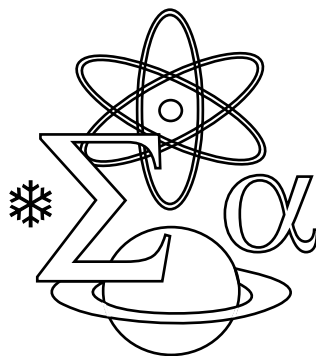


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# DISCONNECTEDNESS OF DUAL TILINGS GENERATED BY PISOT UNITS OF DEGREE 4

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## ABSTRACT

The present paper investigates the connectedness of Pisot dual tilings generated by a Pisot unit with integral minimal equation  $x^4 - ax^3 - bx^2 - cx - 1 = 0$  when  $a + c - 2\beta = 1$ . Results show that every tile is disconnected having infinitely many connected components.

# **EVALUATION OF THROUGHPUT, DROP PACKET RATE AND TIME DELAY IN FLOW AND NON-FLOW LABEL APPROACHES IN IPV6 TECHNOLOGY**

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## **ABSTRACT**

This paper provides information on the application of broadcasters characterized by flow labels and non-flow labels. A Ns-2 simulator demonstrated that each broadcaster consisting of flow label approach implemented in MPLS routing reported a better throughput (89.95%) than did those consisting of flow label (92.77%) implemented in IP routing technology. Some video stream packets between two broadcasters with dynamic numbers of router nodes were generated.

**Keywords:** MPLS technology, IP routing technology, throughput, flow-label approach, ns-2 simulator

# **DETERMINATION OF DOSE RATE AND APPLICATION OF IRRADIATION OF FOOD PRODUCTS WITH A GU-3 GAMMA IRRADIATOR**

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## **ABSTRACT**

Using wheat as a reference material, with composition and density values close to the products intended for irradiation by a GU-3 gamma irradiator, the dose distribution in the material is here reported. Calibration curves with and without zero assisted determination of the average dose rate. The average dose rate in a cylinder of diameter 100 mm and height 110 mm was calculated as 4.68 Gy/min with a calibration curve with zero, and 4.64 Gy/min without zero. The difference between the two values was very small ( $\pm 1$ ) The effects of radiation on the growth rate of pepper plants is demonstrated, and the curbing of micro-organism growth on food products (tomatoes and strawberries) is clearly shown. The benefit of a nation-wide programme of irradiating food products is suggested.

**Keyword:** dose rate, ECB dosimeters, copper wire profile, wheat, oscillatitator, shelf – life.

# HIGH PRESSURE PHASE EQUILIBRIA AND DENSITIES IN A CARBON DIOXIDE–ETHANOL SYSTEM

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## **ABSTRACT**

Densities and mutual solubility of a carbon dioxide–ethanol system at 333.15 K, 353.15 K, 413.15 K and 453.15 K, with pressure ranging from 4–14.5 MPa, are here reported. A critical density curve was constructed for the whole concentration range. Peng–Robinson, Soave–Redlich–Kwong and Dohrn–Prausnitz equations of state and the Panagiotopoulos–Reid mixing rule helped correlate the Vapour Liquid Equilibrium data for the system.

**Keywords:** high pressure, density, vapour–liquid equilibria, equation of state

# DETERMINATION OF FLUORIDE LEVELS IN BOTTLED DRINKING WATER IN ALBANIA

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## ABSTRACT

A simple and low cost technique involving ion selective electrode ISE-F<sup>-</sup> was used for determination of fluoride ion concentrations in bottled water samples. ISE-F<sup>-</sup> exhibited a relatively ideal Nernst behaviour with a high limit of detection (up to 15 ppb). The sensitivity of the method determined from calibration graph was 46.784 mV/ppm. The recommended buffer solution TISAB provided a constant background ionic strength during the measurements and adjusting of the pH solutions.

Randomly chosen from seven different suppliers in the Tirana market, the bottled water samples were characterized by a fluoride concentration ranging from 0.28–0.48 mg/l, which is lower than the recommended daily fluoride intake for humans. WHO (1995) has a recommended daily allowance of fluoride of 2 to 4 mg per day.

**Keywords:** ISE-F<sup>-</sup>, bottled drinking water, Fluoride ions, sensitivity, calibration graph

# **CHEMICAL ANALYSIS OF HYDROLATES OF *JUNIPERUS COMMUNIS***

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## **ABSTRACT**

Steam distillation is a process used in the separation of temperature-sensitive materials such as natural aromatic compounds involved in the manufacture of essential oils, such as perfumes etc. Discharged into the environment in Albania, the by-products of hydro-distillation are highly polluting, impacting the flora and fauna life. The present paper investigates the organic content in the water phase of *Juniperus communis*. The yield from recycling was investigated and its efficiency analysed and discussed.

**Keywords:** medicinal plants, GC-MS, extraction, hydrolytes, essential oils



# IDENTIFICATION OF PHARMACEUTICAL DRUGS IN SURFACE WATERS USING HPLC-UV METHODS

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## ABSTRACT

The present paper aims at verifying the presence of some of the most utilized drugs in potable and surface water samples. The HPLC-UV method was optimized for determination of these drugs by use of drinking-water Certified Reference Material (CRM) and target compounds such as amoxicillin, ampicillin, tetracycline, doxycycline, atenolol, diazepam, dexamethasone sodium phosphate, prednisolone sodium phosphate, isosorbide mononitrate. Each analyte standard solution was investigated using standard recommendations. Shimadzu HPLC-UV was employed for the analysis. A standard mixture for all analytes (0.100mg/L each) was prepared and investigated under the same conditions as for individual CRMs.

The following results were reported: i) in the matrix where the drugs were present, slight shifts in analyte retention times were observed, making them identifiable, even in each another's presence, and ii) column L<sub>21</sub> led to the required performance of tetracycline and doxycycline standard mixture, while C<sub>18</sub> led to the required performance for the others.

**Keywords:** drug, potable water, HPLC, retention time, column

# **SOME ASPECTS RELATED TO ELECTROLYTES, MEASURED BY ION-SELECTIVE ELECTRODE (ISE)**

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## **ABSTRACT**

Measurement of electrolyte levels is very important in both the biological and medical sciences. The predominant electrolytes in the body are sodium, potassium, chloride and calcium. The ion-selective electrode (ISE) method is the most appropriate of the possible analytical methods (ISE, colorimetric (End Point), flame photometry, atomic absorption spectrophotometry), as it is fast, accurate and inexpensive.

In the present investigation, one hundred patients were tested for their levels of  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$  and  $\text{Ca}^{2+}$ , as well as pH. The mean value  $\bar{x}$ , standard deviation SD, interval of normal values  $\bar{x} \pm 2 \text{ SD}$ , the Anderson-Darling (AD) test for normality and t-test were applied. Differences between men and women were detected.

**Keywords:** ion-selective electrode (ISE), sodium, potassium, chloride, calcium, interval of normal values, electrolyte meter SINO 005

# **METHOD OF HYDROCHEMICAL STUDY OF GROUNDWATER FROM ALLUVIAL WATER-BEARING LAYERS: TIRANA BASIN**

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## **ABSTRACT**

Hydrochemical study of the groundwater of the Tirana alluvial basin is here reported. Physical–chemical parameters of groundwaters, cations, anions, Total Dissolved Solid (TDS), Total Hardness (TH) and water type were analysed and elaborated. In addition, their spatial distribution was analysed. The physical-chemical composition of groundwater and the impact of natural and artificial factors were determined. For each chemical parameter, relevant maps are compiled and provided as a means to visualise the hydrochemical composition of groundwater in the Ishmi river basin.

**Keywords:** hydrochemical study, methodology, groundwater, alluvial water-bearing layer, chemical parameters, special maps, hydrochemistry

# ISOTOPIC DATING (ABSOLUTE AGE) OF GRANITOIDES OF GASHI ZONE

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## ABSTRACT

Three samples, two from the Trokuzi massive granodiorites and one from the Juniku granite outcrop, Kosovo were dated by applying the U–Pb method in zircons. The analysis was carried out in the Istem, CC 066 Laboratory of the Montpellier II University, France. Results reported two kinds of granitoid rocks: i) Juniku granite dating  $329.6 \pm 2.1$  Ma (Carbon, Mississippian, Serpukhovian), and the granodiorites of the Trokuzi massive dating  $242.2 \pm 1.5$  and  $244.5 \pm 1.5$  Ma (Middle Triassic era, Anisian age). The Geological Map of Albania, at a scale 1:200 000 illustrates the granitoides of the Trokuzi massif dating to  $J_{2-3}$ . The present results confirm the formation of the plutonic rocks in the Middle Triassic Age when volcanic rocks were typically formed. Recent geochemical and isotopic investigations report that these volcanic systems were first formed in a rifting zone that evolved into a spreading ridge. Plutonic and volcanic rocks formed under the same geodynamic conditions during the Early–Middle Triassic period characterize the Dinarides. These dates are prior to the range of the age (160–165.5 Ma) of the Jurassic ophiolite plagiogranites and microdiorites dated by the same method by Dilek *et al.*, 2008.

**Keywords:** absolute geochronology, isotopic dating, granodiorites of Trokuzi massif, Gashi area, Junik granites.

# **OBSERVATIONS OF MONTHLY VARIATIONS IN PHYSICO-CHEMICAL AND MICROBIOLOGICAL PARAMETERS OF LAKE SHKODRA AND RIVER BUNA**

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## **ABSTRACT**

Lake Shkodra is the largest lake in the Balkan Peninsula. The lake drains in the south-east into the River Buna, which flows to the Adriatic Sea. Anthropogenic pollution is the most important concern from a water management standpoint because it is the major source of water quality problems and thus subject to control. Effluent generated by the industries and livestock, etc., are sources of pollution. This paper aims at providing some assessment of water quality in terms of physicochemical and microbial content of the River Buna and along the shore of Lake Shkodra at Zogaj and Kamica and in the middle of the lake (on the Albanian side of the border). European Union and World Health Organization (WHO) recommendations were followed to address appropriate analyses. Samples were taken from the aforementioned sampling sites on a number of occasions in 2011, and parameters investigated in the Centre for Microbiological Diagnostics, University of Shkodra, Albania. The findings are that *Escherichia coli* and intestinal enterococci have a great impact on the quality of the water in the Lake Shkodra system.

**Keywords:** anthropogenic, livestock, *intestinal enterococci*, *faecal coliforms*.

# **EFFECT OF SALT CONCENTRATION ON *IN VITRO* MICROPROPAGATION OF GF-677 PEACH ROOTSTOCK (PEACH X ALMOND)**

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## **ABSTRACT**

Information on the micropropagation of stone fruit tree species is reported, specifically for the GF-677 peach rootstock. The paper aims at identifying the rooting percentage and multiplication rate on three nutrient media—MS, MS/2 and DKW—consisting of different macro- and micro-salts concentration. The most favourable nutrient medium in the propagation stage through subcultures was found to be the universal nutrient medium MS, which helps the normal growth of plants. The level of rhizogenesis was found to be 82%.

**Key words:** micropropagation, rootstock, nutrient medium, macro- and micro-salts, rhizogenesis

# ETIOLOGICAL TREND OF MAJOR TRAUMA BASED ON CONTEMPORARY STATISTICAL ASSESSMENT

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## **ABSTRACT**

This paper aims at classifying etiological factors of the major trauma group established at National Trauma Center, Military University Hospital, Tirana, and interpreting statistically the data obtained. For analysis, Pearson  $\chi^2$  and Nominal Logistic Regression were applied using SPSS.

**Keywords:** maxillofacial surgery, etiology, road traffic accidents, falls, assaults, gun injuries

**PROBABILISTIC SEISMIC HAZARD  
DEAGGREGATION AND ASSESSMENT OF  
LIQUEFACTION SUSCEPTIBILITY OF LOOSE  
SEDIMENTS. A CASE-STUDY.**

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**ABSTRACT**

Earthquake loading is one of the most important factors influencing the soil susceptibility to liquefaction. For this reason, except thorough geotechnical site characterization, the assessment of liquefaction hazard for construction sites requires a credible estimates of the ground motions caused by strong earthquakes. The most used ground motion parameter for such analysis is the peak ground acceleration (PGA). In order to use properly the acceleration values from hazard studies we present in this paper the results of the analysis called “probabilistic deaggregation of seismic hazard” which is necessary for the estimate of the relative contribution of each seismic source and size of earthquake on liquefaction-related phenomena. We started our analysis with the definition of the seismic characteristics of the site using the most recent technique called MASW and based on the scenarios defined by the



deaggregation procedure we applied two approaches for the definition of the PGA at the site selected: the first is based on the Boore et al (1997) ground motion prediction equation (GMPE), while the second is based on the standard procedure of the Eurocode 8. At the end the results of the liquefaction analysis at the Semani site are presented.

*Key words:* deaggregation of seismic hazard, liquefaction potential, mean-event, modal-event

**FIRST RECORD OF OPAH (*LAMPRIS GUTTATUS*  
BRÜNNICH, 1788) IN ALBANIAN MARINE WATERS  
(BRIEF COMMUNICATION)**

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Sciences, University of Tirana, Albania

**ABSTRACT**

In the present paper, the first record of Opah (*Lampris guttatus* Brünlich, 1788) in the sea waters of Albania is reported. The specimen was captured on 30 November, 2009, by a local fisherman, some 200 m from the shoreline nearby Radhima, in the south of Vlora Bay, southern Albania. Blasting with explosives in deep water was the cause of death of the animal. Weight, morphometric and meristic data of the specimen are in the present paper provided.

**Key words:** Opah, Radhima, Vlora Bay, Albania