Recommendation:

Comments and Suggestions for Authors:
1. **Comment**: The major problems with this manuscript are very poor English and style, hiding in many instances the intended meaning. The authors clearly need help from a professional editing service. However, the scientific content is quite interesting, and the manuscript can be reconsidered after editing/rewriting.

---Thanks so much for reviewer's comments. We have carefully revised our manuscript to improve the grammar and readability of the manuscript. After carefully inspection, we did the highlight part and the related content have been changed. We sincerely hope that you find our responses and modifications satisfactory. Please check it.

2. **Comment**: The authors refer to their synthetic materials as "enzymes". A more appropriate term could be "enzyme mimics" as all known enzymes are naturally occurring polypeptides.

---Thanks so much for reviewer's comments. This comment is very helpful to improve the quality of the manuscript. After consulting relevant literature[1-3], it is indeed found that natural enzymes are professionally called "enzymes". "Enzyme mimics" is more suitable for artificial nano enzymes. We have corrected the relevant mistakes in the article, please check it.

1. Du, B. J.; Li, D.; Wang, J.; Wang, E. K., Designing metal-contained enzyme mimics for prodrug activation. *Adv Drug Deliver Rev* **2017,** 118, 78-93.
2. Xu, H. P.; Cao, W.; Zhang, X., Selenium-Containing Polymers: Promising Biomaterials for Controlled Release and Enzyme Mimics. *Accounts Chem Res* **2013,** 46, (7), 1647-1658.
3. Kuah, E.; Toh, S.; Yee, J.; Ma, Q.; Gao, Z. Q., Enzyme Mimics: Advances and Applications. *Chem-Eur J* **2016,** 22, (25), 8404-8430.

3. Comment: Kinetic data presentation and analysis are nonprofessional. It remains unclear how the kinetic parameters were derived, as the line in Fig 5b intersects the ordinate in the negative range.

---We appreciate for your valuable comment. Thank you so much for your careful check, we feel sorry for our carelessness. The Figure 5b's mistake has been corrected in the revised manuscript. The kinetics were investigated using below equation (1) and (2).

$$[\mathrm{TMB_{OX}}] = \frac{\mathrm{A}}{\sum_{[\mathrm{TMB_{OX}}]} \times \mathrm{L}} \qquad (1)$$

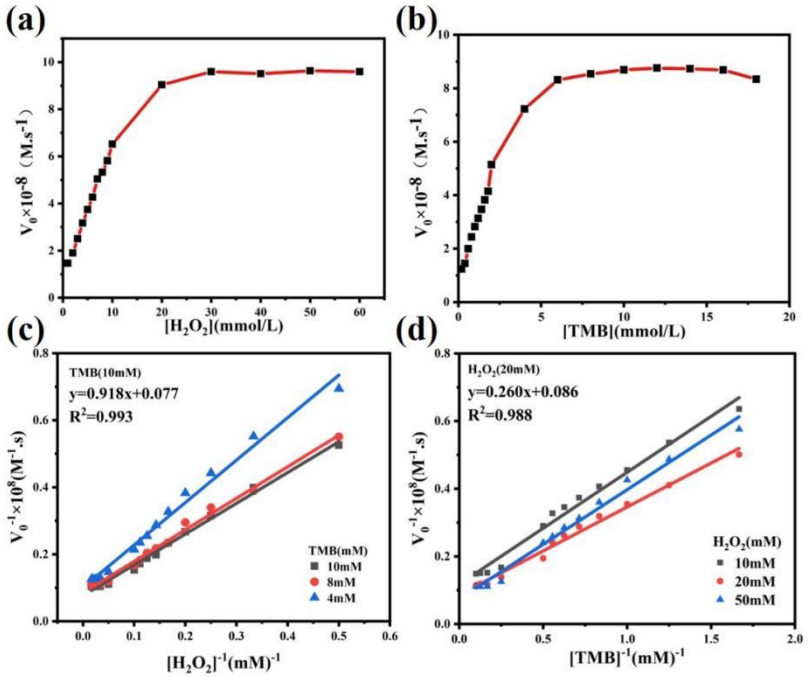
$$\frac{1}{\mathrm{V_0}} = \frac{\mathrm{K_m}}{\mathrm{V_{max}[s]}} + \frac{1}{\mathrm{V_{max}}} \qquad (2)$$

Where, $[TMB_{OX}]$ denotes the TMBox concentration, A is the UV-absorbance, L is the solution thickness (1cm), and $\sum_{[\mathrm{TMB_{OX}}]}$shows the molar absorption coefficient, having

the value of 39000 $M^{-1}cm^{-1}$for the TMBox product at 652 nm. V_0 represents the initial velocity, $[s]$ refers to the concentration of substrate. To improve the reliability of data, we conducted several groups of parallel experiments. The double reciprocal of the initial rate (V_0) versus the substrate concentrations gave an excellent linear relationship as follow figures. Equation 3 and 4 shows the linear regression equations.

$$\frac{1}{V_0} = 0.918 \times 10^8 \frac{1}{[H_2O_2]} + 0.077 \times 10^8, R^2 = 0.993 \quad (3)$$

$$\frac{1}{V_0} = 0.260 \times 10^8 \frac{1}{[TMB]} + 0.086 \times 10^8, R^2 = 0.988 \quad (4)$$



Steady-state kinetic assay and catalytic ability of Fe_3O_4@PEI@Ag structure: (a) and (c) toward [H_2O_2], (b) and (d) toward [TMB]

4. **Comment:** Vmax is not a proper characteristic of the catalytic power as it depends on the amount of the catalyst. A specific activity (Vmax divided by catalyst amount) would be more appropriate, like in enzymology.

---Thanks so much for reviewer's comments. We have reviewed the relevant literature and proved that the specific activity and Michaelis constant are effective indicators to evaluate enzyme activity[1, 2]. However, the kinetic parameters, including turnover number (kcat), Michaelis constant (Km), and catalytic efficiency (kcat/Km). In a large number of literatures[3-5] related to artificial simulated enzymes, the authors choose the apparent steady-state kinetic parameters K_m (Michaelis-Menten constant) and V_{max} (maximum initial velocity), which are often used to evaluate the activity of artificial simulated enzymes. The lower K_m represents the stronger attraction between the catalyst and reactive interface, while higher V_{max} refers to the better catalytic ability.
The kinetic parameters, including turnover number (kcat), Michaelis constant (Km),

and catalytic efficiency (kcat/Km)

1. Li, X.; Li, J. P.; Hao, S. J.; Han, A. L.; Yang, Y. Y.; Luo, X. Y.; Fang, G. Z.; Liu, J. F.; Wang, S., Enzyme mimics based on self-assembled peptides for di(2-ethylhexyl)phthalate degradation. *Journal of Materials Chemistry B* **2020,** 8, (41), 9601-9609.
2. Pleiss, J., Thermodynamic Activity-Based Interpretation of Enzyme Kinetics. *Trends Biotechnol* **2017,** 35, (5), 379-382.
3. Mohammadpour, Z.; Jebeli, F. M.; Ghasemzadeh, S., Peroxidase-mimetic activity of FeOCl nanosheets for the colorimetric determination of glutathione and cysteine. *Microchim Acta* **2021,** 188, (7).
4. Adeniyi, O.; Sicwetsha, S.; Mashazi, P., Nanomagnet-Silica Nanoparticles Decorated with Au@Pd for Enhanced Peroxidase-Like Activity and Colorimetric Glucose Sensing. *Acs Appl Mater Inter* **2020,** 12, (2), 1973-1987.
5. Sharma, D. C.; Satyanarayana, T., Thermostable and alkalistable exopolygalacturonase of Bacillus pumilus dcsr1: Characteristics and applicability. *Int J Biol Macromol* **2020,** 164, 3340-3348.

5. Comment: Some figure legends do not provide sufficient information to understand the figure.

---We appreciate for your valuable comment. More description on the Figure 1, Figure 4 and Figure 5 have been added in the revised supporting information. Please check it.