A MEASUREMENT OF CRYOSCOPIC AND TRANSFERENCE NUMBERS OF BARBITURIC ACID AND SODIUM BARBITAL.

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ABSTRACT

Derivatives of Barbituric Acid like Barbitone, Phenobarbitone, Soneryl, Numbutal and Amytal etc. have been used as powerfull hypnotic and soporitic medicine for the treatment of epilepsy and other ailments which warrant sedation.

Inspite of age-long use of these compounds, it was surprising to note that the only physico-chemical data available on these chemicals are the density, viscosity, refractive index, conductance and diffusion coefficient measurments of barbituric acid and Sodium Barbital at 25^{o} C. It thus became the objective of the present project to produce additional physico-chemical data on these pyrimidines so as to have a better understanding of the mode of physiological action of these medicines.

Accordingly cryoscopic and transference measurements were undertaken in aqueous Barbituric acid and Sodium Barbital.

The investigation has shown that Barbituric Acid dimerizes in solution to give ionic species, $(B_2)^{2-}$ with an equivalent conductance of 40.0 $\pm$ 0.1 S cm^2 $equiv.^{-1}$ and a formation constant of 3.0 $\pm$ 0.1 kg Mol^{-1} while the transferesnce number for the B^- ions was found to be 0.0584 $\pm$ 0.01

conductance of 39.8 S cm^2 $equiv.^{-1}$ for the B^{*-} ions and the average transference numbers of 0.4416 $\pm$ 0.01 for the same B^- ions.