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Correction

Correction: Grewal et al. Structural and Photocatalytic Studies on Oxygen Hyperstoichiometric Titanium-Substituted Strontium Ferrite Nanoparticles. *Magnetochemistry* 2022, *8*, 120

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The authors wish to make a change to the published paper [1].

In the original publication, there was a mistake in Figure 1 as published. The error was introduced due to an overlay issue while compiling the XRD spectra. The corrected Figure 1 appears below:

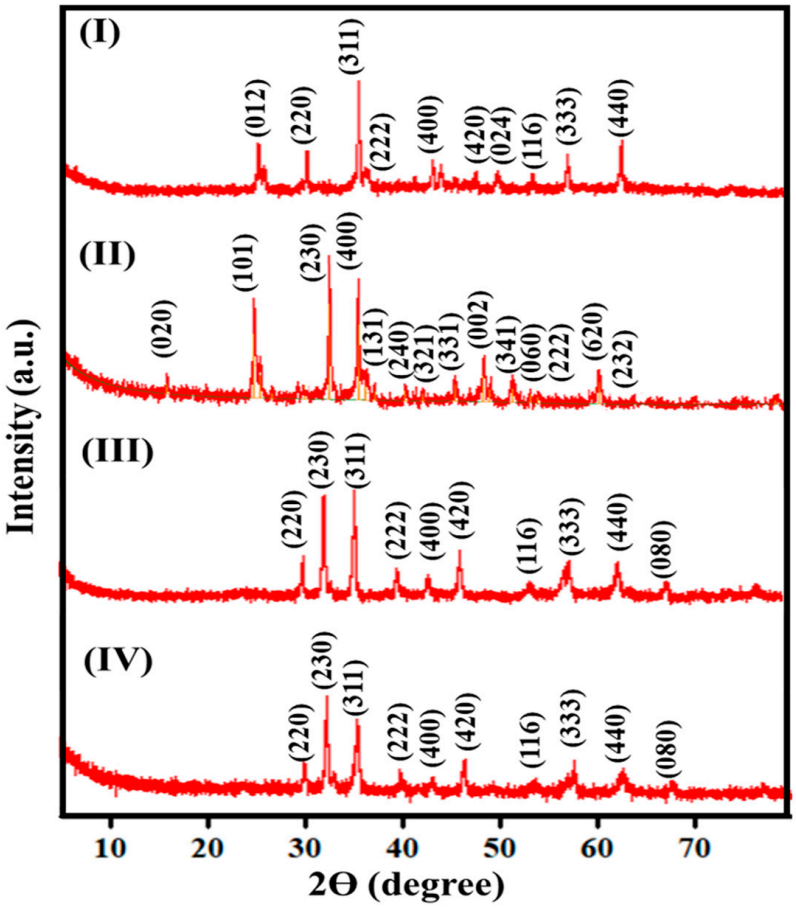

Figure 1. XRD patterns of (I) $SrFe_2O_4$, (II) $TiFe_2O_5$, (III) $Sr_{0.7}Ti_{0.3}Fe_2O_{4.3}$ and (IV) $Sr_{0.4}Ti_{0.6}Fe_2O_{4.6}$.

check for updates

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Due to the mistake introduced in Figure 1, respective adjustments have been made to Table 1, as the calculated parameters are based on values from Figure 1. The corrected Table 1 appears below:

Table 1. XRD parameters, ξ-potential and DLS hydrodynamic particle size of $SrFe_2O_4$, $TiFe_2O_5$, $Sr_{0.7}Ti_{0.3}Fe_2O_{4.3}$ and $Sr_{0.4}Ti_{0.6}Fe_2O_{4.6}$.

Nanomaterial	Lattice Constant (Å)	Experimental Density (ρ_{exp} in g/cm^3)	Crystallite Size (nm)	XRD Density (ρ_{XRD} in g/cm^3)	% Porosity	ξ-Potential (mV)	DLS Hydrodynamic Particle Size (nm)
$SrFe_2O_4$	8.343	3.22	39.8	7.835	58.90	13.54	123.92
$TiFe_2O_5$	8.730	2.19	31.7	3.450	45.52	14.78	105.52
$Sr_{0.7}Ti_{0.3}Fe_2O_{4.3}$	8.345	2.87	25.7	5.641	49.12	23.54	101.79
$Sr_{0.4}Ti_{0.6}Fe_2O_{4.6}$	8.386	2.43	18.0	5.034	51.73	32.41	95.23

Due to the scaling error, the values connected to Figure 1 and Table 1 were incorrectly introduced in the text.

The following corrections have been made to Results and Discussion, Characterization, Structural Analysis and paragraphs 1–4.

The XRD patterns of $Sr_{1-x}Ti_xFe_2O_{4+\delta}$ (x = 0.0–1.0) NPs are given in Figure 1, and the calculated parameters are given in Table 1. Figure 1(I) suggests the spinel structure of $SrFe_2O_4$ with the diffraction peaks at 2θ = 30.3°, 35.6°, 36.6°, 43.4°, 47.7°, 57.3° and 62.8°, which were ascribed to the (220), (311), (222), (400), (420), (333) and (440) Miller planes, respectively. The observed XRD peaks for $SrFe_2O_4$ match with the standard ICDD card no. 00-001-1027 and JCPDS card no. 08–0234. The additional peaks at 2θ = 25.8°, 50.1° and 53.7° were assigned to the hematite (α-Fe_2O_3) (JCPDS card No. 79–0007). The diffraction peaks of Figure 1(II) are indexed to the pure pseudobrookite-phase $TiFe_2O_5$ with an orthorhombic structure, in agreement with JCPDS card no. 87-1996. The XRD patterns of Ti^{4+}-substituted $SrFe_2O_4$ NPs (Figure 1(III,IV)) have all shown diffraction peaks of $SrFe_2O_4$, with an additional peak at 2θ ≈ 32.6°, corresponding to an increase with the increased Ti^{4+} content.

The lattice constant (a) was determined according to the following expression:

$$a = d(h^2 + k^2 + l^2)^{\frac{1}{2}}$$

where a = lattice constant, d = d-spacing and (h,k,l) = Miller planes.

The decrease in the lattice parameter can be described using Vegard's law, as the smaller radius of the dopant ion compared to the replacing ion favored lattice shrinkage and the lattice constant (a) decreased. The observed decrease in the lattice constant with increased Ti^{4+} content suggested the substitution (Figure S1). These findings are in good agreement with the results reported by Amaliya et al. [36] and Rao et al. [37] for Ti^{4+}-doped cobalt ferrite.

Figure S1 demonstrates a steady reduction in X-ray density with the enhanced Ti^{4+} content because of the displacement of Sr^{2+} ions by Ti^{4+} ions of lower atomic weight. The lattice distortion caused by the ionic radii difference between the Ti^{4+} dopant (0.67 Å) and Sr^{2+} ions (1.18 Å) resulted in the reduction in crystalline size from 39.8 nm to 18 nm (Table 1). The presence of excessive positive charge due to Ti^{4+} dopant can be compensated either by the generation of cationic vacancies or by oxygen non-stoichiometry that decreased the structure mobility, which resulted in a smaller crystallite size [38]. The presence of oxygen hyerstoichiometry (δ) was confirmed by iodometric titrations [35].

Original reference [36] has been removed. With this correction, the order of some references has been adjusted accordingly.

The authors apologize for any inconvenience caused and state that the scientific conclusions are unaffected. This correction was approved by the academic editor. The original publication has also been updated. The above changes do not affect the research and conclusions of the original publication.

Reference

1. Grewal, J.K.; Kaur, M.; Sharma, R.K.; Oliveira, A.C.; Garg, V.K.; Sharma, V.K. Structural and Photocatalytic Studies on Oxygen Hyperstoichiometric Titanium-Substituted Strontium Ferrite Nanoparticles. *Magnetochemistry* **2022**, *8*, 120. [CrossRef]

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