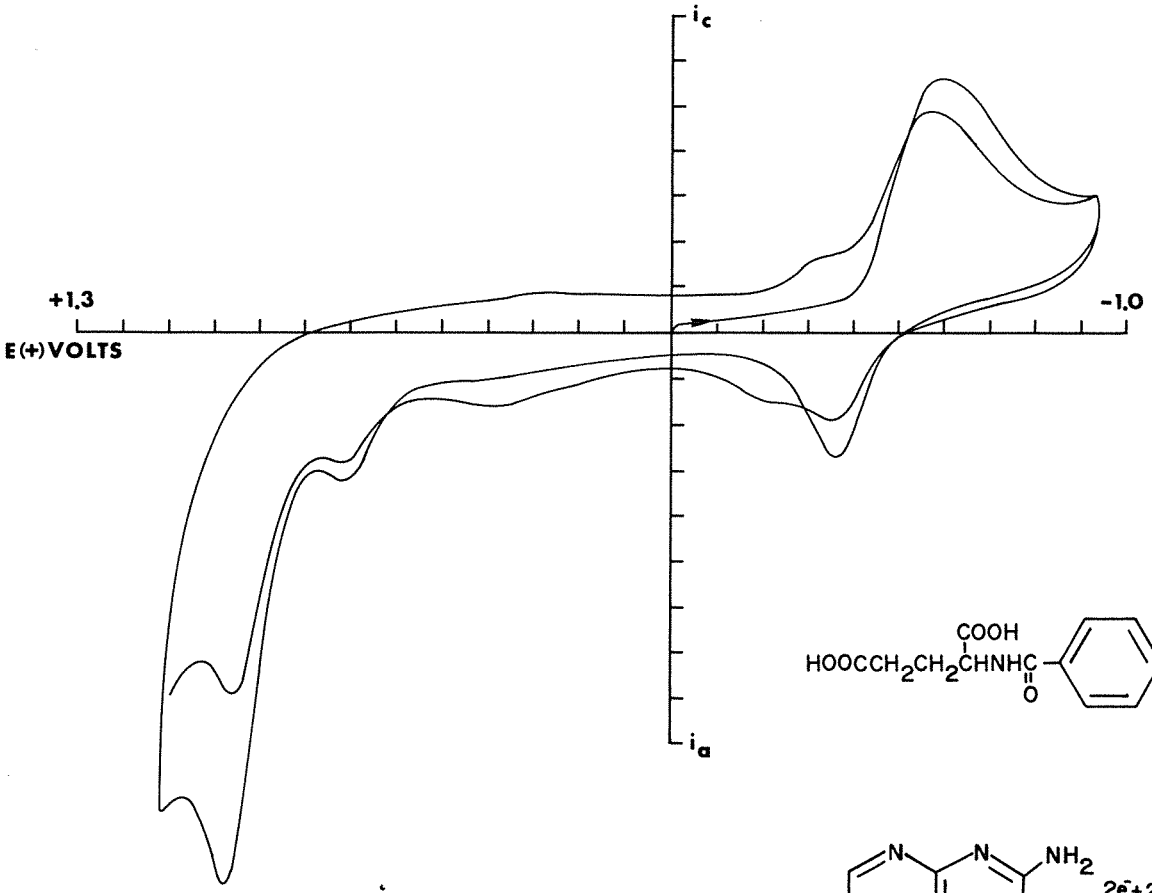
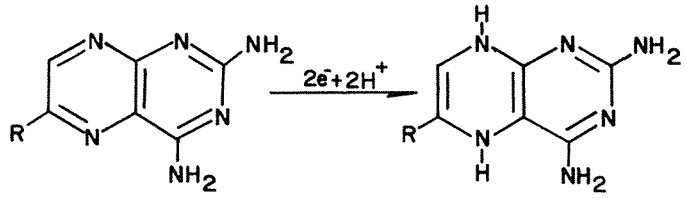
CV NOTES

METHOTREXATE





Sample:	Methotrexate
Medium:	50 mM Phosphate Buffer pH 3.5/10% Methanol
Conc:	~1 mg/mL
Rate:	200 mV/s
Etrode:	GC
Ref:	Ag/AgCl
Model:	CV-1B

Methotrexate is a very potent drug used in the treatment of severe forms of psoriasis and the control of malignant cells. This potency is due to competitive inhibition of the enzymatic reduction of folic acid to tetrahydrofolic acid. All rapidly proliferating cells are more sensitive to methotrexate, so careful monitoring is necessary. Voltammetric behavior of this molecule is complex. Reduction of the pteridine ring occurs at -550 mV and probably involves the mechanism shown above. The oxidation wave at -350 mV probably corresponds to partial reversal to the pteridine functionality. The oxidation at +900 mV possibly relates to a one electron oxidation of the amine to form a radical cation.

BAS
2701 Kent Ave
West Lafayette
Indiana 47906