Preparation of a novel electrochemical sensor for phosphate detection based on molybdenum blue modified poly(vinyl chloride) coated pencil graphite electrode

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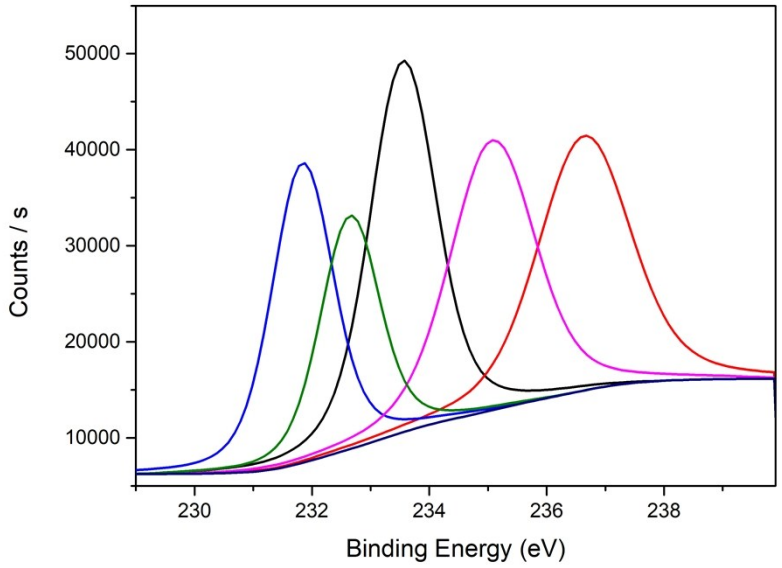
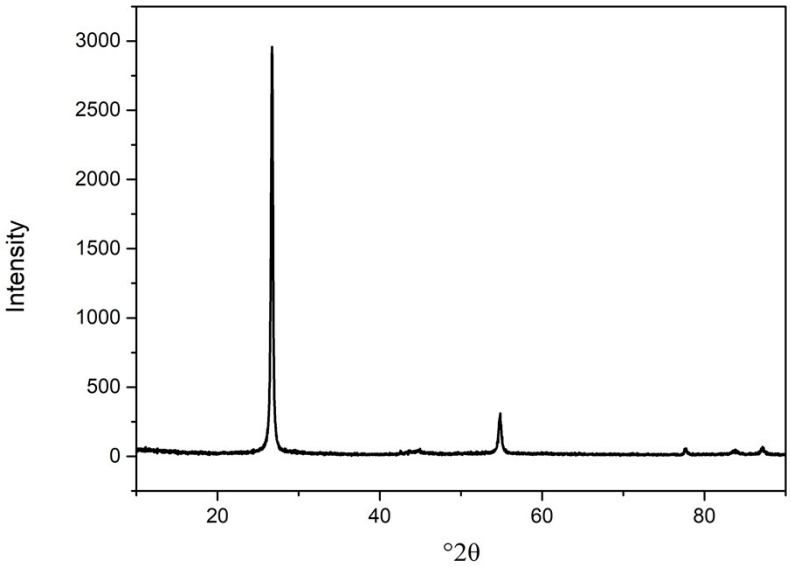
(Supplementary document)

a)


Counts / s
50000
40000
30000
20000
10000
230
232
234
236
238
Binding Energy (eV)

b)


Intensity
3000
2500
2000
1500
1000
500
0
20
40
60
80
°2θ

c)

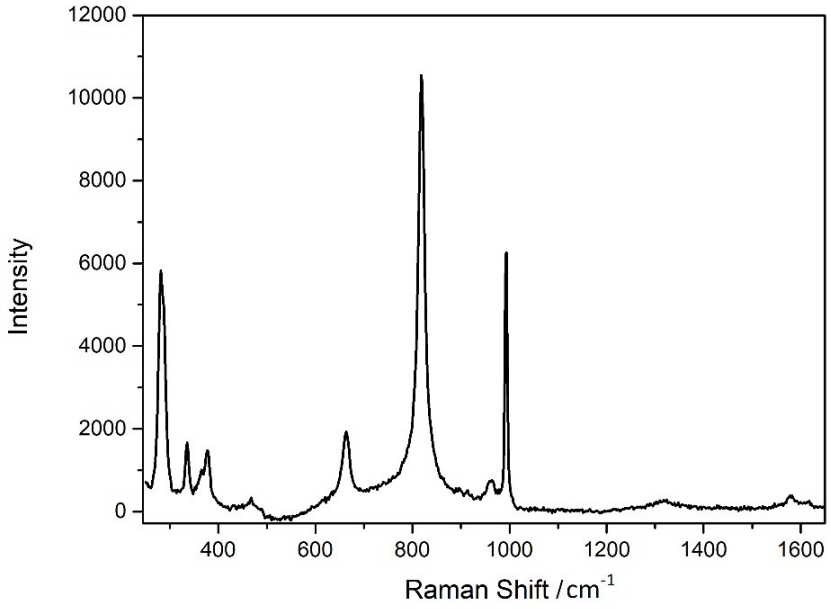
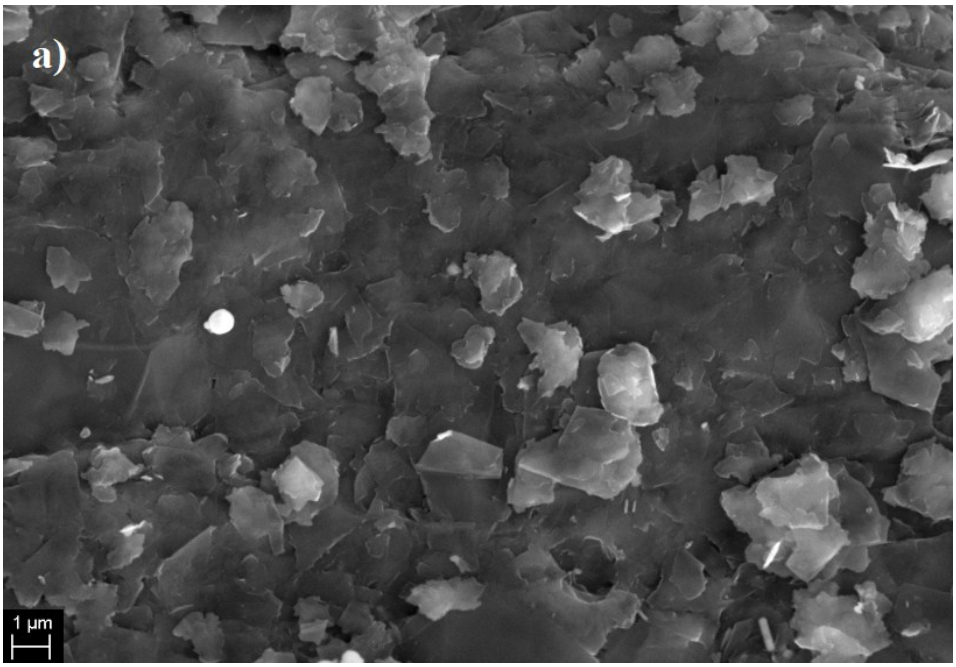
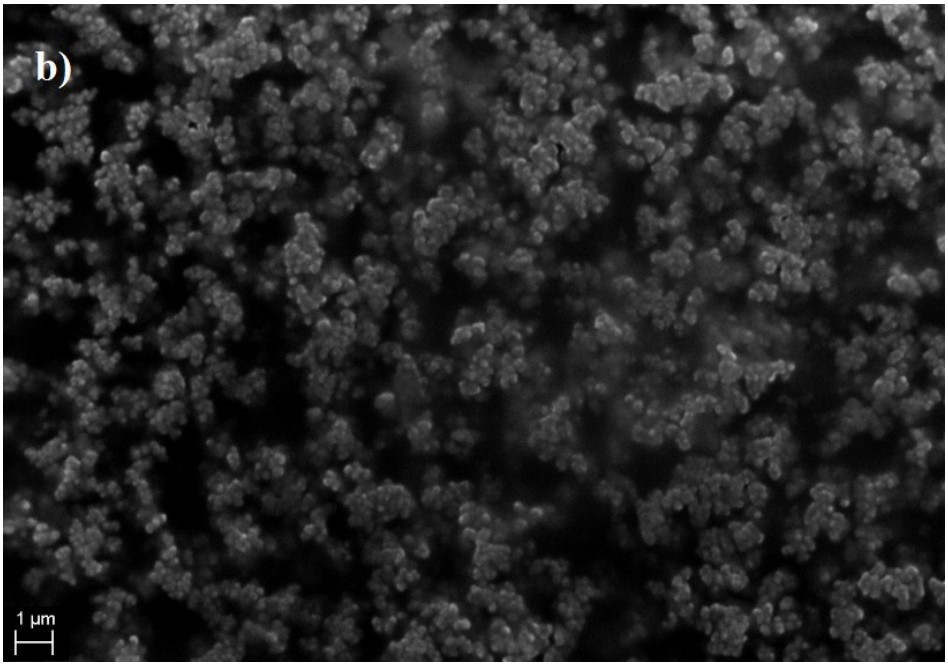
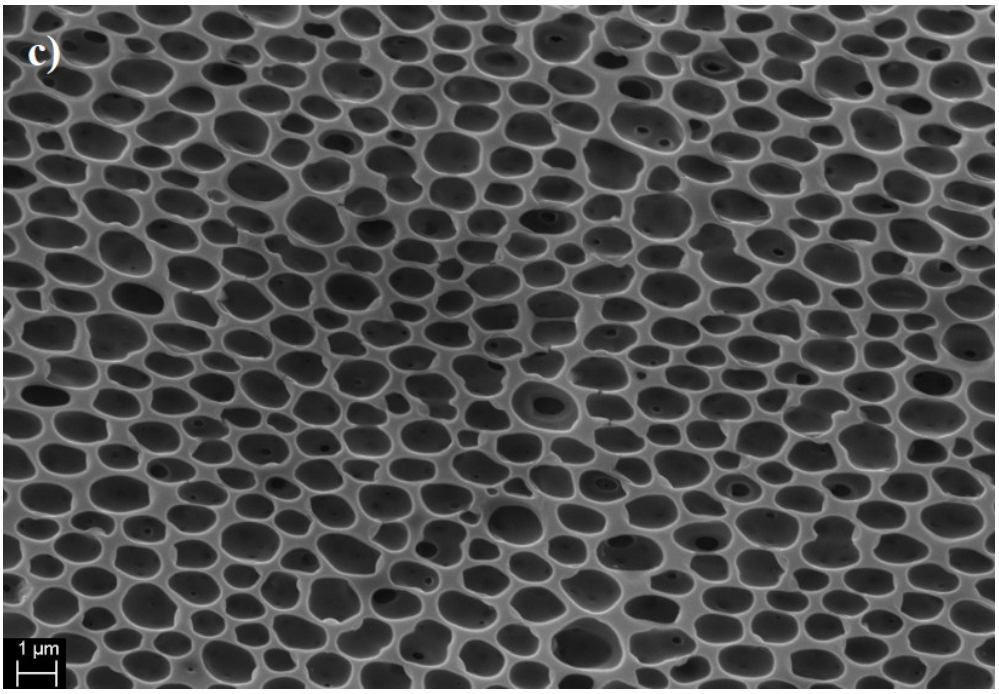


Fig. S1 a) Mo3d XPS spectra, **b)** Raman spectra and **c)** XRD spectra of MB/PGE


a)
1 µm


b)
1 µm



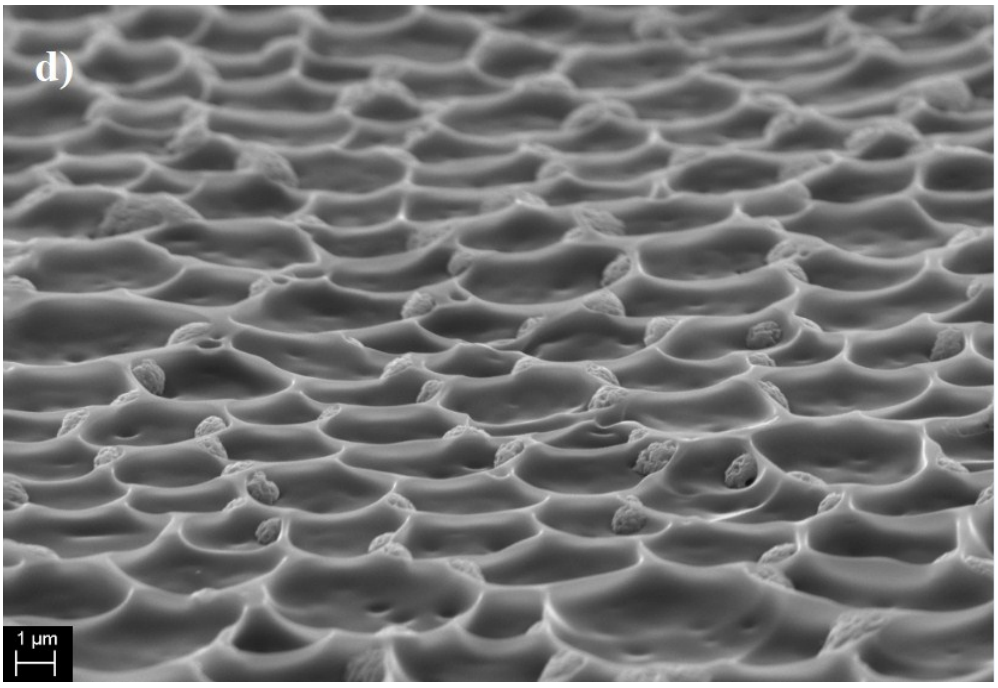
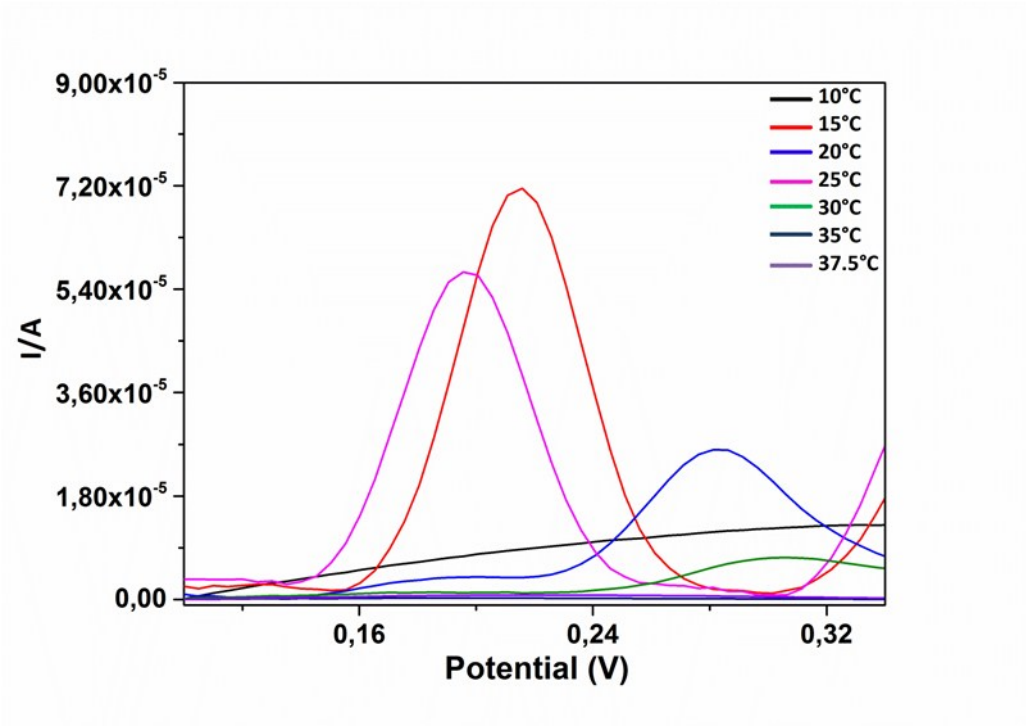


Fig. S2 SEM images of **a)** PGE, **b)** MB/PGE, **c)** PVC and **d)** PVC/MB/PGE

a)



b)

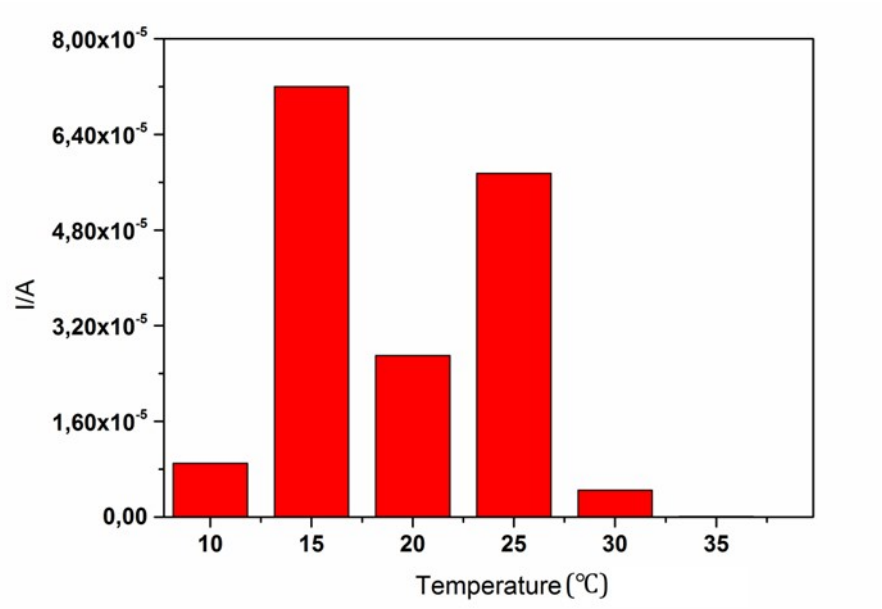
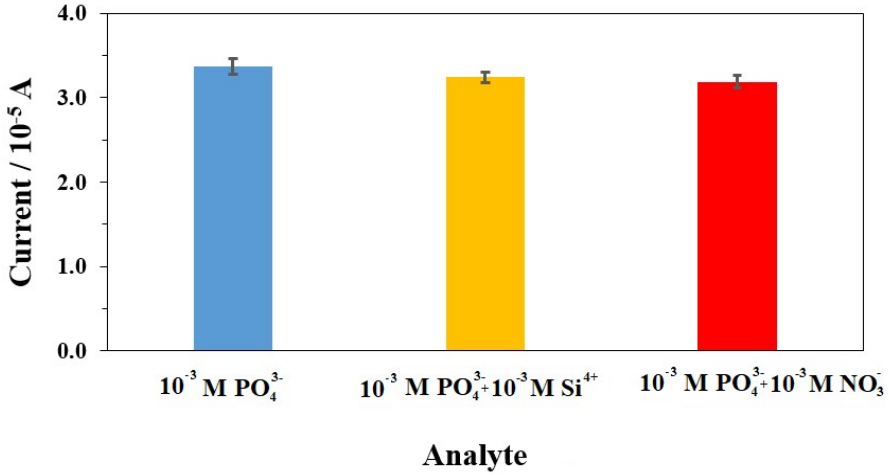


Fig. S3 a) Differential pulse voltammograms and **b)** peak current of PVC/MB/PGEs at different operation temperature in the solution consisting of 0.001 M phosphate and 1.0 M sulfuric acid

a)



b)

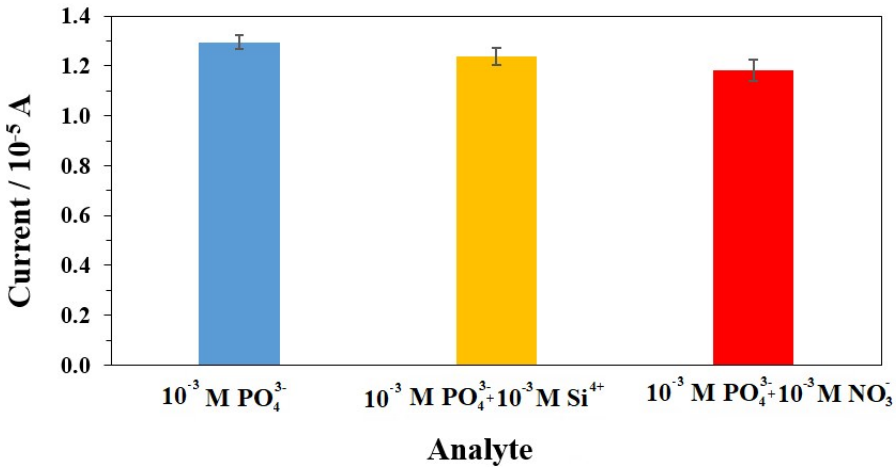


Fig. S4 Analytical response of PVC/MB/PGEs in the solution consisting of 10^{-3} M of NO_3^-, Si^{4+} and **a)** 10^{-3} M phosphate, and **b)** 10^{-6} M phosphate

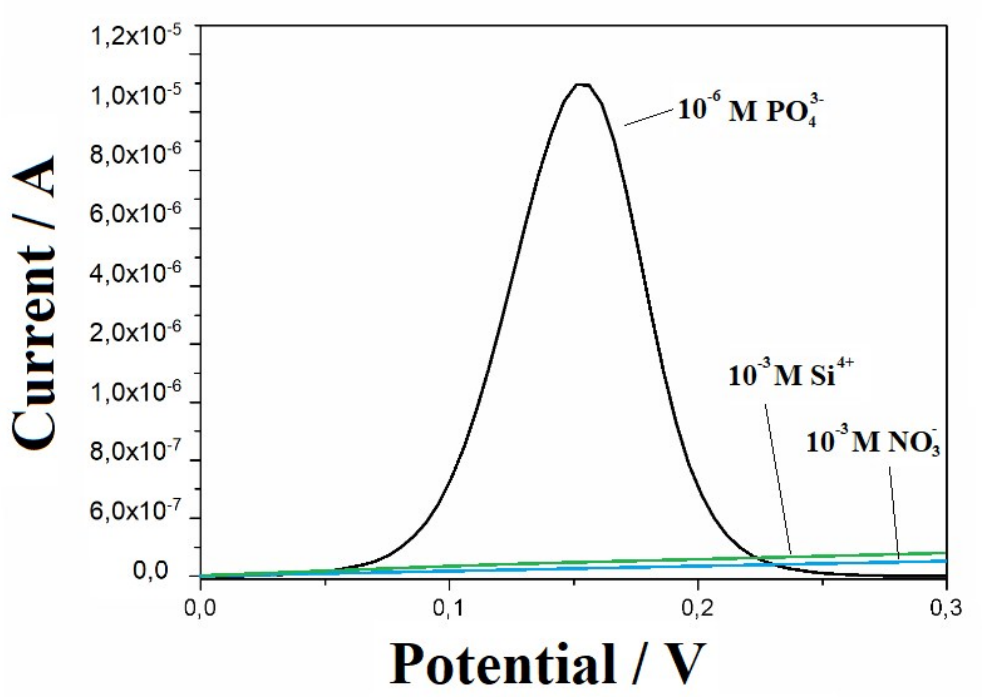
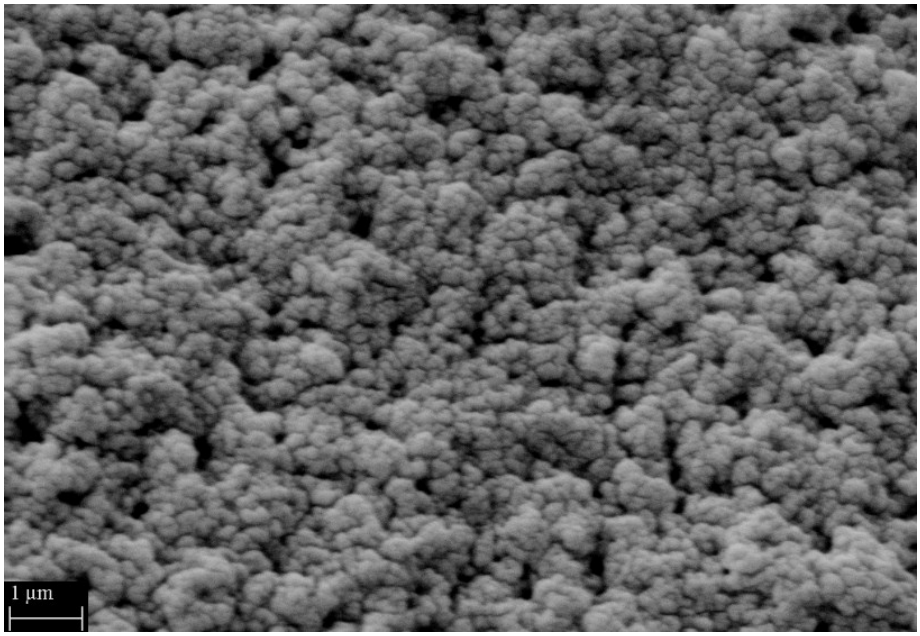
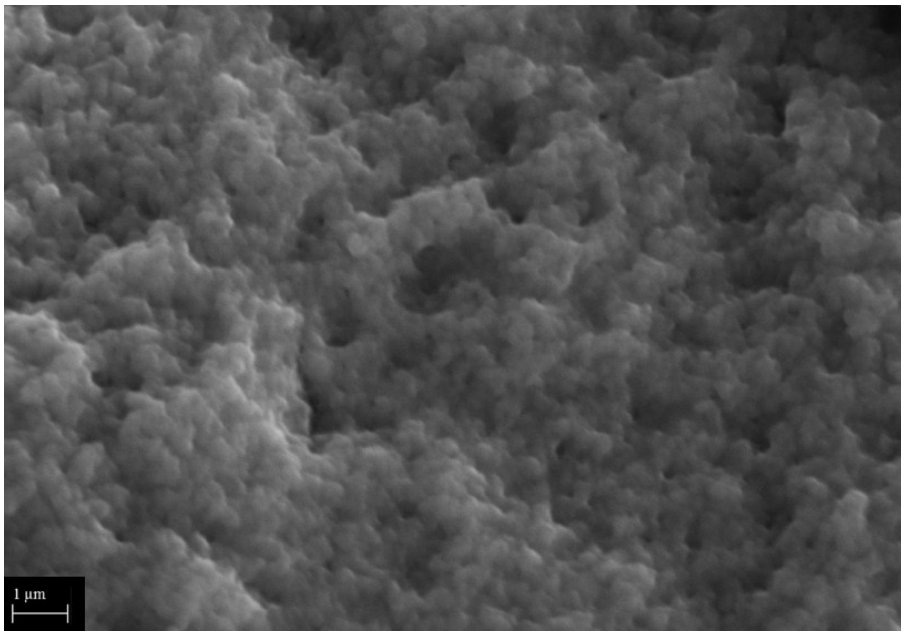


Fig. S5 Differential pulse voltammograms of PVC/MB/PGEs in the solution separately consisting of 10^{-6} M phosphate, 10^{-3} M of NO_3^- and 10^{-3} M Si^{4+}

a)



b)



c)

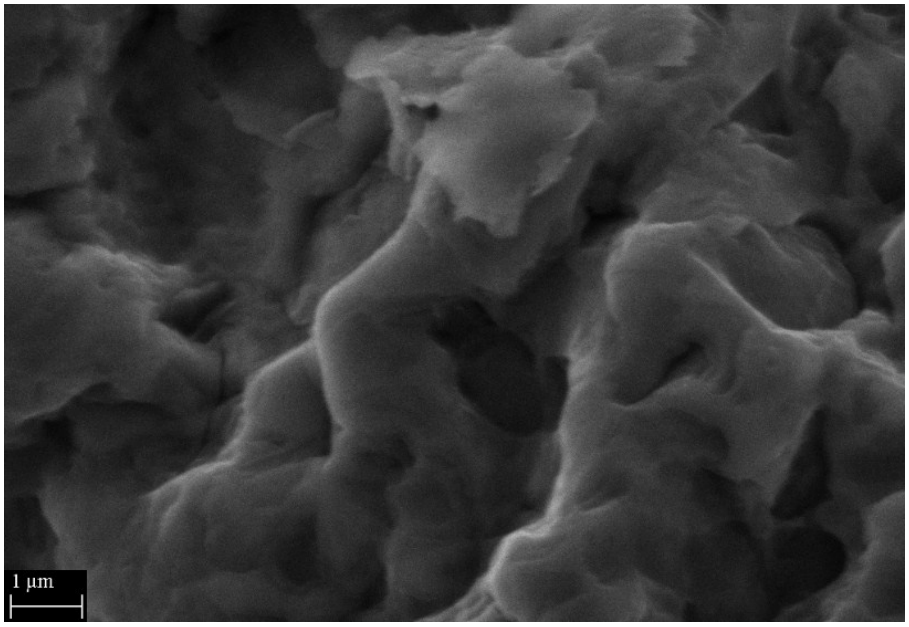


Fig. S6 SEM pictures of MB/PGE prepared over **a)** 2 cycles, **b)** 3 cycles, and **c)** 20 cycles at 20000× magnification