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Water-Dispersible Sugar-Coated Iron Oxide Nanoparticles. An Evaluation of their Relaxometric and Magnetic Hyperthermia Properties.

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Figure 1S. FTIR spectra of **Man-4** NP coated by oleic acid (black) and with mannose derivative before (blue) and after (red) acetate group deprotection.

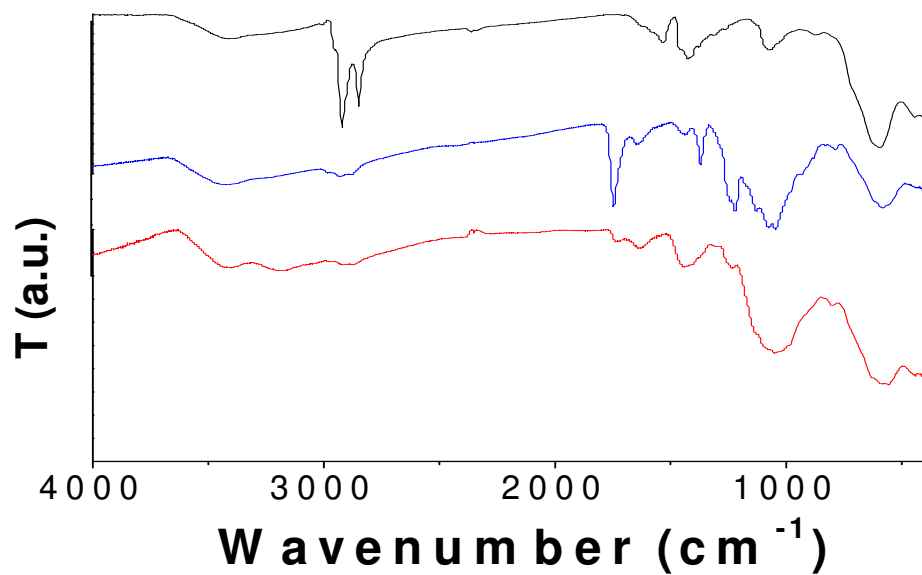


Figure 2S. X-ray photoelectron spectra of sugar-coated magnetite **Rha-16**: left) the two peaks at 132.1 and 133.3 eV, correspond to $P2p_{3/2}$ and $P2p_{1/2}$, respectively; right) the Fe2p doublet is found at binding energy values of 710 eV ($Fe2p_{1/2}$) and 725 eV ($Fe2p_{3/2}$) which are characteristic of magnetite.

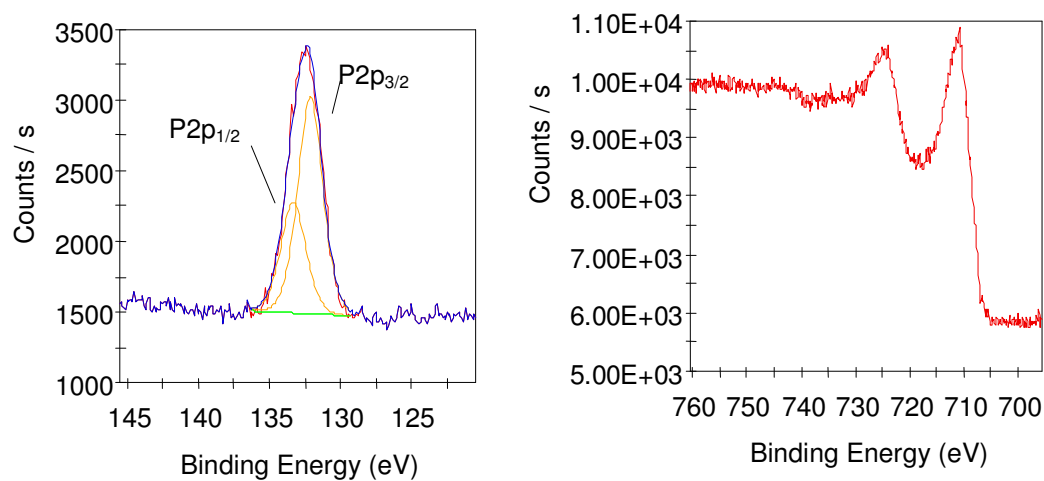


Figure 3S. TEM images of (a) **Man-4** and (b) **Rib-4**. Scale bar=50nm.

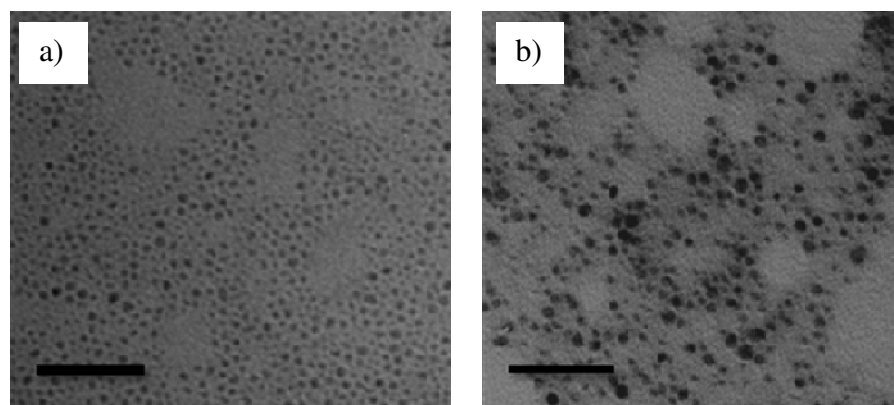


Figure 4S. Comparison of TEM micrographs of **Rha-4** after (left panel) and before (right panel) the removal of the acetate group. Scale bar=50nm.

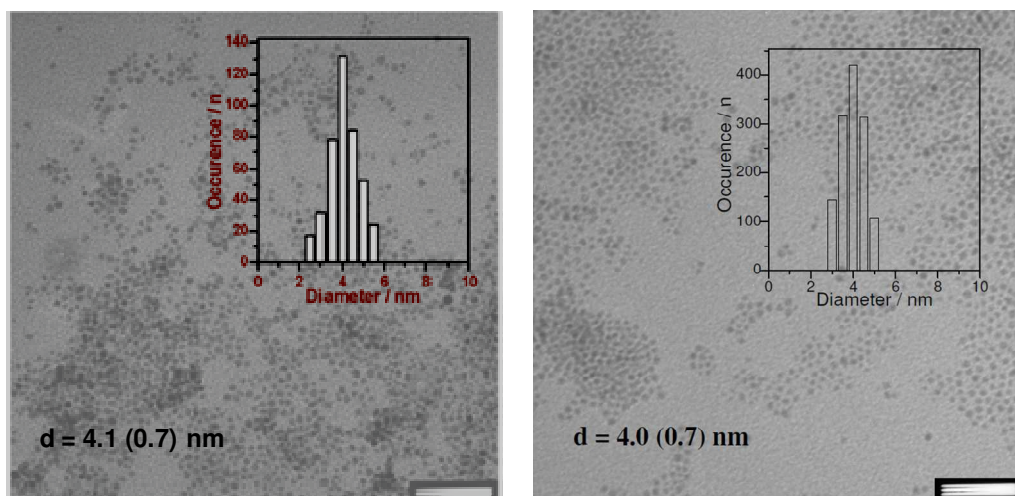


Figure 5S. ZFC/FC magnetizations of NPs coated with a) mannose, b) rhamnose and c) ribose derivatives. The probe field was 5 mT. The average size of the NPs was 3.8 (1.3), 4.1 (0.7) and 4.1 (0.6), for a), b) and c), respectively. The difference in the temperature of the ZFC maximum (11 K for a), 17 K for b) and 18 K for c)) are compatible with the small difference in the average diameter of the iron oxide cores.

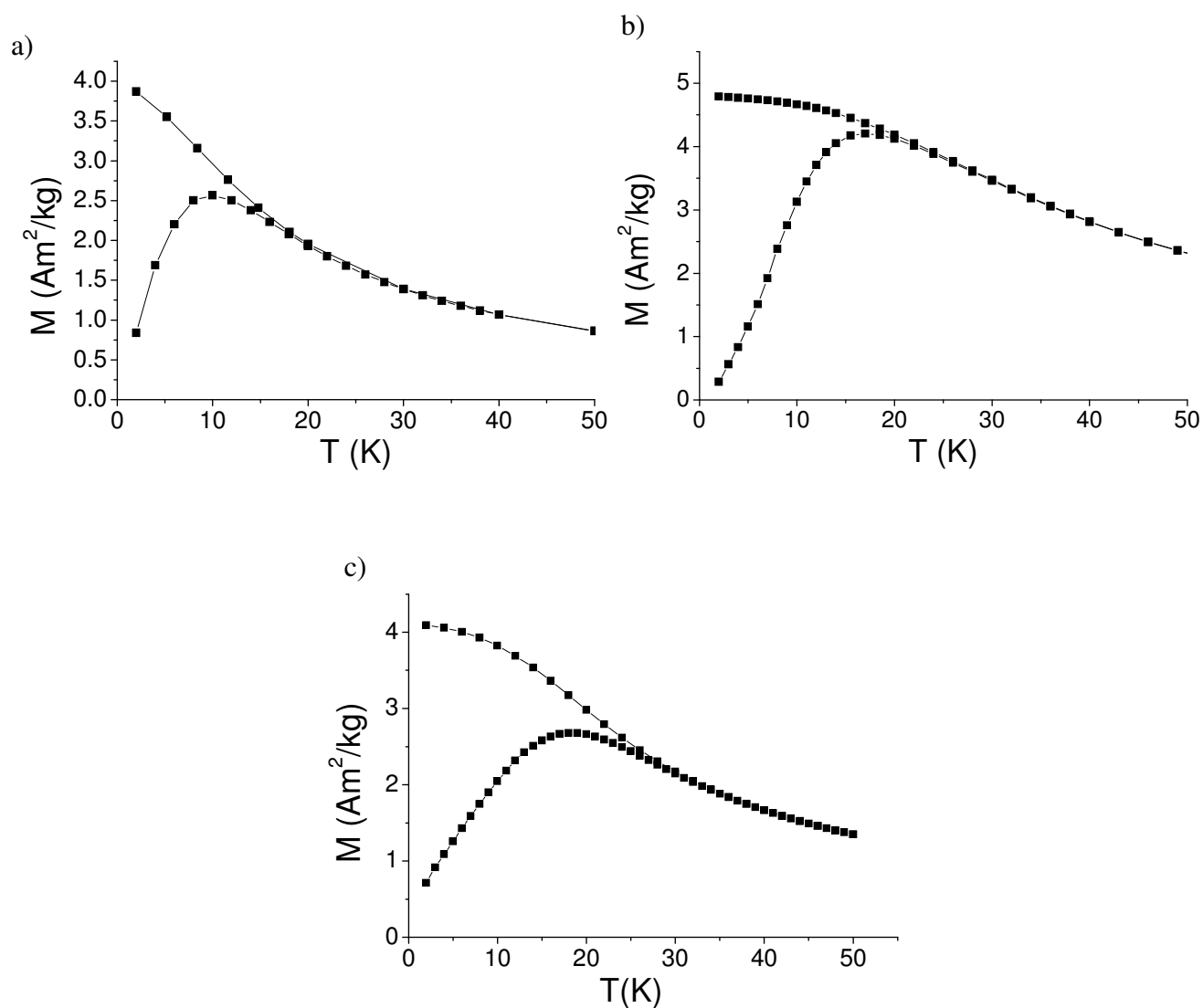


Figure 6S: ZFC/FC of **Rha-35** measured between 2.5 and 300K with a 5mT probe field.

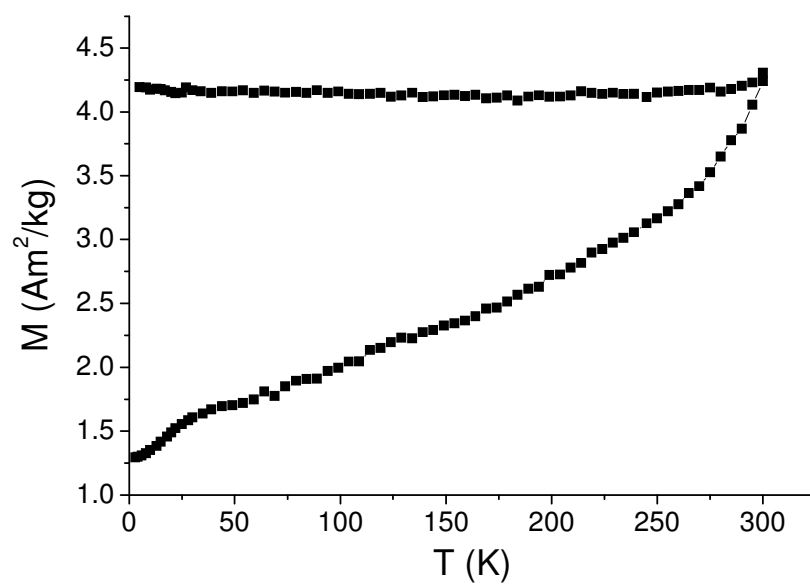


Figure 7S. Coercive field vs NPs diameter for samples **Rha – 4 - 35**. All measurements were performed at 2.5 K on powder sample pressed in pellets in order to prevent NPs orientation under the external field.

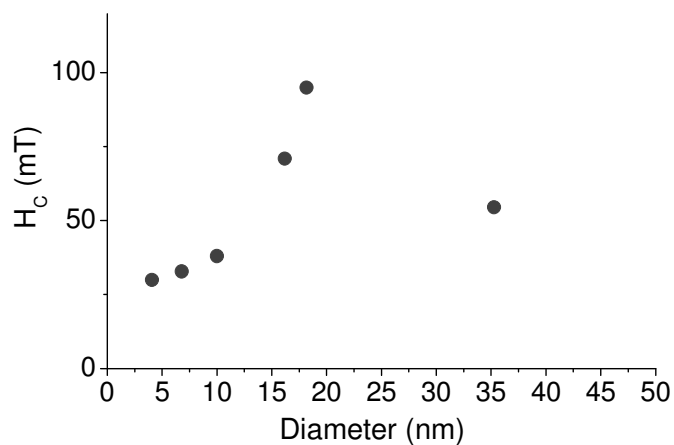


Figure 8S: Minor hysteresis loop recorded at room temperature on a powder of Rha-35 sweeping the field between ± 25 mT. The maximum field corresponds to the amplitude of the alternating field used in SAR experiments.

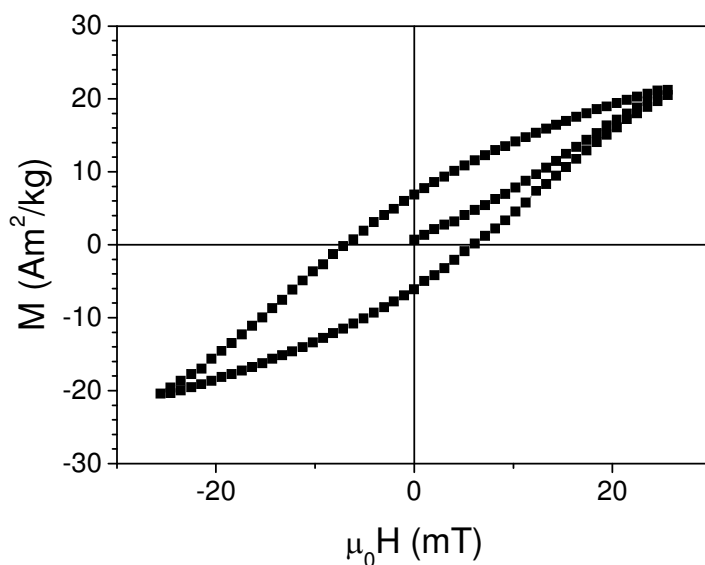


Table 1S: Magnetic properties of **Rh-7** and **Rh-16** measured as dry powder and as solution with the same concentration used for hyperthermia experiment.

Sample	T_B (K)		τ_0 (s)		E_a		$\mu_0 H_C$ (mT)	
	powder	solution	powder	solution	powder	solution	powder	solution
Rh-7	71	60	$1.14 \cdot 10^{-13}$	$1,26 \cdot 10^{-12}$	1525	1118	32.8	24.6
Rh-16	195	195	$1.81 \cdot 10^{-21}$	$3,38 \cdot 10^{-19}$	9471	7709	69.5	47.7