

**THE STUDY OF N¹,N⁴- BIS(SALICYLIDENE)-S-
METHYLIZOTHIOSEMICARBAZIDIUM CHLORIDE METHANOL
MONOSOLVATE AS IONOPHORE FOR PVC-MEMBRANE ELECTRODES**

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Many analytical techniques for determination of Mn²⁺ are costly and required pre-sample treatment of analyte and even required very skilled person as supervisor to handle the instrument. Beside this the technique, ion-selective electrode is simple, easy to handle and very cheap to design. The present research describe the use of N¹,N⁴-bis(salicylidene)-S-methylisothiosemicarbazidium chloride methanol monosolvate (H₂L·HCl·CH₃OH) (figure) as ionophore in PVC-based sensor for the determination of Mn²⁺.

The synthesis of the ligand has been realized by demetallation of the NiL₂ described in [1]. The structure of the H₂L·HCl·CH₃OH was determinate by single crystal X-ray diffraction.

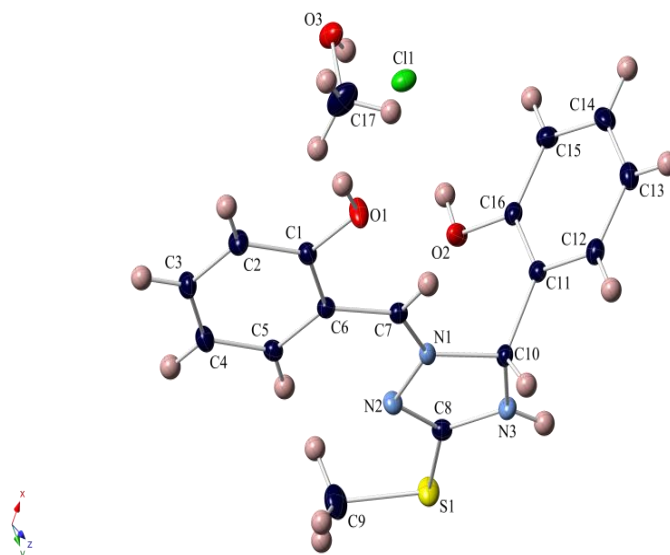


Figure: The structure of N¹,N⁴-bis(salicylidene)-S-methylisothiosemicarbazidium chloride methanol monosolvate

A polymeric membrane based on H₂L·HCl·CH₃OH has been prepared. Using this membrane has been confectioned electrochemical sensor for Mn²⁺.

The parameters of the electrode have been established during their calibration in different manganese(II) concentration solutions. Ion-selective electrode exhibited a linear Nernstian response over the range 1*10⁻⁴-1*10⁻¹ M with slope of 26 - 27 mV per decade. It shows a fast response time (20 - 60 s).

The potentiometric selectivity coefficients were determined by separate interferent method. Their values show that sensor is substantially selective for Mn²⁺ ions over the all interfering ions studied. It was studied the influence of the anion nature of the response of sensor. Best results were recorded when calibration solutions were prepared using manganese(II) sulfate.

[1] M. D. Revenko, N. V. Gerbelev, K. M., Indrichan, *Teoreticheskaya i Eksperimental'naya Khimiya*, **21**, 1985, 604.