

Supplementary data for article:

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# SUPPLEMENTARY INFORMATION

## **Mercury-free and modification-free electroanalytical approach towards bromazepam and alprazolam sensing: A facile and efficient assay for their quantification in pharmaceuticals using boron-doped diamond electrodes**

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**Table S1**

The pH effect of BR buffer on the peak current density ( $J_{BZ}$  and  $J_{ALZ}$ ) for the studied BDZs ( $1 \times 10^{-4}$  mol/L) using DPV on BDDEs with various B/C ratio. The DPV parameters: modulation amplitude of 50 mV, modulation time of 80 ms, and scan rate of 25 mV/s.

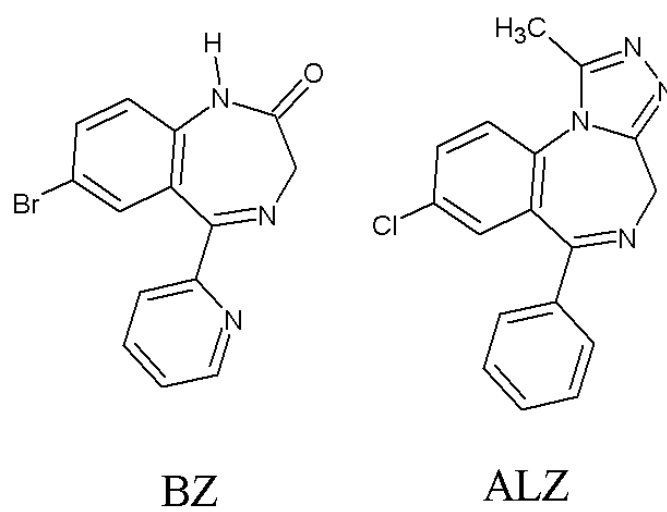
BDDE type with B/C ratio	BZ		ALZ	
	Optimal pH of BR buffer	$J_{BZ}$ ( $\mu\text{A}/\text{mm}^2$ )	Optimal pH of BR buffer	$J_{ALZ}$ ( $\mu\text{A}/\text{mm}^2$ )
Commercial 1000 ppm	8	-0.064	<b>5</b>	<b>-0.686</b>
L-M 1000 ppm	<b>11</b>	<b>-0.329</b>	3	-0.271
L-M 2000 ppm	4	-0.152	-	-
L-M 4000 ppm	5	-0.253	7	-0.128
L-M 8000 ppm	11	-0.255	5	-0.165

**Table S2**

The optimized DPV operating parameters for the individual determination of  $1 \times 10^{-4}$  mol/L BZ and ALZ.

<b>BDZ</b>	<b>Modulation amplitude value (mV)</b>		<b>Modulation time value (ms)</b>	
	<b>Studied range</b>	<b>Optimized</b>	<b>Studied range</b>	<b>Optimized</b>
<b>BZ</b>	10 – 150	50	10 – 150	25
<b>ALZ</b>		100		50

**Fig. S1**



**Fig. S1**

Chemical structures of Bromazepam (BZ) and Alprazolam (ALZ).

Fig. S2

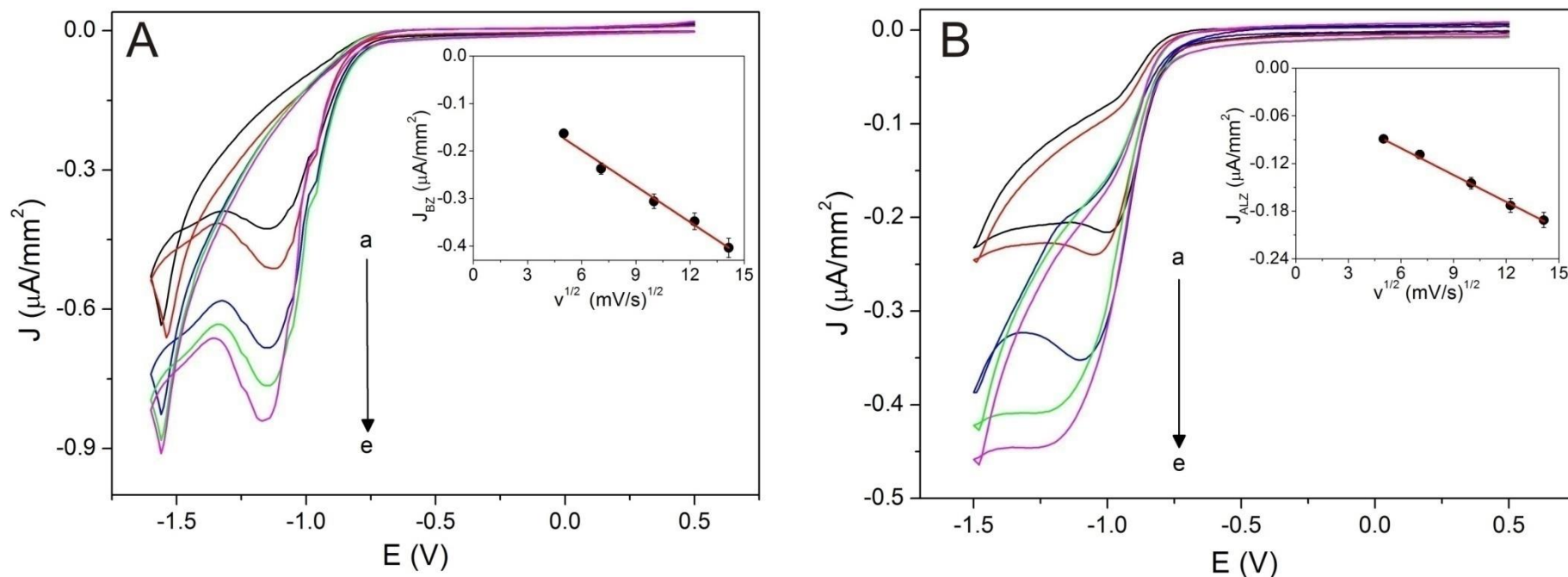


Fig. S2

(A) CV records of  $1 \times 10^{-4}$  mol/L BZ in BR buffer of pH 11 on L-M BDDE of 1000 ppm B/C for various scan rates: (a) 25, (b) 50, (c) 100, (d) 150 and (e) 200 mV/s. The dependence between the BZ current density ( $J_{BZ}$ ) and the square root of the scan rate ( $v^{1/2}$ ) with corresponding error bars appears in the inset.

(B) CV records of  $1 \times 10^{-4}$  mol/L ALZ in BR buffer of pH 5 on commercial BDDE of 1000 ppm B/C for various scan rates: (a) 25, (b) 50, (c) 100, (d) 150 and (e) 200 mV/s. The dependence between the ALZ current density ( $J_{ALZ}$ ) and the square root of the scan rate ( $v^{1/2}$ ) with corresponding error bars appears in the inset.