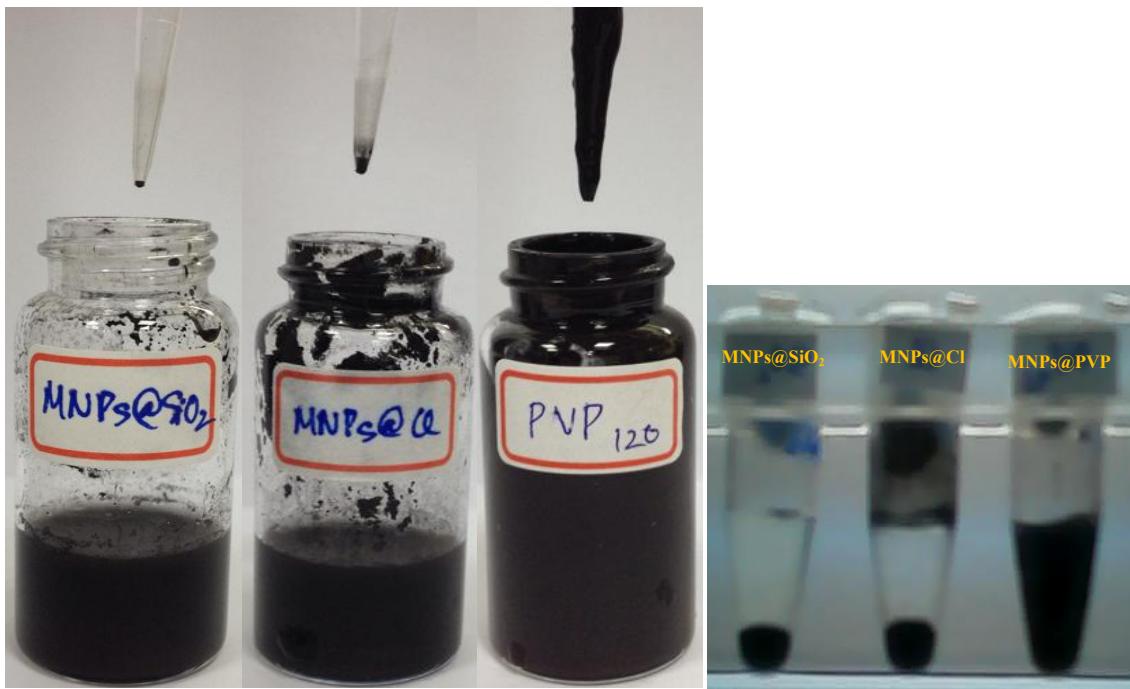


Fig.S1 Images of MNPs@SiO₂, MNPs@Cl, MNPs@PVP120 suspension of same concentration (0.333 g/ml).

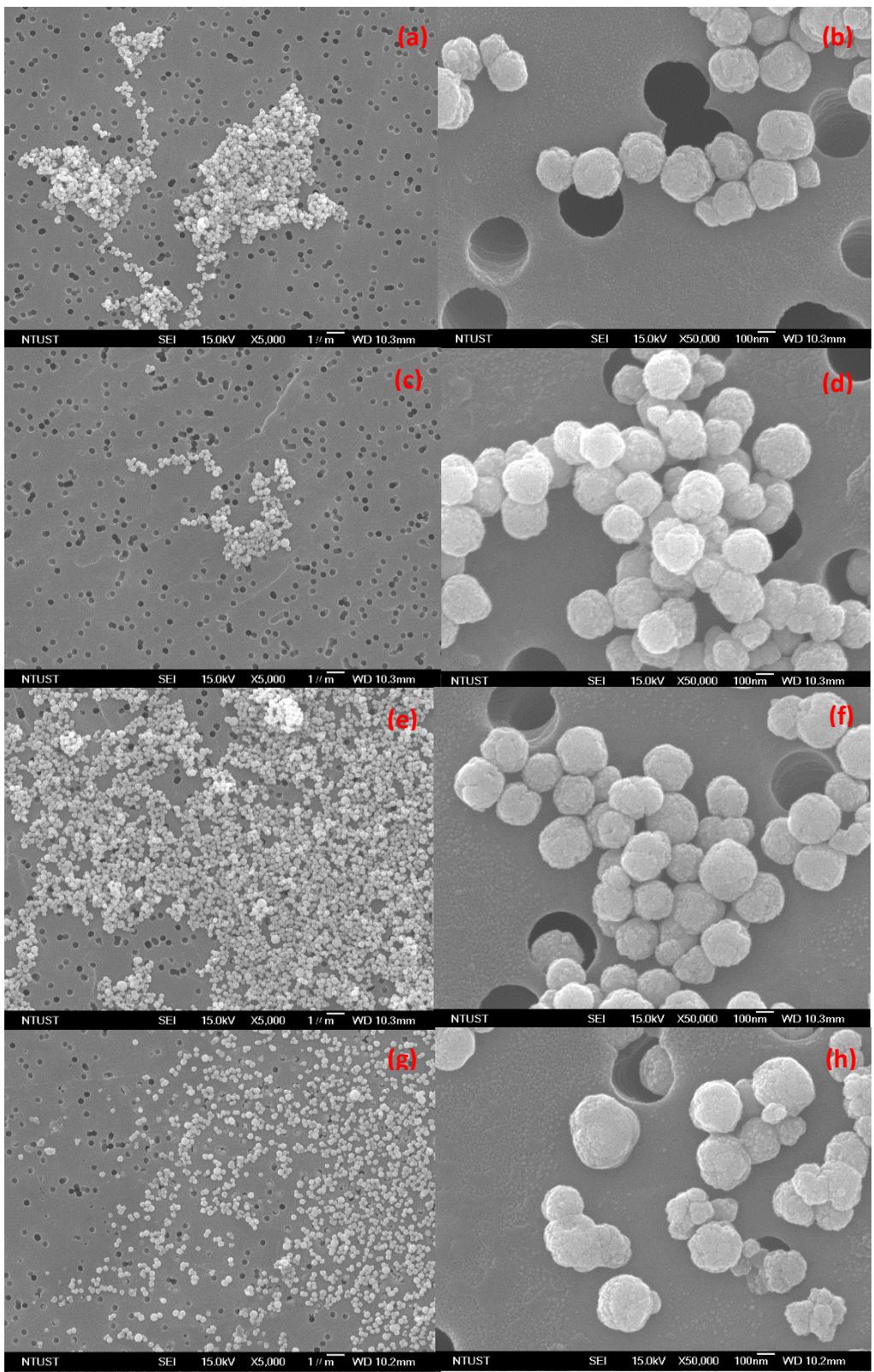


Fig. S2 SEM images of MNPs (a), (b); MNPs@SiO₂ (TEOs) (c), (d); MNPs@ Cl (e), (f); MNPs@PVP120 (g) and (h)

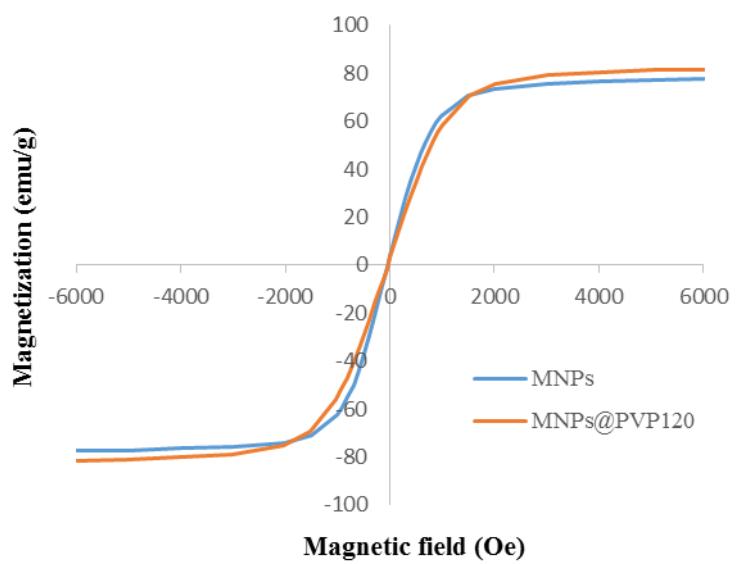


Fig. S3 The magnetic hysteresis loop of MNPs, MNPs@PVP120 at 298 K

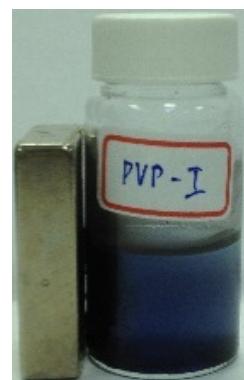


Fig.S4 Images of MNPs@PVP-I in DI water adding few drops of starch solution

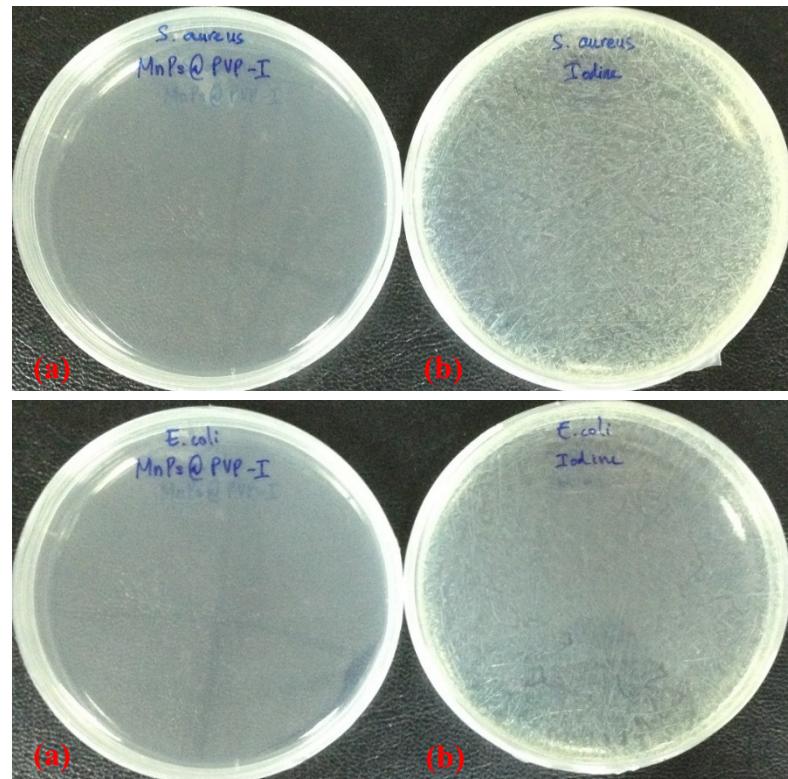


Fig. S5 Effect of bactericidal MNPs@PVP-I (a) and Iodine (aqueous solution) against *S. aureus*