Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary information

Individual and simultaneous electrochemical determination of nitrofurantoin and ascorbic acid in biological samples using a novel La_2YBiO_6 double perovskite deposited on MWCNTs as a nanocomposite

Srujan Basavapura Ravikumar [1], Sanjay Ballur Prasanna [2], Santhosh Arehalli Shivamurthy [3,*], Sandeep Shadakshari [1,*], Jothi Ramalingam Rajabathar [5], Selvaraj Arokiyaraj [6]

[1] Department of Chemistry, SJCE, JSS Science and Technology University, Karnataka 570006, India

[2] Department of Chemical Engineering and Biotechnology, National Taipei University of Technology (Taipei Tech), Taipei 10608, Taiwan

[3] Department of Chemistry (U.G.), N.M.K.R.V. College for Women's, Karnataka 560011, India

[4] Centre for Nano and Material Science (CNMS), Jain University, Jain Global Campus, Bangalore, 562112, India

[5] Department of Chemistry, College of Science, King Saud University, P.O. Box. 2455, Riyadh, 11451, Saudi Arabia

[6] Department of Food Science and Biotechnology, Sejong University, Seoul-05006, South Korea.

*** Corresponding Authors:** Dr. Santhosh Arehalli Shivamurthy and Dr. Sandeep Shadakshari

Email: santhu41100@gmail.com; Tel: +91 8861027395

Address: Department of Chemistry (U.G.), N.M.K.R.V. College for Women's, Karnataka 560011, India

Also corresponding to Dr. Dr. Sandeep Shadakshari (sandeep12chem@gmail.com); Tel: +91 9591572962

Address: Department of Chemistry, SJCE, JSS Science and Technology University, Karnataka 570006, India

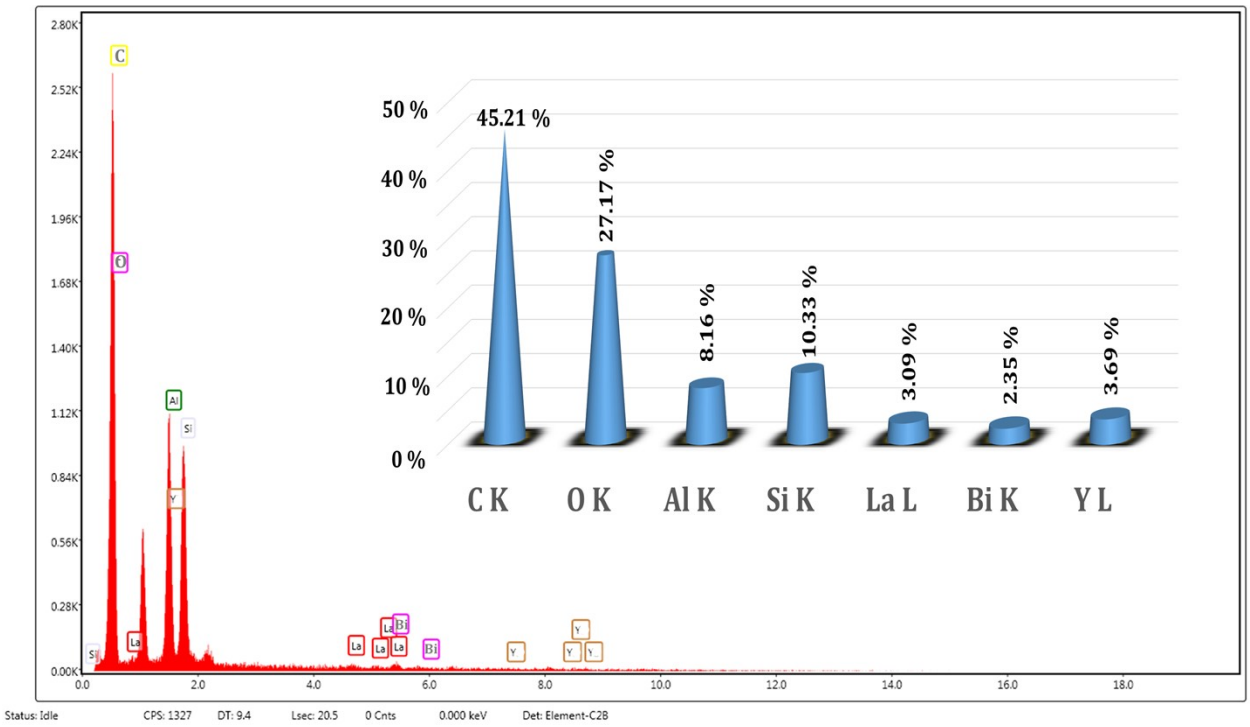

Fig. S1. EDS spectrum of synthesized LYB/MWCNTs nanocomposite

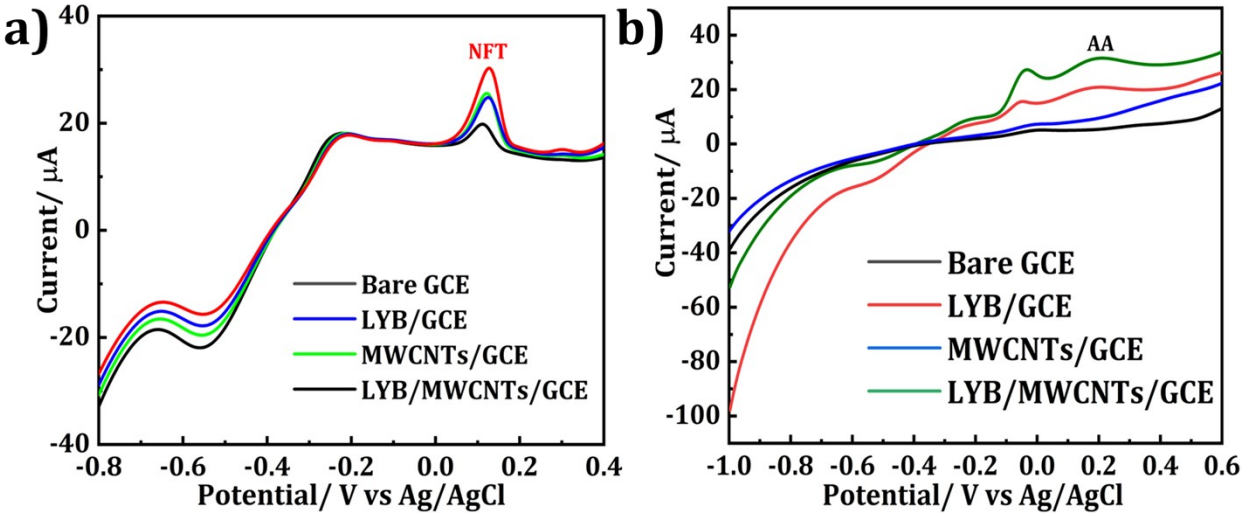

Fig. S2. (a) Individual LSV spectra of bare GCE, LYB/GCE, MWCNTs/GCE and LYB/MWCNTs/GCE in 50 µM of NFT. (b) Individual LSV spectra of bare GCE, LYB/GCE, MWCNTs/GCE and LYB/MWCNTs/GCE in 50 µM of AA with 0.1 M PBS (pH 6).

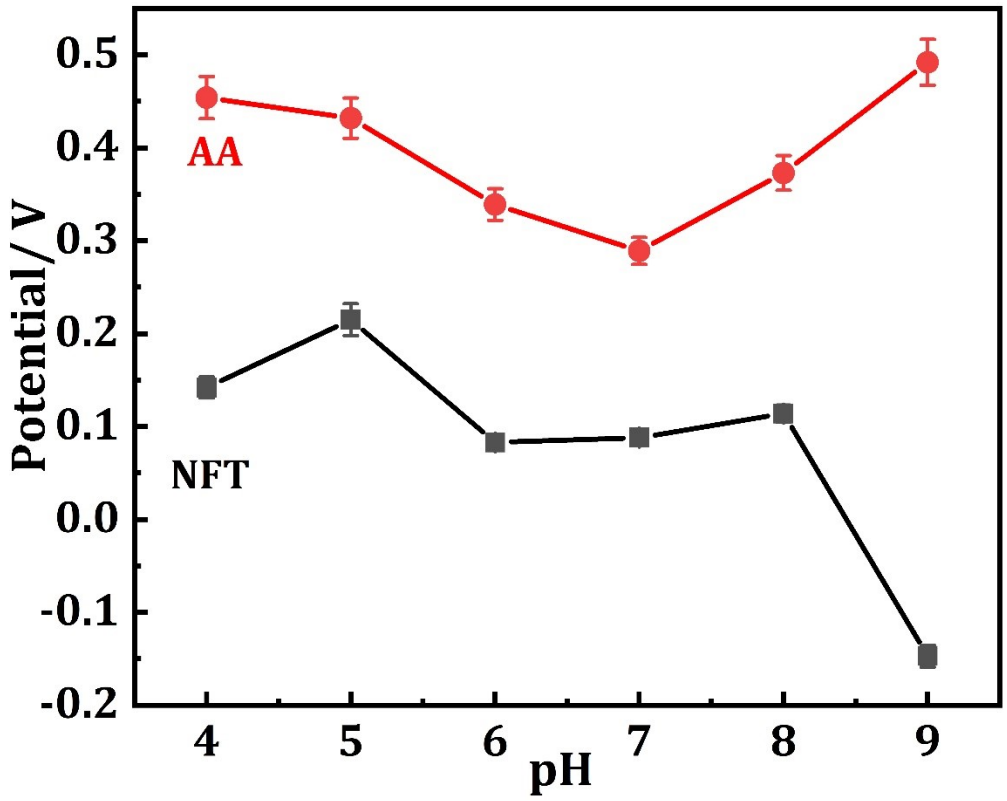

Fig. S3. The plot of various pH vs. E_{pa} of LYB/MWCNTs/GCE in the presence of AA and NFT.

Table S1: A comparison of the electrochemical oxidation of NFT using LYB/MWCNTs/GCE with other materials.

Electrode material	Method	pH	Linear range (nM)	LOD (nM)	References
N/Co@CNTs@CC	LSV	7	50–550000	18.41	[1]
Pd-$Ti_3C_2T_x$-P	DPV	8	30000– 160000	0.01	[2]
AuNP-PPy-MXene	LSV	7	6–172	0.26	[3]
Sr@Mn_3O_4/GO	DPV	7	10–1443000	2.4	[4]
$SmVO_4$-GNSs	i-t	7	35–672300	8.7	[5]
LYB/MWCNTs/GCE	**LSV**	**6**	**10–120**	**10.94**	**Present Work**

Table S2: A comparison of the electrochemical oxidation of AA using LYB/MWCNTs/GCE with other materials.

Electrode material	Method	pH	Linear range (nM)	LOD (nM)	References
Pc_2 assembly electrode	i-t	-	10000–200000	150	[6]
MWCNT/GONR	i-t	7	100–8500	60	[7]
RGO–ZnO	DPV	6	50000–2350000	3710	[8]
Au/RGO	CV	7	24000–1500000	51000	[9]
N-rGO	DPV	7	10000–4000000	9600	[10]
LYB/MWCNTs/GCE	**LSV**	**6**	**10–120**	**13.43**	**Present Work**

References

1 M. Li, T. Zhe, R. Li, F. Bai, P. Jia, Z. Xu, X. Wang, T. Bu, H. Wu and L. Wang, *Food Chem*, 2023, **418**, 135948.

2 S. H. Tumrani, R. R. Neiber, Z. Pitafi, I. A. Ahmed, R. A. Soomro, M. M. Ibrahim, S. Karakuş and Z. M. El-Bahy, *J Environ Chem Eng*, 2023, **11**, 111152.

3 A. T. Ezhil Vilian, S.-K. Hwang, G. Bhaskaran, M. Alhammadi, S. Kim, J. N. Tiwari, Y. Suk Huh and Y.-K. Han, *Chemical Engineering Journal*, 2023, **454**, 139980.

4 V. Vinothkumar, R. Sakthivel, S. M. Chen, A. Sangili and T. H. Kim, *Environ Sci Nano*, 2022, **10**, 503–518.

5 S. M. Babulal, C. Koventhan, S. M. Chen and W. Hung, *Compos B Eng*, 2022, **237**, 109847.

6 Y. Jiang, P. Liu, R. Gao, J. Bi, L. Gao and Y. Wang, *Langmuir*, 2023, **39**, 2080–2088.

7 C.-L. Sun, C.-T. Chang, H.-H. Lee, J. Zhou, J. Wang, T.-K. Sham and W.-F. Pong, *ACS Nano*, 2011, **5**, 7788–7795.

8 X. Zhang, Y.-C. Zhang and L.-X. Ma, *Sensors and Actuators B*, 2016, **227**, 488–496.

9 C. Wang, J. Du, H. Wang, F. Jiang, P. Yang and Y. Du, *Sensors and Actuators B*, 2014, **204**, 302–309.

10 H. Zhang and S. Liu, *J Alloys Compd*, 2020, **842**, 155873.