

## Supporting Information

### From Micro to Nano: Grinding Natural Magnetite Ore for Microalgae Harvesting

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Figure S1. Particle size distribution for magnetite ore EX009

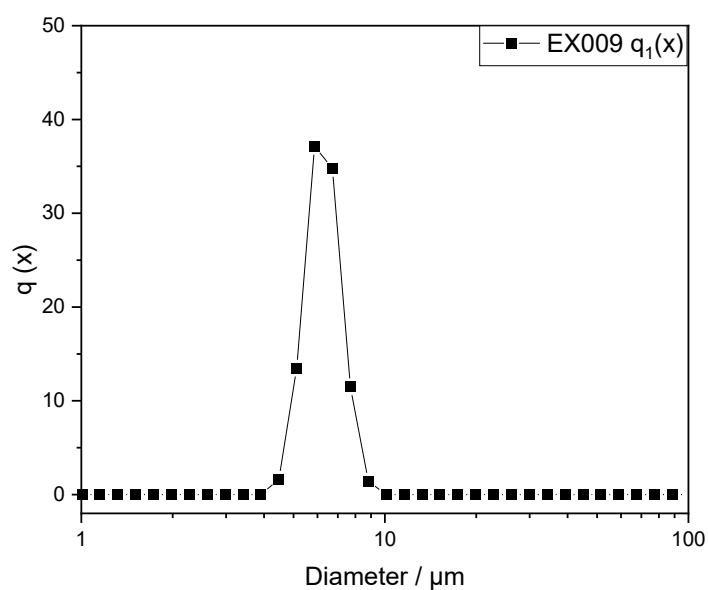


Figure S1 Particle size distribution for magnetite ore EX009 measured by SLS

Figure S2 Particle size during grinding with PM100 in different solvents

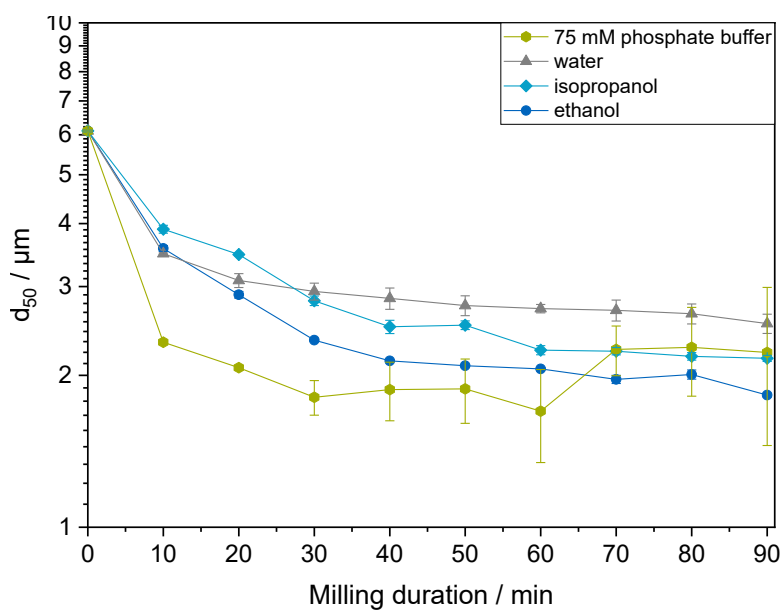


Figure S2 Particle size during grinding with planetary ball mill PM100 in different solvents

Figure S3 Specific surface and SLS diameter for PM100 ground particles in different solvents

Bead size	1 mm	
Solvent		
	BET / m <sup>2</sup> g <sup>-1</sup>	SLS d <sub>50</sub> / μm
	measured	measured
ddH <sub>2</sub> O	47.34	2.53
Isopropanol	32.21	2.12
EtOH	28.38	1.82
Phosphate	49.60	2.22

Figure S3 Specific surface and SLS diameter for PM100 ground particles in different solvents

Figure S4 Microscopic pictures of magnetite particles after grinding in PM100 in different solvents

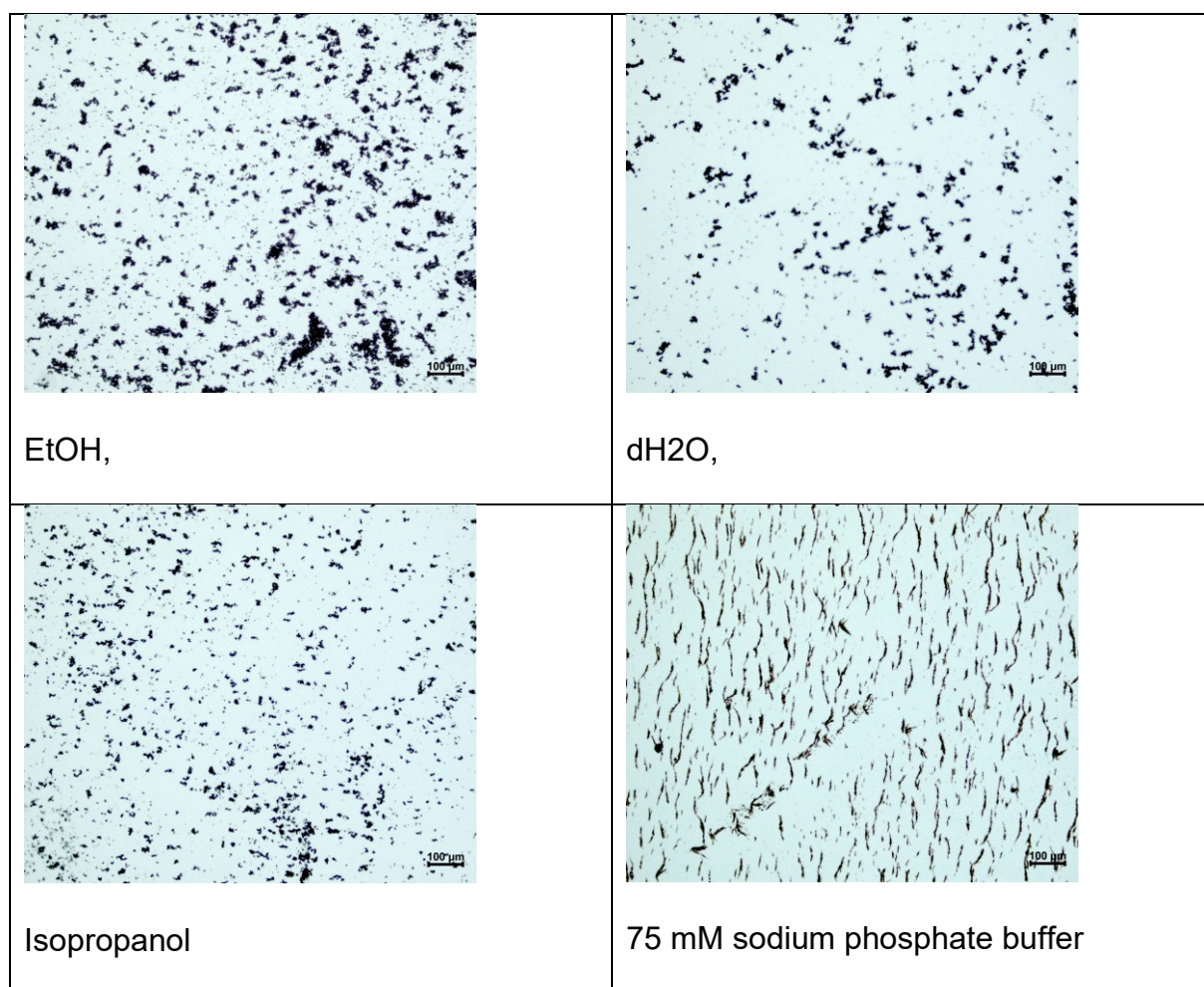
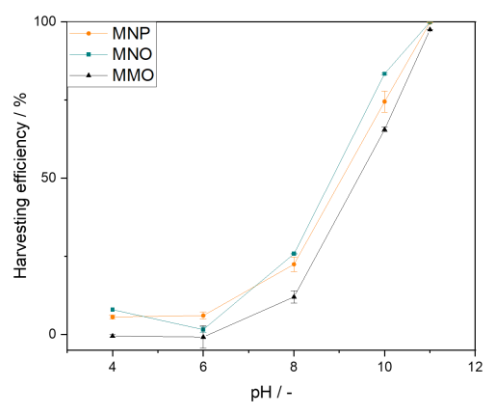
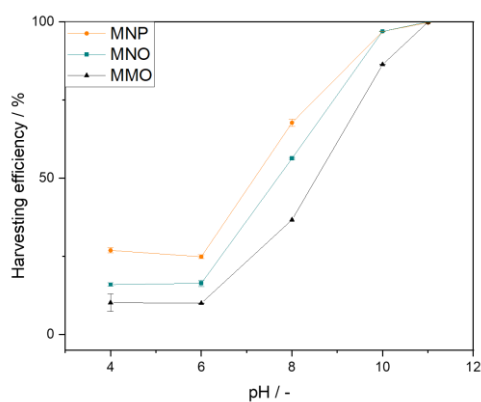


Figure S4 Microscopic pictures of magnetite particles after grinding in PM100 in different solvents for 90 min with 1 mm zirconia beads, 100x magnification

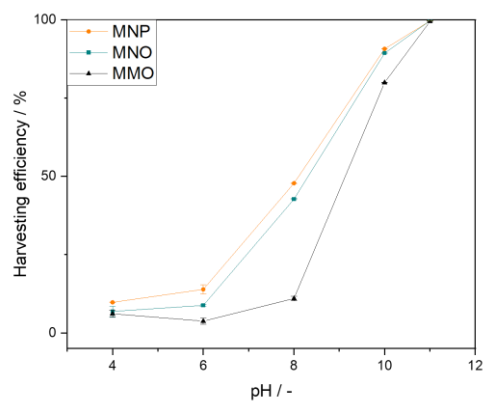
Figure S5 Harvesting efficiency of *M. salina* with different particle concentrations



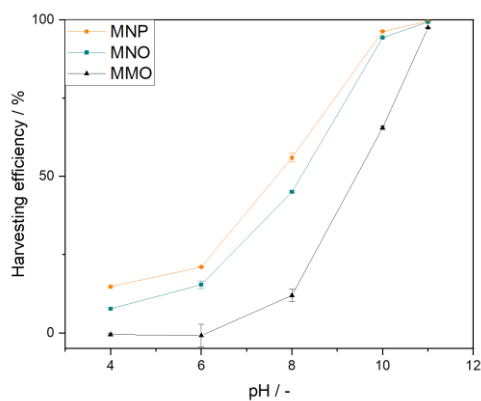
Harvesting of 1 g L<sup>-1</sup> *M. salina* with 2.5 m<sup>2</sup> magnetite in Artificial Sea Water at different pH.



Harvesting of 1 g L<sup>-1</sup> *M. salina* with 25 m<sup>2</sup> magnetite in Artificial Sea Water at different pH.



Harvesting of 1 g L<sup>-1</sup> *M. salina* with 0.1 g L<sup>-1</sup> magnetite in Artificial Sea Water at different pH.



Harvesting of 1 g L<sup>-1</sup> *M. salina* with 1 g L<sup>-1</sup> magnetite in Artificial Sea Water at different pH.

Figure S5 Harvesting efficiency of *M. salina* with different particles and concentrations