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ENGLISH TITLES

CHEMISTRY

A study on the effect of 2-Amino-2-methyl-1-propanol, as an oxygen scavenger, on the corrosion of boiler steel pipes

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Abstract

The corrosion of low carbon steel tubes in soft-water had been investigated. The purpose of this investigation was to determine the change produced in corrosion behavior of carbon steel in the absence and presence of 2-amino-2-methyl-1-propanol $C_3H_{11}NO$ as oxygen scavenger. The used concentrations of oxygen scavenger were among (20 - 60) ppm in that soft-water. Experiments were done at temperatures (100 - 150) °C and pressures (3 - 9) × 101.3 kN/m² in cylinder autoclave, with 7.4 ppm dissolved oxygen in used water. The corrosion rate measurement has been performed by weight loss technique. Finally, we noted that the corrosion rate of low carbon steel increases with the increase of temperature or pressure of saturated steam, but it is important that using amine gives best results in decreasing corrosion rate on boiler steel pipes and decreases dissolved oxygen to 3.3 ppm.

Key words: Oxygen Scavenger, $C_3H_{11}NO$, Corrosion Behavior, Boile

ENGINEERING

Algorithm and programme for mechanical design of line supports

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Abstract

The mechanical design of various line supports is investigated for different locations of conductors on them , such as triangular or horizontal configuration for the range of voltages from 0.4 kv to 400 kv. For this purpose the computer algorithm and programmes are developed. For different constructions of line supports, the basic dimensions and height of the line support, with pin or suspension insulator, with or without ground wire , are determined. For all these calculations , the clearances at various operating conditions (atmospheric overvoltages, switching overvoltages and working

voltage) have been taken into consideration. At the same time, care is taken to include the dynamic effects of weather conditions (vibration, galloping, dancing and sleet jump) in the calculation of these clearances.

The developed programmes give an optimum solution of the above mentioned problems. The elaborated programmes are written in FORTRAN – 90 and are adopted for personal computer.

Key words : Line support , phase conductors , ground wires , span , sag , clearances ,insulators , vibrations , over voltages.

Query of individual entities with Naive Bayesian Model

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Abstract

Searching for information about individual entities such as persons, locations, events, is an important activity in Internet search today, and is in its core a very semantic-oriented task. Several ways for accessing, such information exist but for locating entity-specific information, search engines are the most commonly used approach. In this context, keyword queries are the primary means of retrieving information about a specific entity. It is believed that an important first step of performing such a task is to understand what type of entity the user is looking for. This process is called Entity Type Disambiguation. This paper presents a Naive Bayesian Model for entity type disambiguation that explores assumption that an entity type can be inferred from the attributes that a user specifies in a search query. The model has been applied to queries provided by a large sample of participants in an experiment performing an entity search task. The beneficial impact of this approach for the development of new search systems is discussed.

Key words: Entity attributes, Search Engine, Semantic Web , Ontology languages

ENVIRONMENT

Studies on heavy metals in some economic fish of the Red Sea and the Gulf of Aden, Yemen

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Abstract

Level of heavy metals (Fe,Zn, Cu, Pb, Ni and Cd) in four species of fish; mainly, *Pomadasys argenteus*, *Aprion virescens*, *Valamugil sehli*, *Epinephelus areolatus*, *Thunnus tonggol*, were studied in the Red Sea of Yemen and the Gulf of Aden.

The results show that the variations within the muscle tissues of fish were mainly attributed to the geochemical nature of beach deposits rather than anthropogenic input. Thus, it was concluded that the investigated heavy metals do not present environmental hazards for the present time. Cd, Ni, Pb are harmful and carcinogenic.

Key words: Heavy metals, atomic Absorption, Red Sea, Gulf of Aden, Fish.

MATHEMATICS

Existence theorem for nonlinear singular integral equations with shift

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Abstract

In this paper, a class of nonlinear singular integral equations with shift preserving orientation has been investigated by means of Schauder's fixed-point theorem in the generalized Holder space $H_{\varphi,m}(\Gamma)$.

Key words: Nonlinear singular integral equations, Carleman shift, Schauder fixed point theorem.

On the existence and uniqueness of Holder solutions of nonlinear singular integral equations with Carleman Shift

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Abstract

The present paper is concerned with the applicability of the generalized Kantorovich majorization principle to a class of nonlinear singular integral equations with Carleman shift. The abstract results are illustrated in the generalized Holder space.

Keywords: AMS 45G50, Nonlinear singular integral equations, Kantorovich majorization principle, Carleman shift.

On U-Birecurrent Finsler Space

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Abstract

The normal projective Finsler connection coefficients Π_{kh}^i have been defined by Yano [6]. The components of the curvature tensor U_{jkh}^i with respect to normal projective connection coefficients have also been discussed . Pande and Tiwari [2] introduced the second order recurrence of the curvature tensor U_{jkh}^i (hv - curvature tensor) in Finsler space, with respect to Cartan's connection .

Qasem [4] discussed the recurrence of the curvature tensor U_{jkh}^i in Finsler space with respect to Berwald's connection, and denoted such space by UR - Finsler space .

The purpose of the present paper is to introduce the birecurrence of the curvature tensor in Finsler space, with respect to Berwald's connection . Such space in which the curvature tensor U_{jkh}^i is birecurrent is denoted by UBR – Fn, . Different results have been obtained in this space and certain properties of such space have been searched out . We have discussed the recurrence curvature

tensor field a_{lm} of second order and deal with its properties of an UBR – Fn, . Finally , we have also discussed the relation of this space with a space in which

Douglas curvature tensor D_{jkh}^i is birecurrent, and obtained the necessary

condition for Finsler space to be UBR – Fn,, when Douglas curvature tensor and Ricci tensor U_{jk} are birecurrent .

Key words : Birecurrent Finsler Space, Second Order Recurrent , Douglas Birecurrent Tensor

MEDICINE

End-Stage Renal Disease (ESRD) among patients admitted to Al-Gamhoria Teaching Hospital: 1999-2002

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- 3. Department of General Surgery, Faculty of Medicine, Aden University**

Abstract

This retrospective study characterizes the frequency of ESRD according to years, sex, age, governorates and the most causes of ESRD. Records of 277 patients (172 males, 105 females) with ESRD admitted to Al-Gamhoria Teaching Hospital in the period from 1999-2002 were reviewed. The male to female ratio was 1.6:1 and the mean age of patients at the time of diagnosis was 45.2 ± 16.7 years.

The frequency of ESRD cases was increased by years, ranging between 20.2% in 1999 and 30.7% in 2002. Most of the cases were from Aden, Abyan and Lahj governorates. 70.8% of patients were of the age between 40 to ≥ 60 years.

The most common causes of ESRD were of unknown primary etiology 77(27.8%), GN 62 (22.4%), obstructive uropathy 40 (14.4%), hypertensive renal disease, 34 (12.3%) and diabetic nephropathy 27 (9.8%).

56 (90.4%) GN cases were unproved histologically and 6 (9.6%) of GN cases were proved histological abroad.

The study attempts to highlight the frequency and the most common causes of ESRD. Further studies have to be carried out to find out the incidence in the whole governorate and the causes of ESRD and initiate preventive measures.

Key words: End-Stage Renal Disease, frequency, causes, Aden

Presentation and outcome of patients with abdominal wall hernias

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Abstract

The objective of this study is to analyze different aspects of hernias in patients admitted to the Surgical Department of Al-Gamhouria Teaching Hospital, during the 10-year period of January 1999 to December 2008. The medical records of all patients, who were admitted during the mentioned period, were studied retrospectively. Over these 10 years, 821 patients of different ages (ranging from 23 days to 78 years) and different sexes (male to female ratio of 2.67 : 1) with different types and conditions of hernias, were operated. Incidences of incisional hernias reveal the ignorance and negligence of basic general surgical principles of suture material selection in closure of post-operative abdominal wall wounds, especially in obstetric and gynecology practice. Importance of proper medical documentation and administrative reorganization of the surgical activity is emphasized. A prospective study is highly recommended.

Key words : Hernia, Suture material, Abdominal wall.

Outcome of surgery for Pilonidal Sinus: Rhomboid excision and Limberg flap versus Deep Suturing

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Abstract

The aim of this clinical trial is to assess two techniques of primary closure after excision of pilonidal sinus by comparing and analyzing the outcome of rhomboid excision and Limberg flap procedure with deep suturing technique, in terms of recovery time, complications and recurrence.

A prospective and randomized study was performed at Aden Teaching Hospital between January 2006 and December 2008. Thirty-five patients with limited, chronic sacrococcygeal pilonidal disease of the natal cleft were randomized into two groups namely; Group (A) and Group (B). Group (A) patients (n=18) underwent rhomboid excision and Limberg flap closure for sinus. Patients from Group (B) (n=17) underwent wide excision of the Pilonidal sinus tract and deep suturing. Patients having acute disease, those who had a previous operation for this pathology or having more than four sinuses, were excluded from the study. Informed consent was obtained from all the patients.

All patients in group (A) healed their wounds primarily, compared with 14 in group (B) (82%). (P = 0.02). Three patient's wounds broke down as a result of haematoma and infection (18%). The mean hospital stay for the rhomboid flap technique was 3.6 ± 1.4 days, compared with 4 ± 1.1 days after deep suturing, and the mean follow up for both groups was 18 months. The Limberg flap group returned to work a mean of nine days earlier than the deep suturing group (23 days). No recurrence has been identified yet in the Limberg flap group, while 2 recurrences have developed in the deep suturing group (9%).

The Rhomboid excision and Limberg flap closure is an easy and effective technique. Low complication and recurrence rates, shorter hospital stay; and quick healing time may outweigh the disadvantages related to unfavorable cosmetic appearance. On the other hand, primary closure with deep stitch has the merit of simplicity and gives a good aesthetic result.

Key words: natal cleft sinus, local advancement flap, deep stitch.

Unusual clinical manifestation of prostatic cancer.

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Abstract

To present unusual clinical manifestations of advanced bone metastatic prostate cancer in a 41 year old patient who complained of inability to extend his legs and inability to walk. Metastatic osteolytic lesion of prostate cancer has resulted in complete destruction of the symphysis pubis heads of femoral bones with loss of femoral bones connection to the pubic ramie bones and bladder descending. The delay in physician's diagnosis and neglected patient is the leading cause of significant bones loss and these unusual clinical manifestations.

Key words: unusual clinical manifestations.

PHARMACY

Antimicrobial resistance in patients with urinary tract infection in Al-Mukalla city, Yemen

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Abstract

Urinary tract infection (UTI) is an aggravating and common problem in human during their life and may give more complications.

The objective of this study is to project antimicrobial resistance in patients with UTI as a wide problem among cases referred to the National Center of Public Health Laboratories (NCPHL) in Ibn-Sina Central Teaching Hospital in Al-Mukalla, Hadhramout Governorate in Yemen.

From 290 cases referred from Ibn-Sina Central Teaching Hospital outpatients, urine samples were tested and reported in the NCPHL during the period from January 2003 to December 2006. Data were obtained from the records of the center (for urine examination, culture and sensitivity test).

The results show that among the 290 cases, 147(50.7%) were suffering from UTI, E. coli, an organism typical of normal intestinal flora, was the most frequently isolated species 52 (35.4%). E. coli showed high resistance against quinolones (84.6%) and penicillin G (78.8%), while no resistance against macrolides.

We can Conclude that Microbial resistant strains against antibiotics are increasing, and this is may be due to the abuse of antibiotics.

Key words: Urinary tract infection (UTI), Antibiotics, Antimicrobial resistance.

Preparation of new dental gel formulation for topical treatment containing metronidazole benzoate with neomycin sulfate and local anesthetic.

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Abstract

The present marketed pharmaceutical dental gel formulation for topical application in the form of the colloid gel that contains metronidazole benzoate (MET) is used therapeutically. To improve the effectiveness, we prepared a new formula that contains neomycin sulfate (NEO) and a local anesthetic, gelled with a hydrophilic polymer, an aqueous medium, a chelating agent, a sweetening agent, a flavouring agent, a preservative agent and a pH modifier, to make the product compatible with pH of mouth and saliva.

Metronidazole benzoate is present in an amount from about 0.5 – 2.5%, based on the total weight of the composition, and neomycin sulfate is about 0.2 – 1.5% . Benzocaine is used as a local anesthetic present in an amount of about 0.5 – 5.0% of the total weight of the composition.

The present invention of my work is related to a new preparation of pharmaceutical dental product formulation made by adding a neomycin sulfate to metronidazole benzoate for topical treatment of gingivitis and periodontitis, and improve the MET effect.

For the investigation of the activity of this new formula bacterial culture media applications (photographs-digital) were used, and was tested topically on mucus membrane of the patient (photomicroscope graphs –x100). In addition, the Physico-chemical stability during storage, and other investigations of the surface area and the particles size-disperse distribution of new gel types were also done.

Key words: MET, NEO, Benzocaine, Additives, Bacterial media culture.

Kinetic study of oxidation of glutamic acid by ninhydrin in aqueous acidic medium

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Abstract

The kinetics and mechanism of oxidation of glutamic acid(GA) by ninhydrin(NH) reagent have been studied in aqueous acidic buffer solution (pH 5) at a temperature of 60°C under pseudo rate condition at different concentrations of glutamic acid. Ninhydrin has been investigated and the reaction is followed by spectrophotometer at wavelength 570 nm. The reaction results is first order with respect to ninhydrin, and is less than one with respect to glutamic acid .The addition of sodium perchlorate did not affect the rate and direction of reaction, but the reaction rate increased by the addition of silver nitrate. A possible mechanism has been proposed to account for the experimental results.

The rate of oxidation increases with the increase of temperature, and activation parameters, like Activation energy (ΔE)*, Enthalpy (ΔH)*, Entropy (ΔS)* and Gibb's energy (ΔG)* , has been determined.

Key words: kinetics ,oxidation , glutamic acid ,ninhydrin, acidic mediu

PHYSICS

Complex dielectric constant and complex conductivity of Al-Ni ferrous metals

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Abstract

A series of polycrystalline spinel ferrites, with the composition $Al_{0.51-0.51x}Ni_xFe_{2.16-0.16x}O_4$ (where $x= 0.2, 0.4, 0.6, 0.8$ and 1), were prepared by the well known double sintering process. The AC conductivity, dielectric constant and loss tangent are investigated by using the complex impedance technique, at room temperature and above room temperature. When dielectric relaxation takes place, Cole-Cole plot of ϵ'' and ϵ' gives useful information for the relaxation processes that occur in the specimens. It can be seen that at each temperature, it displayed a semicircular arc, from which the relaxation time τ , has been calculated and has been plotted as a function of temperature to calculate the activation energy for each sample.

Key words: Spinel ferrite of Al-Ni, Col-Col plot dielectric constant, dielectric relaxation and relaxation time.

Crystal preparation and study of some physical properties of epitaxial growth of InSb Films on Si(111) Wafer

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Abstract

The preparation procedure of a high purity InSb single crystal by using direct solidification method is reported. The dimensions of the crystal are 4cm length and 1.1cm diameter. The plane (022) is the preferred direction of crystal growth. Sequence thermal evaporation under vacuum is used to grow InSb films on Si (111) substrate. Antimony (Sb) film of thickness $\sim 0.12 \mu\text{m}$ is first evaporated on Si(111) wafer at substrate temperature (T_s) ~ 150 oC then InSb polycrystalline compound evaporated in sequence times on the same Si(111) wafer with gradient in substrate temperature (300 – 330) oC. Films with thickness $3 \mu\text{m}$ were obtained. The structure of the grown InSb crystal and thin films are studied by X-ray diffraction (XRD) technique. The optical absorption spectra of deposited InSb films have been carried out at room temperature in the wavelength range (2.5-10) μm . The onset of absorption fits a direct electronic transition formula in these films and the direct optical band gap (E_g) is 0.17eV. The value of the width of the tails of localized states in the forbidden gap, the Urbach energy, is 0.0073eV.

Key words: Crystal growth, vacuum deposition, InSb films, optical gap, Urbach energy.

Effect of CO₂ - Laser on time evolution of the electron velocity distributions in two directions

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Abstract

The aim of this work is to perform numerical simulation of the propagation of a laser in a plasma, using finite – size particle with spatial grids. Our purpose here is to study the behavior of aluminum plasma under the influence of CO₂ – laser, using 1015Wcm⁻² . The electron velocity distributions in the x and y directions are studied. The results indicated that the distributions curves in the x- directions are slightly shifted towards the positive axis, but the distributions curves in the y- directions showed that, in all cases, the velocity distributions are shifted towards the negative axis.

Key words: plasma simulation, laser, plasma, laser plasma interaction

SHORT COMMUNICATIONS

MEDICINE

The effect of high concentration of halothane on cardiac rhythm during laparoscopy for short term surgical procedures

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Abstract

Surgical procedures have been improved to reduce trauma to the patient's morbidity, mortality and hospital stay and, thereby, diminish health care costs. Since about 1970, various pathological conditions have been diagnosed and treated by the use of laparoscopy.

This study shows the change in ECG in two equal groups of patients with different methods of general anesthesia (GA). The first group was the control group on which the intubation method of anesthesia, with muscle relaxation, was used. The duration of the surgery for this group was 1.30 hrs ± 20 mins. For the second group, we used face mask anesthesia with concentration of halothane, 3 vol. % to achieve good relaxation without muscle relaxation. The duration of the surgery was 30 mins. ± 10 mins.

The study was carried out in Russia, at Saint Petersburg Pediatric Medical Academy in 2005.

Key words: Laparoscopy, Face-mask general anesthesia, Extra systoles.

PHARMACY

Antimicrobial activity of garlic against *Proteus mirabilis*

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Abstract

Historically, garlic (*Allium sativum*) has been found to possess many therapeutic properties. This study assesses the antibacterial potentiality. The study consisted of the evaluation of minimum inhibitory and bactericidal concentrations [(MIC), (MBC)] of garlic against four isolates of *Proteus mirabilis*. The study showed MIC ranging from 4 to 8 mg ml⁻¹ for Yemeni garlic, 2 to 4 mg ml⁻¹ for Chinese garlic, and 2 to 8 mg ml⁻¹ for Indian garlic. In Yemeni garlic, MBC was 128 mg ml⁻¹, in Chinese, it ranged from 32 to 64 mg ml⁻¹, and in Indian, it also ranged between 64 to 128 mg ml⁻¹. It was concluded that garlic has antimicrobial properties in vitro against *Proteus mirabilis*.

Key words: *Allium sativum*; antimicrobial activity; *Proteus mirabilis*, MIC.

Arabic Titles

AGRICULTURAL SCIENCES

A study on the consumption of the local Killifish *Aphanius dispar* (Ruppell) for different larval stages of *Culex pipiens* Lin.

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Abstract

This research paper aims at studying the consumption rate and time of the Killifish *Aphanius dispar* (Ruppell) released at different lengths (2.5, 3, 3.5, 4 and 4.5cm) for different larval stages of *Culex pipiens* in fresh water. The results have found that the consumption of 100 first and second larval stages of *C. pipiens*, within 24 hrs by the fish, ranges from 91-100%. The time of consumption of the 100 first larval instars of mosquito ranges from 2hrs for the fish length 4.5cm to 9hrs for the length of 2.5cm, in a container of 25cm

diameter. As far as the 4th instar of *C. pipiens*, the time of consumption for the 100 larvae ranges from 20hrs for the fish of 4.5cm long to 24hrs for the size of 2.5cm. When we doubled the size of the container to reach 50cm diameter, the percentage of consumption of the 1st instar larvae was 100% for all sizes of the fish; but as far as the 4th instar larvae it ranges from 20% for the lesser size (2.5cm long) to 28% for the bigger size (4.5cm). The consumption period for the 100 mosquito larvae at the first instar ranges from 2 hrs for the fish size of 4.5cm long to 9hrs for the fish size of 2.5cm. As far as the 4th instar is concerned, the period of consumption the 100 larvae ranged from 24hrs for the minimum length of the fish (2.5cm) to 21hrs for the maximum length (4.5cm) used. We can conclude that the killifish *A. dispar* can play an important role as a predator in reducing the number of *C. pipiens*, the vector of several diseases in Yemen, and could be used as an alternative to chemical pesticides for the Integrated Pest Management of mosquitoes, and hence protecting the environment from pollution of chemical pesticides.

Key words: *Aphanius dispar*, *Culex pipiens*, Biological control.

New records of phytophagous and predacious mite species in the Republic of Yemen

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Abstract

A survey of phytophagous and predatory mite species was conducted in three different climatic regions in the Republic of Yemen, during the period January 2006-December 2009.

Mite species were identified at the Department of Plant Protection, Faculty of Agriculture, University of Aden and confirmed at the Department of Acarology, Faculty of Agriculture, Cairo University.

The results have revealed that 37 new species were recorded for the first time in the Republic of Yemen. They belong to 14 families. As regarding to the phytophagous species, six species belong to Eriophyidae, two belong to Tetranychidae, three to Teunipalpidae, two belong to Tuckerellidae of which one was just identified to the genus state and one species belong to the family Tarsonemidae. With regard to the predacious ones; six belong to the family Phtosieidae, three to Cheyletidae, three to Acaridae of which two are considered multi feeders, three species belong to the family Asceidae, of which two are only identified to the genus level, and *Biattisoaiu tarsalis* was found to feed on eggs of the the wax moth larvae at El Kod Agricultural Station Apiary; in addition to two species belong to each of Tydeidae and Bdellaidae families, and one species belong to each of the families: Stigmaeidae, Anystidae and Camerobiidae. The species belonging to the last two families are identified to the genus level only.

Key words: Phytophagous mites, predacious mites, Yemen.

BOTANY

A study on root tips mitosis of onion (*Allium cepa* L.) and garlic (*Allium vulgare* L.)\ Alliaceae

**Saeed Salem Mohammed and Khaled Saeed Ali
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Abstract

This experimental study has been carried out at laboratory of The Biology Department- Faculty of Education/ Sabir- University of Aden.

The experiment was carried out in order to stimulate growth of roots, as well as to determine the time of mitotic division on root tip of onion and garlic bulbs. For cell dismantle, nitric acid and double staining of acetocarmine were used in this study.

The study shows that the roots of onion and garlic bulbs grow when they are incubated at low temperature (4°C) for seven days; and then exposed to room temperature for 24 hours, whereas no response was shown when they were exposed to low temperature (4°C) and planted directly in water's bed. In addition, the study confirms that the use of nitric acid at 5% concentration is the best for the cells to be dismantled and, thus, easy to be squashed. And the use of the same double staining of acetocarmine- first with the addition of iron and the second without it- gave the nucleus and chromosomes a pink-reddish color and the cytoplasm a light- pink one. Finally, the study proves an obvious result that the mitosis in both young roots happened from 8:00 a.m. to 1:00 p.m., while it is decreasing in old ones.

Key words: Mitosis, Root-tips, *Allium cepa*, *Allium vulgare*, Acetocarmine stain.