Summary

Nimesulide:

The electrochemical behavior of nimesulide was studied in B.R. buffer solutions of different pH values. It showed in reduction process at DC polarography two waves unequal in height within the range from 1.5 to 9.8 pH this waves correspond to reduction of (O-N=O) group.

The half wave potential is pH dependent, that means $E_{1/2}$ shifted to more negative as the pH increase. The logarithmic analysis of the polarographic wave referred to irreversible reduction process, the effect of mercury height on i_l referred to the process is controlled by diffusion with a little adsorption.

The cyclic voltammetric behavior of nimesulide is detected at the glassy carbon electrode in B.R. buffer pH (2.0-7.0), the obtained voltammograms showed one cathodic peak in acidic and neutral and vanishes at alkaline medium the peak potential shifted to more negative as pH increase, the plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results were pH=5.30, deposition potential = -0.4V, deposition time =60 s., scan rate =500 mV/s. and step height =5 mV.

The calibration curve (i_p vs. concentration) give linear relation from 8 $x10^{-6}$ to 4 $x10^{-7}$ M. detection limit was 2.8 $x10^{-7}$ M .

Secnidazole:

The electrochemical behavior of secnidazole was studied in B.R. buffer solutions of different pH values. It showed in reduction process at

DC polarography two waves unequal in height within the pH range from 1.5 to 9.8 these waves according to reduction of (O-N=O) group.

The half wave potential is pH dependent, that means $E_{1/2}$ shifted to more negative as the pH increased. The logarithmic analysis of the polarographic wave referred to the reduction process irreversible, the effect of mercury height on i_l referred to the process controlled by diffusion with a little adsorption.

The cyclic voltammetric behavior of secnidazole is detected at the glassy carbon electrode in B.R. buffer pH (3.10-10.0), the obtained voltammograms showed one cathodic peak in acidic and neutral and vanishes at alkaline medium the peak potential shifted to more negative as pH increase, the plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results were pH=5.30, deposition potential = -0.2 V, deposition time =30 s., scan rate =500 mV/s. and step height =20 mV.

The calibration curve (i_p vs. concentration) gives linear relation from 1 $x10^{-4}$ to $6x10^{-6}$ M, detection limit was 1.7 $x10^{-6}$ M .

nifuroxazide:

The electrochemical behavior of nifuroxazide was studied in B.R. buffer solutions of different pH values. It showed in reduction process at DC polarography two waves unequal in height within the range from 2.71 to 11.0 pH this waves according to reduction of (O-N=O) and (C=N) groups.

The half wave potential is pH dependent, that means $E_{1/2}$ shifted to more negative as the pH increase the logarithmic analysis of the polarographic

wave referred to the reduction process irreversible, the effect of mercury height on i_l referred to the process controlled by diffusion with a little adsorption.

The cyclic voltammetric behavior of nifuroxazide is detected at the glassy carbon electrode in B.R. buffer pH (2.71-11.0), the obtained voltammograms showed one cathodic peak in acidic and neutral and vanishes at alkaline medium the peak potential shifted to more negative as pH increases. The plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process is controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results were pH=8.18, deposition potential = -0.4 V, deposition time =60 s., scan rate =500 mV/s. and step height =5 mV.

The calibration curve (i_p vs. concentration) gives linear relation from 2 $x10^{-6}$ to 4 $x10^{-7}$ M. detection limit was 6.5 $x10^{-8}$ M .

Tinidazole:

The electrochemical behavior of tinidazole was studied in B.R. buffer solutions of different pH values. It showed in reduction process at DC polarography two waves unequal in height within the range from 2.03 to 10.55 pH this waves according to reduction of (O-N=O) group.

The half wave potential is pH dependent, that means $E_{1/2}$ shifted to more negative as the pH increase the logarithmic analysis of the polarographic wave referred to the reduction process irreversible, the effect of mercury height on i_l referred to the process controlled by diffusion with a little adsorption.

The cyclic voltammetric behavior of tinidazole is detected at the glassy carbon electrode in B.R. buffer pH (3.20-8.78), the obtained

voltammograms showed one cathodic peak in acidic and neutral and vanishes at alkaline medium the peak potential shifted to more negative as pH increase, the plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results were pH=6.13, deposition potential = -0.4V, deposition time =30 s., scan rate =500 mV/s. and step height =10 mV.

The calibration curve (i_p vs. concentration) give linear relation from 1 $x10^{-5}$ to $1x10^{-6}$ M. detection limit was 2.6 $x10^{-7}$ M .

cinnarizine:

The electrochemical behavior of cinnarizine was studied in B.R. buffer solutions of different pH values. It showed in reduction process at DC polarography two waves unequal in height within the range from 1.5 to 9.50 pH this waves according to reduction of (C=C) group.

The half wave potential is pH dependent, this means $E_{1/2}$ is shifted to more negative as the pH increase the logarithmic analysis of the polarographic wave referred to the reduction process irreversible, the effect of mercury height on i_l referred to the process controlled by diffusion with a little adsorption.

The cyclic voltammetric behavior of cinnarizine is detected at the glassy carbon electrode in B.R. buffer pH (3.67-8.80), the obtained voltammograms showed one cathodic peak in acidic and neutral and vanishes at alkaline medium the peak potential shifted to more negative as pH increase, the plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results were pH=2.54, deposition potential = 0.0V, deposition time =60 s., scan rate =500 mV/s. and step height =10 mV.

The calibration curve (i_p vs. concentration) give linear relation from 1 $x10^{-6}$ to $2x10^{-7}$ M . And detection limit was 9 $x10^{-9}$ M .

chlorodiazepoxide:

The electrochemical behavior of chlorodiazepoxide was studied in B.R. buffer solutions of different pH values. It showed in reduction process at DC polarography two waves unequal in height within the range from 1.5 to 9.8 pH this waves according to reduction of (N-O) and (C=N) groups.

The half wave potential is pH dependent, that means $E_{1/2}$ shifted to more negative as the pH increase the logarithmic analysis of the polarographic wave referred to the reduction process irreversible, the effect of mercury height on i_l referred to the process controlled by diffusion with alittle adsorption.

The cyclic voltammetric behavior of chlorodiazepoxide is detected at the glassy carbon electrode in B.R. buffer pH (2.15-10.45), the obtained voltammograms showed two cathodic peak in acidic and one cathodic peak at neutral and alkaline medium the peak potential shifted to more negative as pH increase, the plotting of i_p vs. square root of scan rate gave linear relation deviating from the origin this means the process controlled by diffusion and little adsorption. The kinetic parameters are calculated.

The linear sweep technique was applied to study and optimize the experimental and instrumental conditions, and this optimization results

were pH=4.14, deposition potential = -0.4V, deposition time = 30 s., scan rate =500 mV/s. and step height =10 mV and at pH=7.33, deposition time = -0.4V, deposition time = 30sec., scan rate =500 mV/sec. and step height =10 mV .

The calibration curve (i_p vs. concentration) give linear relation from 5 $x10^{-6}$ to $2x10^{-7}$ M at pH= 4.14 and $1x10^{-4}$ to $1x10^{-6}$ M at pH= 7.33.

And detection limit was 5 $x10^{-8}$ M at pH=4.14 and 2.5 $x10^{-7}$ M at pH=7.33