



POLAROGRAPHIC ESTIMATION OF BARBITURATES - A NOVEL TECHNIQUE

dissertation on the research project submitted
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Master's Degree in Science

(Analytical Chemistry)

By

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under

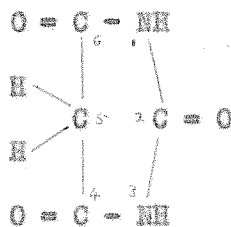
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INTRODUCTION AND LITERATURE SURVEY1.1. General

The "Barbiturates" are the derivatives of Barbituric acid (malonylurea, 2,4,6 trioxotetrahydropyrimidine) formed by the replacement of both hydrogen atoms on the carbon at position 5 by alkyl, aryl or heterocyclic groups. The nitrogen atom at position 1 may also be alkylated. The substitution of the oxygen atoms at position 2 by sulphur gives rise to thiobarbiturates.

Barbituric acid.

There are a number of barbiturates in clinical use.* They are used as sedatives, hypnotics basal narcotics, anaesthetics and anti-convulsants.⁽¹⁾ The barbiturates are the active ingredient in most of the so called sleeping tablets, the appropriate number been chosen mainly according to the desired duration of action. They are roughly classified as long acting (eg. barbitone, phenobarbitone), intermediate acting (eg. - butobarbitone, amylobarbitone), short acting (eg. - pentobarbitone) and very short acting (eg. - thiopentone).

The barbiturates account for nearly 50% of all cases of poisoning in the United Kingdom⁽²⁾ (fortunately not to such an extent in Sri Lanka). Therefore their rapid recognition followed by estimation in a matter of considerable importance. If the type of barbiturate taken by a poisoned patient is known the barbiturate - blood level is very significant in deciding the patient's condition. With long acting barbiturates, blood level of 5 mg.%^(i.e. - 5 mg. of it in 100 ml. of blood.) and above may give rise to fatal poisoning and between 1 and 5 mg.% blood level may be fatal for intermediate and short acting barbiturates.⁽²⁾ Since the overdoses of barbiturate - preparations are lethal, the quality control is vital for these pharmaceutical preparations.

* See Appendix I