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Thermo-Acoustical and Excess Parameters in Ternary Mixture of Containing Aqueous KOH in Dimethyl Sulfoxide at Different Temperatures

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ABSTRACT

The thermo-physical parameters such as density (ρ), ultrasonic velocity (U) and viscosity (η) are determined for a ternary mixture ($n=3$) of aqueous potassium hydroxide (aq. KOH) and dimethyl sulfoxide (DMSO) system at 0.0% to 100% (v/v) and at different temperatures. Using the experimental data, adiabatic compressibility (β), free length (L_f) and free volume (V_f) are evaluated at different temperatures. The excess values of adiabatic compressibility (β^E), excess free length (L_f^E) and free volume (V_f^E) have also been computed by using the experimental data. The behavior of these parameters with composition of the mixture has been discussed in terms of molecular interaction between the components of the liquids. The deviation in the excess values reveal that intermolecular interactions obtaining in the solution.

Keywords : *Ultrasonic velocity, acoustical parameters, molecular interactions, aqueous potassium hydroxide (aq. KOH) and dimethyl sulfoxide (DMSO).*

I. INTRODUCTION

The adaptable non-destructive technique like Ultrasonic interferometer is highly helpful for the characterization of various physico-chemical properties. Ultrasonic velocity jointly with density and viscosity investigations in liquid mixtures find widely applications in recognizing physico-chemical behavior [1-2]. The temperatures dependence of the ultrasonic parameters provide wealth of information about the interactions between the ions, dipoles, hydrogen bonding and weak Vander Waals forces between the components of the liquid mixtures [3-5]. The studies on the physio-chemical properties of organic liquid such as: dimethyl sulfoxide in aqueous solution of potassium hydroxide provides useful information, which is used to assess

the information of molecular interaction [6-7]. The ultrasonic velocity data for ternary liquid mixtures have been used by many researchers [8-10]. The deviation from ideally is expressed by many thermo-acoustic parameters, particular by excess properties [11-12]. In this paper the authors report on the ultrasonic velocity, density, and viscosity of 1N aqueous potassium hydroxide with dimethyl sulfoxide at different temperatures over the different volume ratio (v/v) of aqueous KOH in DMSO. From these experimental values, a number of thermodynamics parameters, namely adiabatic compressibility (β_a), intermolecular free length (L_f), free volume (V_f), internal pressure (π_i) and Gibb's free energy (ΔG) were calculated and the results such as excess parameters are analyzed in the light of molecular interactions in the ternary liquid mixtures.

Thermo Acoustic Study of Different Parameters for Ternary Mixture of Aqueous Potassium Hydroxide & 1, 4 Dioxane Using Ultrasonic Interferometer

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ABSTRACT

An analysis of different thermodynamic properties as a function of temperature provides valuable information about their characteristics. The concentration and temperature dependence of acoustic and volumetric properties of multi component liquid mixtures has proved to be a useful indicator of the existence of significant effect resulting from intermolecular interactions. The thermo-acoustic parameters such as density (ρ), ultrasonic velocity (U) and viscosity (η) are determined for the ternary mixture of aqueous potassium hydroxide and 1,4 dioxane system at 0.0% to 100% (v/v) and at different temperature. These experimental data have been used to estimate the acoustical parameters such as, adiabatic compressibility (β_s), free length (L_f), free volume (V_f), internal pressure (π_i), and Gibb's free energy (ΔG). The present paper represents the nonlinear variation of ultrasonic velocity and the thermo-acoustical parameters lead to dipole- ion interaction between 1,4 dioxane and 1N aqueous potassium hydroxide is stronger than dipole- ion interaction between water and aqueous potassium hydroxide.

Keywords: Ultrasonic velocity, acoustical parameters, molecular interactions, ternary mixtures, aqueous potassium hydroxide (aq. KOH) and 1,4 dioxane.

I. INTRODUCTION

Ultrasonic is widely useful for the investigation of various thermo-acoustic parameters such as adiabatic compressibility, free volume, intermolecular free length and relaxation time¹⁻³. The molecular behavior and interactions and their mixtures can be characterized with the help of ultrasonic studies⁴⁻⁶. The measurement of ultrasonic velocity in the organic liquid mixture is a useful tool to study the physicochemical properties of the liquids and also explain the mechanism of molecular interaction⁷⁻¹⁰. The ultrasonic velocity data for ternary liquid

mixtures have been used for by many researchers¹¹⁻¹⁴. The present work investigates thermo-acoustical properties of aqueous solution of KOH with 1,4 dioxane at different temperatures and at different composition. From these experimental values, number of thermodynamics parameters, namely adiabatic compressibility (β_s), free length (L_f), free volume (V_f), internal pressure (π_i) and Gibb's free energy (ΔG) have been calculated. The variations of these parameters with concentrations were found to be useful in understanding the nature molecular interactions in the ternary liquid mixtures.



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Ajanta Prakashan

8. Reflection of Human Rights in the Indian Constitution

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Abstracts

After the Second World War, democracy was nearly accepted throughout the world and inequality and discrimination began to be condemned. It is universally recognized that the man has certain natural rights. On the same basis, the International Charter of Human Rights was ratified on 10th December, 1948. Independent India also embraced democracy and drafted the Indian Constitution. Part III of the Constitution focused on human rights which is similar provision of fundamental rights. Therefore, the essence of the Indian Constitution is in accordance with the International Charter of Human Rights.

Keywords: Human trafficking; embrace; propagate; Forbid; discrimination; safeguard.

Introduction

Pre-independent India had various practices of social and economical discrimination. Inequalities and binary oppositions like superior-inferior, master-slave, high cast-untouchable were prevalent during those days. The freedom movement joined people in one string for the noble cause of freedom keeping their differences aside. Awareness and thirst for freedom made people of India fought unitedly against British rule. On the historic day of August 15th, 1947 India got freedom. However, the dawn of freedom brought increase in the expectation of people from the State. People of free India expected better life than it was during British rule. As such the constitution of free India must represent the spirit of the people of the nation. Or otherwise, they would have not satisfied with freedom. The freedom struggle taught them various methods of revolt for freedom and rights. However, the makers of constitution successfully reflected the ideas, ideals and spirit of the people in the draft of Indian Constitution making various provisions to safeguard human and birth rights of citizen of India. The provision of fundamental rights, directive principles give certain responsibilities to the state. By all such means Indian Constitution has always protected 'human' rights.

२. भारतीय परिप्रेक्षात लेनिनचा क्रांतिकारी साम्यवाद

डॉ. तक्षशील एन. सुटे

आनंद निकेतन महाविद्यालय, वरोरा, जि. चंद्रपूर.

सारांश

कार्ल मार्क्सच्या विचाराने प्रभावित होऊन लेनिन मार्क्सचा अनुयायी बनला. पण रशियाच्या परिस्थितीनुसार लेनिनने मार्क्सच्या विचारांना अमलात आणले. मार्क्सवादाची नवीन व स्वतंत्र व्याख्या करून रशियात सर्वहारा शोषित वर्गाची क्रांती यशस्वी केली. हेच लेनिन भारतात जन्माला आले असते तर त्यांनी सर्वप्रथम भारतीय समाजव्यवस्था लक्षात घेऊन शोषित वर्ग निश्चित केला असता. जात, धर्मावर आधारित विखुरलेल्या कामगार, शेतकरी, शेतमजूर तसेच गावकुसाबाहेर असलेल्या सर्व शोषित - वंचित घटकांना एकत्रित करून क्रांती घडवून आणण्याचा प्रयत्न केला असता. नेमके, भारतीय साम्यवाद्यांकडून हे घडून आले नाही. त्यामुळे, आजही भारतीय शोषित घटकाला स्वातंत्र्य, समता व बंधुत्वाचा श्वास घेता येत नाही. तेव्हा मार्क्स व लेनिनला भारतीय परिप्रेक्ष्यात समजून घेऊन, संविधानिक मार्गाने क्रांतीचे मार्ग सुकर केले पाहिजे.

प्रस्तावना

लेनिनने कायदेशास्त्राचा अभ्यास करित असतानाच अनेक क्रांतीविषयक ग्रंथांचे वाचन सुरू केलेले होते. याच काळात त्याने मार्क्सच्या 'दास कॅपिटल' या ग्रंथाचेही वाचन केले. त्यामुळे तो मार्क्सचा अनुयायी बनला. वकीलीचा व्यवसाय सुरू केल्यानंतर त्याच्यासमोर शेतकऱ्यांच्या समस्या दिसू लागल्या. त्याकाळी सावकार, व्यापारी, भांडवलदार हे सर्वच लोक शेतकऱ्यांचे शोषण करताना त्याला लक्षात आले. मात्र त्यांना न्याय देण्यासाठी किंवा त्यांचा पक्ष घेण्यासाठी कोणीही पुढे येतांना दिसत नव्हते. तसेही रशियातील कायदे व न्यायालय व्यवस्था शेतकऱ्यांचे हितसंबंध राखण्यासाठी कमजोर आहे अशीही जाणीव लेनिनला झाली. तेव्हा मार्क्सच्या वर्गसंघर्षाच्या कल्पनेतून शेतकऱ्यांच्या न्यायाचा लढा उभारता येतो याची जाणीव लक्षात घेऊन मार्क्सच्या साम्यवादाला लेनिनने व्यवहारात आणण्याचा प्रयत्न केला. मार्क्सच्या साम्यवादाला पुस्तकातून बाहेर काढून प्रत्यक्ष व्यवहारात साकार करणारे लेनिन हे पहिले अनुयायी विचारवंत होते.

साम्यवादात सैद्धांतिक बदल

कधीकधी पुस्तकी विचार अमलात आणतांना अडचणी येतात. तो जशाचा तसा लागू करता येत नाही. त्यात थोडाफार फेरबदल करावा लागतो. कधीकधी त्यात अनेक सैद्धांतिक बदलसुद्धा होणे स्वाभाविक आहे. नेमके तसेच बदल मार्क्सचा साम्यवाद अमलात आणताना लेनिनने केलेले दिसून येतात. पण असे



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**A FURTHER CONTRIBUTION TO THE KNOWLEDGE OF SAHNIPUSHPAM FLOWER
FROM THE NEW LOCALITY OF THE DECCAN INTERTRAPPEAN BEDS OF PUDIYAL
MOHADA OF CHANDRAPUR DISTRICT, MAHARASHTRA STATE, INDIA**

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Editor

**PHYSICO-CHEMICAL ASSESSMENT OF PADDY FIELD WATER FROM NAGBHID
TEHSIL, DISTRICT-CHANDRAPUR, MAHARASHTRA, INDIA.***

BY

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ABSTRACT: The paddy field is a peculiar aquatic ecosystem with shallow water layers. Paddy plants are pertinent microenvironment being photic, aerobic environment where aquatic communities of producers and consumers recycle nutrients and provide organic matter to the soil. Major activities include photosynthesis, respiration and Photo dependent biological nitrogen fixation by free living and symbiotic cyanobacteria. The water is subjected to large variation in irradiance, temperature, PH, O₂ concentration and nutrient status (Whitton et. al, 1988, Quesada et. al, 1995). Nagbhid Tehsil has rich rice production due to favourable factors available for abundant growth owing to fertile soil conditions, abundant rainfall and suitable climatic conditions. However continuous usage of chemical fertilizers has taken toll leading to a decrease in crop production. It is therefore mandatory to check the water standards periodically. Thus the present investigation includes the assessment of water quality in relation to physicochemical parameters from the paddy fields of Nagbhid Tehsil, District-Chandrapur, Maharashtra, India.

KEYWORDS: Physico-chemical, Aquatic ecosystem, Microenvironment, Aerobic environment, cyanobacteria

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INTRODUCTION

Boosting up of agricultural activities with elevated use of fertilizers and pesticides and associated livestock activities have an adverse impact on water quality. Nitrates, phosphorus, and pesticides widely used in agriculture are the main water pollutants. Rising accumulation of nitrates threatens the potability conditions of drinking water, while high pesticide use contributes significantly to indirect

**IMPACT OF PHYSICOCHEMICAL PARAMETERS ON DIVERSITY OF
PHYTOPLANKTON OF ERAI RESERVOIR OF CHANDRAPUR DISTRICT,
MAHARASHTRA, INDIA***

BY

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ABSTRACT

The present study was carried out for understanding the impact of physicochemical parameters on diversity of phytoplankton. Erai Reservoir is an earth filled masonry reservoir. The reservoir is 1620m long in two portions which are separated by a spillway which is 99m long. The catchment area of reservoir is 55 thousand hectors. The maximum gross storage capacity is 193 MCM. The present study was carried out for 12 months from June 2015 to May 2016. Various parameters of Erai Reservoir were evaluated like Ambient Temperature, Water Temperature, PH, Conductivity, Transparency, Calcium and Magnesium hardness, Alkalinity, Free CO₂, Total Dissolved Solids, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Phosphate and Nitrate. Phytoplankton studied under four different groups namely Cynophyceae, Euglenophyceae, Bacillariophyceae, and Chlorophyceae.

KEYWORDS: Phytoplankton, Reservoir, Conductivity, Transparency, Cynophyceae.

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INTRODUCTION

The assessment of water quality based on its Physico-chemical properties is an important aspect for the implementation of developmental activities of a particular region. Physico-chemical characters have profound influence on the biotic communities of aquatic ecosystem. Thus, studies of Physico-chemical and biological characters are important to check the effects of pollution and integrated

**A FURTHER CONTRIBUTION TO THE KNOWLEDGE OF SAHNIPUSHPAM FLOWER
FROM THE NEW LOCALITY OF THE DECCAN INTERTRAPPEAN BEDS OF PUDIYAL
MOHADA OF CHANDRAPUR DISTRICT, MAHARASHTRA STATE, INDIA.***

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ABSTRACT: The present specimen incorporates the detailed morphological and anatomical description of dicotyledonous flower from the Deccan Intertrappean beds of Pudiyal Mohada, Taluka-Jiwati, Dist.-Chandrapur, Maharashtra, India. The flower is 2.5 mm in length and 2.09 mm in width. The flower is sessile, actinomorphic and monochlamydeous, septate ovary with peltate stigma. The stamens are found in weakly preserved condition. The receptacle is clearly seen in the sections of the flower. The L.S. of flower shows the basal attachment of perianth with ovary wall. The two stamens with anther and filament are seen at one side of flower besides the stigma. Perianth is tubular structure and measures about 121-286 μm in thickness. The globose lysigenous cavities are found on epidermal wall of perianth which is 1.5 μm in thickness. A very long filament arises from the base of the flower with anther at other end. One anther is large and other one is small in size. The anther is elongated dumbbell structure present at one end of filament. Large anther is 11.68 μm in length and 2.89 μm in width and small anther is 7.47 μm in length and 3.84 μm in width. The ovary is syncarpous commonly tricarpellate with three locules at upper end and three locules at lower end of ovary with three ovules. The ovary is superior, 1.65 mm long and 1.95 mm in diameter. It is 3 chambered at the extreme base and apex and trilocular in the central region with partial septas extending inward from the periphery. All three locules contain ovules. The ovary wall is 3.56 μm in thickness. Numerous spherical oil cells which are 0.72 μm in diameter, interspersed among epidermal cells of the ovary wall. Below the epidermis there are few layers of thick walled sclerenchymatous cells while the inner region consists of many layers of thin-walled parenchymatous cells. Thus in light of the comparison with fossil and living genera and families, it becomes evident that the flower belongs to Sahnipushpam (Shukla 1950) and modern family Araceae with some minor differences hence it is named as Sahnipushpam pudiyalii

Determination of Secondary Forces in Polar Organic Binary Mixture by Refractivity Method

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ABSTRACT

Densities and Refractive indices have been experimentally determined for the binary mixture of Methanol – Water at room temperature over the entire range of mole fraction. The experimental values of densities and refractive index are utilized to calculate excess refractive indices, molar refractions, excess molar refractions, excess molar volume and calculated molar refractions. Outcome obtained indicates that the refractive method is more useful as compared to the volumetric method. From the result it is found that strong association is observed in studied system.

Keywords: Mole Fraction, Density, Refractive Index, Excess Refractive Indices, Molar Refractions, Excess Molar Volume.

I. INTRODUCTION

Refractive index is also called as index of refraction, measure of bending of ray of light when passing from one medium to another transparent medium. Measurement of refractive index is a significant part of thermodynamics studies of liquid-liquid mixtures, used to explain intermolecular interactions present amongst the mixing components [1]. It is also essential for the determination of composition of binary liquid mixture [2]. Complex formation in liquid mixtures has been widely studied using refractivity method. The behavior of solvent medium in presence of other species affects the structural properties of solution.

In our present research work, we select polar molecule as methanol and water these molecules are very useful in a different field of a chemical science. In our present study densities and refractive index of binary liquid-liquid mixture of methanol-water

system at room temperature [at 293 K] over the entire range of mole fraction have been determined. Along with densities and refractive index, excess refractive indices $[\Delta n_D]$, molar refraction, excess molar volume $[V^E]$, calculated molar refraction and excess molar refraction $[R_M^E]$ have been calculated. The behavior of this parameter is used to investigate intermolecular interaction present amongst the component of the mixture.

II. METHODS AND MATERIAL

Methanol used was of A.R. grade. The water used for the preparation of binary mixture was distilled. The binary methanol-water systems were prepared by mole fraction method. The weighing was done by using electronic balance with precision of ± 0.1 mg. Refractive indices were measured by using Abbe refractometer with constant temperature thermostat

To Study Solvation of Polyols with 5% Ethanol-Water at Room Temperature

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ABSTRACT

Density (ρ) and viscosity(η) of Mannitol and Sorbitol have been measured in 5% Ethanol-Water solvent system in the concentration range 0.05-0.5M at room temperature 298K for the density data, apparent molar volume (Φ_v) and partial molar volume (Φ_v^0) were worked out. The viscosity coefficient B and A constants and Stauding Constant (k_n) were calculated from the viscosity data by using Jones-Dole and Stauding equation. From viscosity coefficient constant B and partial molar volume, solvation number (B/Φ_v^0) of Mannitol and Sorbitol were worked out. From these parameters, results were associated with solute-solute, solute-solvent and solvent-solvent interactions.

Keywords : Polyols, Apparent Molar Volume, Partial Molar Volume, Association Number.

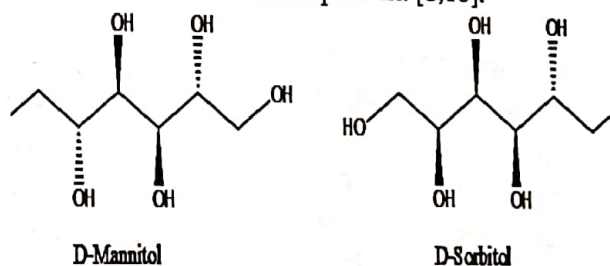
I. INTRODUCTION

Solvation is one of the important intermolecular interactions. It is responsible to maintain the secondary structure of biomolecules and expressing biological and medicinal process of cellular systems [1]. Polyols (mannitol and sorbitol) are used as ingredient in products like cosmetics, health care products and pharmaceuticals [2]. Volumetric behavior of polyols gives useful information for solvation process [3, 4]. Apparent Molar Volume and Partial Molar Volume of polyols in solution are used to study solute-solvent interaction [5,6].

Polyols and carbohydrates are most important class of biomolecules and show their different biological functions such as structure and defensive metabolic recognition, receptor affinity and selectivity [7].

The molecular interactions of dilute as well as concentrated solutions of sugars in water play an important role in expressing biophysical and

medicinal processes of cellular systems. The viscometric behavior of electrolytes and non-electrolytes give useful information for intermolecular interactions in the solution [8,9]. Sorbitol is white crystalline powder, 6-C sugar soluble in water, it is also called Glucitol. Sorbitol is a substitute of sugar which is about 60% the sweetness of sucrose. Mannitol is a 6-Carbon sugar derived from dextrose. It has been used to treat human brain for more than 30 years. The complication of mannitol therapy is fluid and electrolyte imbalance. Hence its interaction studies with the solvent become important. [8,10].



Molecular Interactions by Ultrasonic Measurements in Aqueous and 10% Ethanol-Water Solutions of MYO-INOSITOL At 298.15K

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ABSTRACT

Density(ρ), ultrasonic velocity(U) and viscosity(η) have been measured experimentally for aqueous solution of myo-inositol at concentration range (0.1 M- 0.9 M) and 10% ethanol-water solutions of meyo-inositol at concentration range(0.05M-0.45M) at temperature (298.15K).The acoustic parameters such as adiabatic compressibility(β),free length(L_f), free volume(V_f), relaxation time(τ) and internal pressure have been worked out. The results are correlated in terms of non-covalent molecular interaction between the constituents of solutions.

Keywords : Ultrasonic velocity, Acoustic parameters, Meyo-Inositol

I. INTRODUCTION

Ultrasonic velocity of pure liquids and liquid mixtures are basically related to the non-covalent molecular interactions (hydrogen bonding, Vander Waal's forces and dispersion forces) between molecules and atoms. The speed and efficiency of the transmission is sensitive to the nature of the bonds and the masses of the molecules present in the liquid mixtures and hence composition of system [1]. The ultrasonic technique can be used as method for providing information about physicochemical properties of the materials. The principle used in this technique is that the ultrasonic wave can be changed by the intermolecular interactions (ion-dipole, dipole-dipole, dipole-induced dipole, and hydrogen bonding and dispersion forces) of the sample while it travels through the sample. By compare the incident and resultant ultrasonic wave the structure in the sample can be concluded [2].

Chemistry and biology of meyo-inositol derivatives has been investigated widely in the recent past due to the association of phosphoinositols in cellular signal transduction mechanisms [3] and anchoring of certain proteins to cell membranes [4]. Although a bewildering array of myo-inositol phosphates and their lipid derivatives have been identified and / or isolated from plant as well as animal sources, the biological roles played by many of them is not yet clearly understood. However, receptors and effectors involved in various stages of phosphoinositol based signal transduction pathways remain potential targets for pharmacological intervention in states of disease[5].These developments in biology and medicine have necessitated the efficient synthesis of naturally occurring phosphoinositols and their synthetic analogs. Myo-Inositol is a cyclic sugar alcohol. It is also known as cyclitol. The chemistry of the cell is controlled by myo-inositol. There should be

Investigation of Thermo-Acoustic Properties of Water-1-Propanolbinary Mixture at Different Temperatures

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ABSTRACT

Ultrasonic velocity, density and viscosity have been measured using Anton Paar DSA 5000 M in the binary mixtures of 1-Propanol with water at various mole fractions from 0.1 to 0.9 with temperature ranging from 288K to 318K. Various derived parameters like adiabatic compressibility, acoustic impedance, free length and relaxation time have been calculated using standard formulae. Non covalent interaction taking place in the liquid mixture has been discussed on the basis of the values obtained from experimental parameters and derived parameters.

Keywords : Binary Liquid Mixtures, Ultrasonic Velocity, Density, Viscosity, Adiabatic Compressibility, Acoustic Impedance, Relaxation Time, Free Length, Intermolecular Interactions.

I. INTRODUCTION

The knowledge of the structure and molecular interactions of liquid mixtures is very important from fundamental and engineering point of view. Fundamental thermodynamic and thermo-acoustic properties are essential sources of information necessary for a better understanding of the non-ideal behavior of complex systems because of physical and chemical effects, which are caused by molecular interactions, intermolecular forces, *etc.*, of unlike molecules. From a practical point of view, these properties are necessary for the development of thermodynamic models required in adequate and optimized processes of the chemical, petrochemical, pharmaceutical, food processing, drugs industries, paint industries, fluid mechanicsetc.^{1,2}. In the recent years much important has been given to the behavior

of mixed components rather than the single component because of their widespread range of applications. Thermodynamic properties derived from the measurement of ultrasonic velocities, densities and viscosities for binary mixtures are useful in understanding the nature and type of intermolecular interactions present between the constituent molecules. In chemical process industries, materials are normally handled in fluid form and as a consequence, the physical, chemical and transport properties of fluids, assume importance. Thus, data on some of the properties associated with the liquids and liquid mixtures like ultrasonic velocity, viscosity and density invention extensive application in solution theory models and molecular dynamics^{3,4}.

Properties of liquid-liquid mixtures are thermodynamically very important as part of studies

Studies of Molecular Interactions of Sugar Alcohols in Water by Volumetric and Viscometric Measurement

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ABSTRACT

In this paper, Densities (ρ) and Viscosities (η) of sorbitol and mannitol have been measured in aqueous solution in the concentration range 0.05-0.5 M at 296 K. Apparent molar volume and partial molar volume were determined from the density parameter. Using Jones-Dole equation, viscosity coefficient A and B were calculated for sorbitol and mannitol solutions from the obtained viscosities. The results obtained from the parameters were correlated with solute-solute and solute-solvent interactions.

Keywords : Apparent molar volume, Partial molar volume, Jones-Dole equation, Sugars alcohols, Stauding equation

I. INTRODUCTION

Viscosity and density are two basic physical parameters of liquid and their values must be known for the physiochemical processes (adsorption, extraction, catalysis etc.). The viscosity (η), is need to be measure at very high precision with its temperature depends behavior to used as property to determine molecular information [1]. Density is the basic physical parameter used in the field of thermodynamics for the determination of heat transfer and mass transfer [2].

Along with constantly increasing living standard of human beings, a new quality food with non-sugar and low calorific value is introduced as sugar alcohols also called as pseudo sugars. They are having good qualities such as sweet in taste, suitable for diabetes people and no tooth decay and utilized in many aspects food, pharmacy, cosmetics and chemical engineering etc. Sorbitol ((2S,3R,4R,5R)-hexane-1,2,3,4,5,6-hexol) and mannitol ((2R,3R,4R,5R)-hexane-1,2,3,4,5,6-

hexol) are important sugar alcohols [3]. These pseudo sugars are found in fruits and their importance revealed in the field of medical sciences [4].

In this paper, the physical parameters are calculated from the densities and viscosities obtained experimentally. Apparent molar volume, partial molar volume, Jone-Dole constant A and B are determined for sorbitol and mannitol sugar alcohols at various concentration at 298 K.

II. METHODS AND MATERIAL

Sorbitol and Mannitol used for experimental work were AR grade (purity $\geq 99\%$), purchased from Loba Chemie. Double distilled water was used for the experimental purpose. The aqueous solutions of solutes at various concentration were prepared using electronic weighing balance (Model-AJO20 aiwa) with accuracy of ± 0.1 mg.