Supplementary information

A highly selective and simultaneous determination of ascorbic acid, uric acid and nitrite based on novel Poly -N-acetyl-L-methionine (Poly-NALM) thin film

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1. **Optimization study**

To optimise the concentration of N-acetyl-L-methionine monomer for polymerization, we prepared poly-NALM from different concentration of NALM solution ranging from 0.5 mM to 4 mM concentration. The surface coverage was evaluated from the CV at 100 mV/s. Based on the Fig. S1, the surface coverage increases with increasing NALM concentration in the range of 0.5-2.5 mM and starts to level off when NALM concentration is higher than 2.5 mM. Therefore, 2.5 mM NALM concentration was selected as optimum level in subsequent studies.
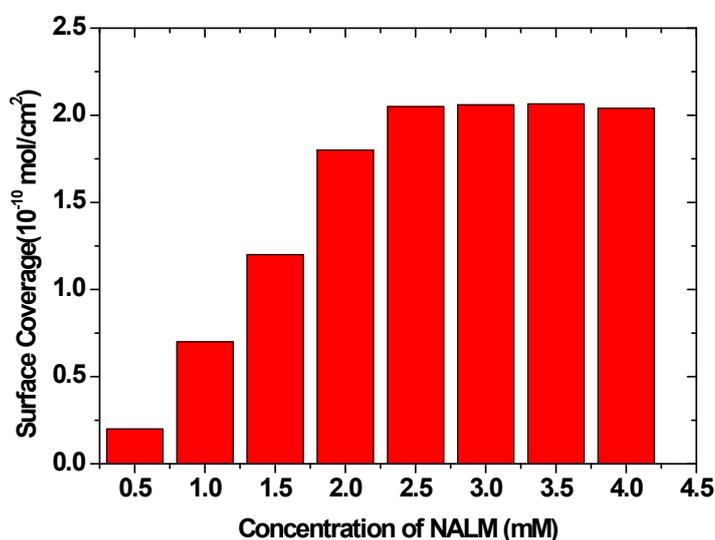
Fig. S1. NALM concentration (mM) vs. surface coverage

2. XPS Studies of Poly-NALM film
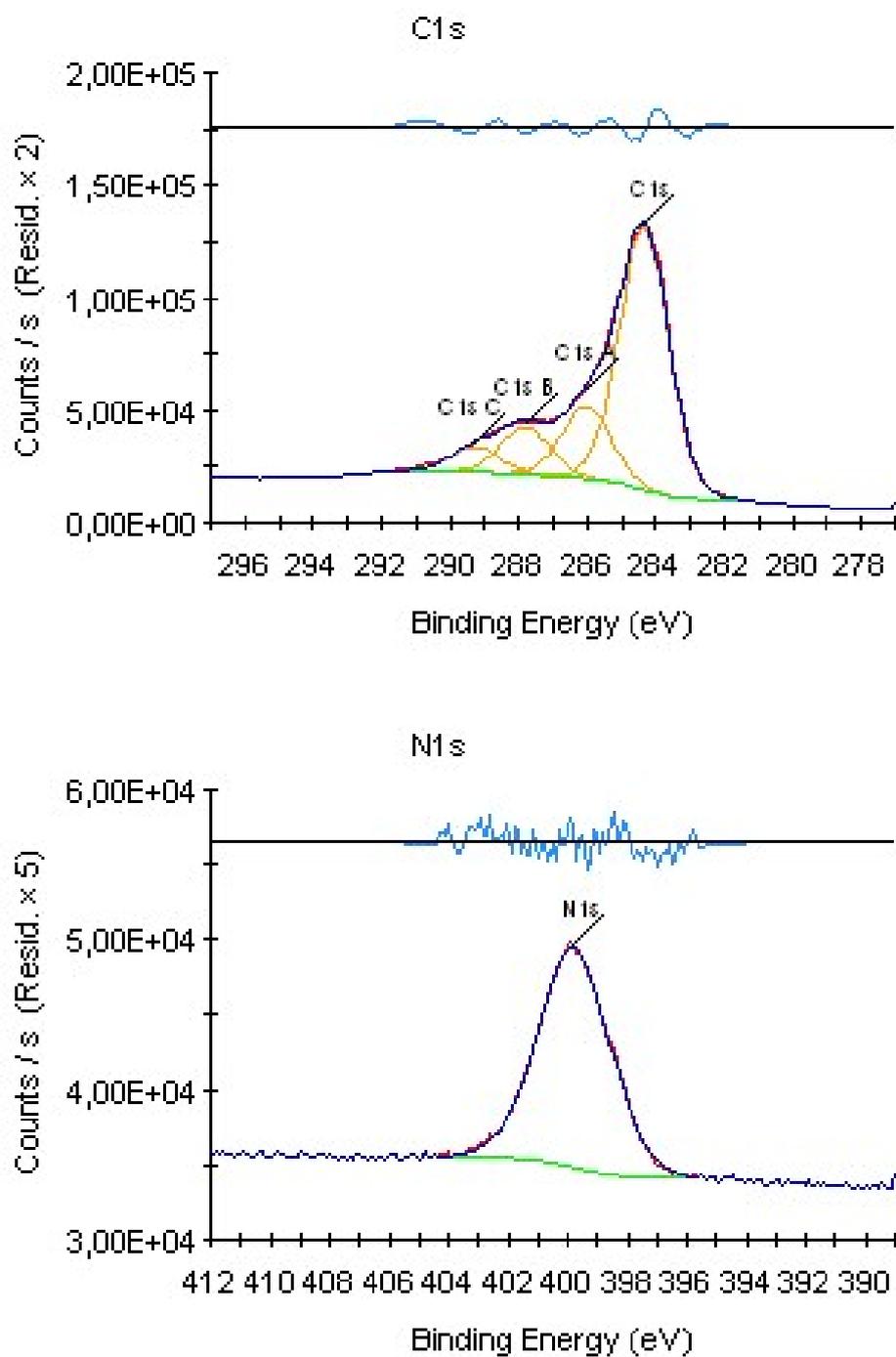
Fig. S2. High resolution XPS obtained for Poly-NALM film on ITO electrode at (A) C 1s and (B) N 1s regions.

Fig. S2 A displays the XPS of Poly-NALM on ITO plate in C 1s and N 1s regions. The C 1s spectrum of Poly-NALM was deconvoluted into three component peaks at 284.1, 285.8, 287.4 and 288.8 eV and were attributed to (-C-C-), (-C-S-), (-C-N-) and (-N-C=O), respectively. Fig. S2 B displays the N 1s region of Poly-NALM was deconvoluted into one component peak at 399.7 eV and it was associated with (–N-C-).

3. SEM images of Poly-NALM film
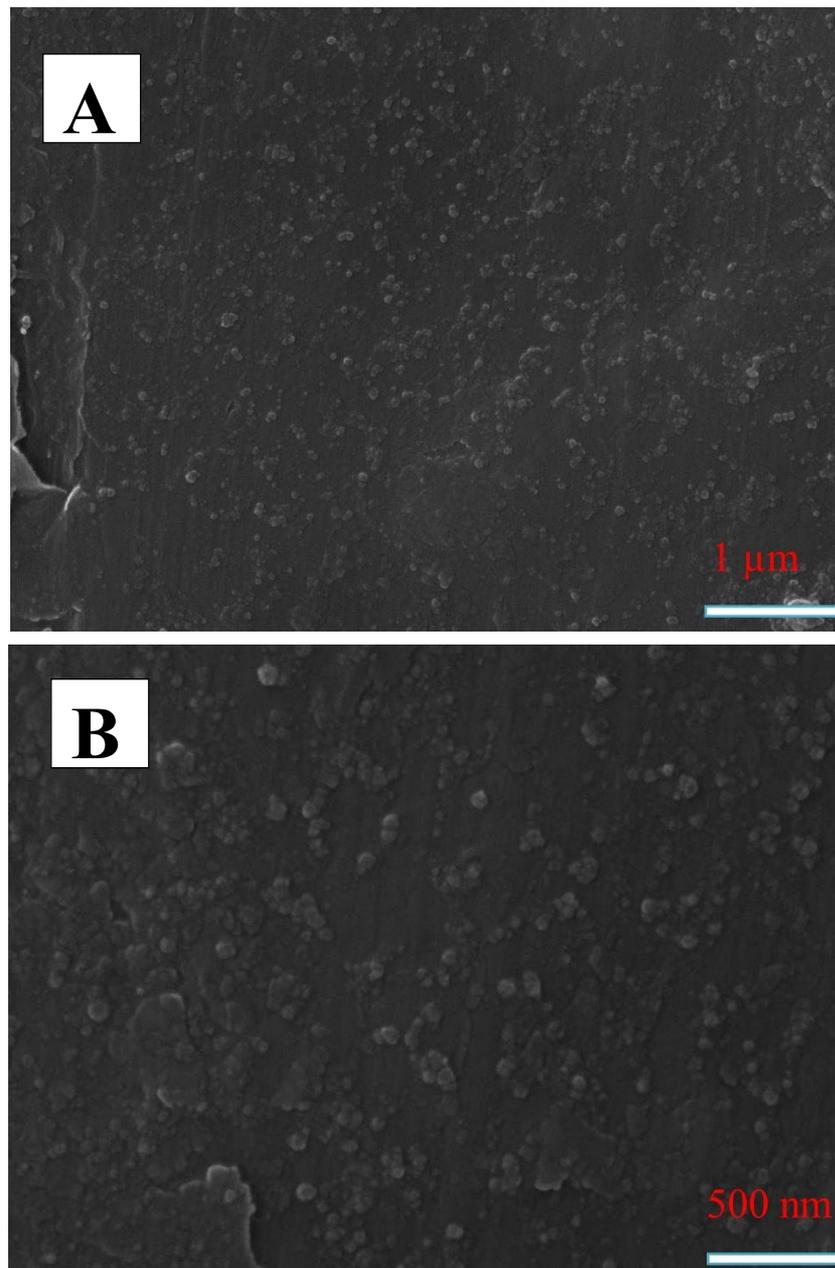
Fig. S 3A and B: SEM images of poly-NALM film

SEM images (Fig. S 3 A, B) showed the surface morphology of poly-NALM film deposited by 7 cycles on ITO electrode. The SEM images of poly-NALM film showed comparatively smooth and homogeneous surface.

4. *Anti – interference of the poly-NALM film*

Table S4

Interferents	Concentrations (μM)	Signal change	
		AA (%)	UA (%)
Dopamine	50	−5.5	6.1
Epinephrine	50	−3.0	5.3
Serotonin	50	2.0	4.3
Tyrosine	50	3.3	2.6

References

1. D. M. Eby, K. Artyushkova, A. K. Paravastu, G. R. Johnson, *J. Mater. Chem*., 2012, **22**, 9875-9883.

2. R. A. Brizzolara, *Surface Science Spectra*, 1996, **4**, 96-101.