

Abstracts Book

**International Congress on Health Sciences and  
Medical Technologies, Tlemcen, Algeria, 13-15  
December 2022**

**Editor: Dr Abdeldjalil Khelassi**

# ICHSMT 2022



**Abstract Book**

**International Congress on Health Sciences and  
Medical Technologies ICHSMT'22**

**13-15 December 2022, Tlemcen, Algeria**

**Editors**

**Dr Abdeldjalil Khelassi**

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# **Abstract's book of International Congress on Health Sciences and Medical Technologies ICHSMT'22**

**Editor:**

Dr Abdeldjalil KHELASSI

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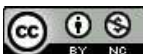
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Participants of ICHSMT'22

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## Preface

The international Congress on Health Sciences and Medical Technologies is originated in 2016. It is a successful interdisciplinary alliance, working for medical innovation and findings. It was established respectively in 2016 (at University of Tlemcen, Algeria), 2017 (at Mariott Hotel, Tlemcen, Algeria), 2018 (at CERIST, Algiers Algeria), and 2019 (at Zianides Hotel, Tlemcen, Algeria). After several delay, and for the first time, an online edition was established in 2021, due to critical situation of worldwide pandemic COVID—19. At last, The fifth edition of the congress was held between 13 and 15 December 2022, at Zianides hotel, Tlemcen, Algeria.

The congress attracted researchers from several nations and specialties as: Algeria, Germany, Iran, Switzerland, Netherland, Denmark, Malaysia, China, Portugal, Bulgaria, Pakistan, France, Morocco, Tunisia, Brazil, United Kingdom, Egypt, India, Poland Iraq, and Kingdom of Saudi Arabia. The congress author's affiliations were from several departments such as medicine, biology, physics, chemical sciences, computer science, veterinary, agronomy, environment, pharmacy, dentary surgery, electronic and mechanical engineering.

The content was selected via strong criteria applied by the members of program committee. We received 59 submissions, which were reviewed by 2-3 reviewers, and we accepted 33 presented in this book, the rate of acceptance was 55.93%.

The submission was categorized in four conferences represented by 8 sessions.

- **ICCPH'22: International Conference on Cancer and Public Health 2022**
- **ICMT'22: International Conference on Medical Technologies 2022**
- **ICPCBS'22: International Conference on Preclinical and Basic Sciences 2022**
- **ICGI'22: International conference on Genetic Items 2022**

We are so proud to acknowledge all contributors to the establishment of this congress.

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- Knowledge Kingdom Publishing
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Dr Abdeldjalil KHELASSI

The chair of ICHSMT'22

Tlemcen, Algeria, December 2022

**ICCPH'22: International Conference on  
Cancer and Public Health 2022**

## **Session1: Cancer**

## **Tumor And Redox Markers During Colorectal Cancer and correlation between levels of nitric oxide, superoxide anion, malondialdehyde and cancer antigens "CEA and CA 19-9"-A Case-Control Study In The NW Of Algeria -**

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### **Abstract**

#### **Introduction**

Colorectal cancer (CRC) ranked second in terms of incidence and mortality in Algeria, because of the number of cases increasing steadily each year. The case-control study encompassed the oxidative stress in the development of the CRC in female population of Tlemcen in the NW of Algeria. In the view of the controversial data about the role of free radicals; malondialdehyde (MDA) superoxide anion ( $O_2^{\bullet-}$ ) and nitric oxide ( $NO^\bullet$ ) in colon carcinogenesis, the aim of this study was to examine the rates of these free radicals in CRC to evaluate the oxidative stress markers and to investigate their correlation with tumor ones carcinoembryonic antigen and carbohydrate antigen 19-9 (ACE, CA19-9).

**Methods:** The study encompassed 40 patients, both sexes, with 20 cases of CRC patients, and 20 healthy controls. Markers of oxidative stress (MDA,  $O_2^{\bullet-}$ ,  $NO^\bullet$ , vitamin C, catalase and reduced glutathione) were investigated using enzymatic and spectrophotometric methods. Tumor marker concentrations were recorded from patient's medical records.

**Results:** Patients were  $55,54 \pm 13,89$  years old vs  $61,6 \pm 10,31$  years old for controls. They were characterized by stage I, II, III and IV, and grades I, II. The Body Mass Index (BMI) showed a moderate overweight in cancer female patients compared to that of controls ( $24,89 \pm 1,94$  vs  $23,06 \pm 5,95$  kg/m<sup>2</sup>). Physical activity of CRC cases was reduced compared to that of controls ( $59,00 \pm 53,30$  vs  $150,17 \pm 73,20$  METs). Plasmatic concentration of vitamin C ( $3,13 \pm 2,34$  vs  $9,40 \pm 6,83$  mg/ml), reduced glutathione ( $11,7 \pm 0,001$  vs  $19,2 \pm 0,001$  mM/L) and erythrocyte catalase activity ( $67,6 \pm 0,01$  vs  $81,3 \pm 0,01$  UI/mgHb) were relatively lower in patients compared to controls. Plasma levels of MDA ( $0,37 \pm 0,24$  vs  $0,16 \pm 0,08$   $\mu$ M/L),  $O_2^{\bullet-}$  ( $0,08 \pm 0,02$  vs  $0,06 \pm 0,01$  nM/L) and  $NO^\bullet$  ( $6,22 \pm 0,001$  vs  $1,97 \pm 0,001$  nM/L) were increasingly higher in CRC patients compared to healthy controls. The statistical study showed that  $O_2^{\bullet-}$  and  $NO^\bullet$  were positively correlated to

the carcinoembryonic antigen ACE ( $R = +0.903$  ;  $R = +0.997$ ) in female patients, however they were negatively correlated to the carbohydrate antigen CA19-9.

**Conclusion:** The obtained results showed a special affinity between some free radicals and ACE vs CA 19-9 which must be deepen. The suggested that determination of oxidative stress biomarkers in CRC could give accuracy of the information to the diagnosis and the monitoring of cases, using free radicals alone or in combination with tumor markers, about tumor proliferative, which in turn could enable individualization of therapy and the choice of proper adjuvant therapy in CRC patients.

**Key words:** Colorectal cancer – Free radicals – Antioxydants - Carbohydrate antigen (ACE), Carcino-embryonic antigen (CA19-9).

### **Anti-inflammatory and anticancer effects of extract methanolic**

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#### **Abstract**

**Objective:** To investigate the anticancer and anti-inflammatory activities of extract of a Saharan plant.

**Methods:** Metanolic extracts was evaluated for anticancer activity using Human cancer cell lines MCF-7. And evaluation of anti-inflammatory activity by the two methods: denaturation of egg albumin and denaturation of bovine albumin serum.

**Results:** Results rapported that met extract induce significative inhibition of MCF-7 cell viability at 50 µg/mL. The results of the anti-inflammatory activity indicate that the extract has a very strong inhibition. This inhibition is stronger than diclofenac which has been used as a reference anti-inflammatory. with The half-maximal inhibitory concentration (IC50) corresponding to (27.1 µg/ml)

**Conclusions:** The findings of this study indicate that this plant has a strong anti-inflammatory and anticancer potential, which justifies its use in folk medicine for treatment of carcinogenic diseases. Since this species is poorly investigated, further refined studies on it pure secondary metabolites are needed and very important, in the perspective to identify new anticancer and anti-inflammatory molecules from this endemic plant.

**Keywords:** MCF-7, anti-inflammatory activity, anticancer activity.

## Long survival of a patient with stage III lung cancer

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### Case report:

We report the case of a 82 years old patient treated in the departement of medical oncology of Sidi Bel Abbes for a IIIC lung cancer since 2015. He had hemoptysis, cough, and difficulty in breathing. A CT scan revealed a lung mass measuring 8 cm. The biopsy revealed a squamous cell carcinoma classified stage IIIC.

He received 3 months of chemotherapy carboplatine-paclitaxel regimen followed by radiotherapy. There was a good response to treatment.

After 8 months, the tumor has progressed, we resumed chemotherapy, he received 5 cycles of carboplatine gemcitabine. He had neutropenia and thrombocytopenia. The radiological and clinical evaluation showed a favorable response and the patient was followed up.

After 10 months, a CT scan showed a progressed tumor. The patient received 1 cycle of chemotherapy, but the tolerance was very bad with a deterioration of the general state and medullar aplasia. We decided to stop the chemotherapy. Since that (3 years), the patient took herbal medicine. The tumor is currently 7cm with no symptoms and the patient is in excellent general condition.

Chemotherapy usually contributes to reducing or stabilizing tumours, but sometimes it makes deterioration in general condition, therapeutic abstention can preserve the quality of life.

**Key words:** lung, cancer, herbal medicine

## Retrospective analysis of upper aerodigestive tract cancers: Tlemcen between 2012-2016

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**Purpose** Squamous cell carcinoma (SCC) of the head and neck encompasses a heterogeneous group of malignant tumors originating from the epithelia of the upper aerodigestive tract (UAT), which includes tumors of the oral cavity, lips, pharynx, and larynx. With nearly 745,000 new cases and more than 360,000 deaths per year worldwide in 2020, these cancers are ranked sixth in terms of incidence. Traditionally, the majority of these cancers were linked to alcohol and tobacco, a new risk factor has been highlighted in the particular case of oropharyngeal cancers: the human papillomavirus (HPV), mainly HPV16 and 18. The aim of this work is to carry out a retrospective epidemiological study on upper aerodigestive tract cancer in the wilaya of Tlemcen (West Algeria) over a period of 5 years (2012–2016).

**Methods** The data set was provided by the cancer registry of the Tlemcen wilaya. The statistical analysis was performed using software SPSS.23 and Microsoft Excel® 2013.

**Result** During this period, 966 cases of upper aerodigestive tract cancers were collected, including 640 patients with cancers of the oral cavity, 212 patients with cancer of the pharynx and 114 patients with cancer of the larynx. the age group from 60 to 69 years old was the most representative with 29.40%. UAT cancers were more common in males with a percentage of 75% versus 25% in females. These cancers ranked in 10th rank of the ten most answered cancers in the wilaya.

**Conclusion** In 2020, Algeria recorded 2671 new cases and 1558 deaths by UAT cancers whose main cause of occurrence is poorly understood, which calls for epidemiological studies with an exploration of non-virological (tobacco, alcohol ...) or virological (HPV, EBV) risk factors to better understand the etiology of these cancers and to propose health actions.

**Key words:** cancer, SCC, UAT, HPV, RT-PCR.

## Predictive values of peripheral blood inflammatory scores and the outcome of patients with breast cancer treated in the anticancer center of Batna.

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### Background

Breast cancer is one of the most common female malignancies. The ratios, neutrophillymphocytes (NLR), platelet-lymphocytes (PLR), and lymphocyte-monocytes (LMR) may reflect the inflammatory status of many malignant tumors and their values can be predictors of the progression and outcome of breast cancer patients.

### Method

In order to verify the prognostic impact of these inflammatory scores on overall survival (OS), disease-free survival (DFS), and some key clinicopathological parameters, we retrospectively analyzed data from 134 breast cancer patients followed and treated at the Anti-Cancer Center of Batna (CAC). The patients were divided into two groups according to the optimal cut-off values of NLR, LMR and PLR obtained from ROC curves. The association between NLR, LMR, PLR and demographic, clinicopathological characteristics was analyzed by  $\chi^2$  test and the effect of these ratios on OS, and DFS was analyzed by Kaplan-Meier curve and  $\chi^2$  test.

### Results

Our results showed that the mean age of the patients was  $48.89 \pm 1.01$  years, the optimal cutoff values of MRL, PLR, and NLR were 2.60, 4.70, and 114.51, respectively. We demonstrated that there was no statistically significant difference regarding general and clinicopathologic characteristics between patients with high and low MRL and NLR levels ( $P > 0.05$ ). On the other hand, our results revealed that PLR was statistically associated with clinical TNM classification stage T ( $P = 0.004$ ) and with the presence of the biomarker Ki 67 ( $p = 0.30$ ). Survival analysis using the Kaplan-Meier curve showed that PLR was significantly related to OS and DFS ( $p = 0.025$ ), NLR was only related to DFS ( $p = 0.014$ ), LMR had no impact on OS or DFS ( $P > 0.05$ ). Our study thus demonstrated that among the three ratios studied, the PLR can be considered as a useful marker in the prognosis of breast cancer, high PLR values (higher than 114.51) can be an indicator of poor prognosis in women with breast cancer in our population.

**Keywords:** Breast cancer, Prognosis, Neutrophil-Lymphocyte Ratio (NLR), Platelet-Lymphocyte Ratio (PLR), Lymphocyte Ratio (LMR), Lymphocyte Ratio (LYM).

## Colorectal Cancer in individuals with Familial Adenomatous Polyposis and Attenuated Familial Adenomatous Polyposis, based on the Batna Cancer Center Registry

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### Abstract

**Background:** The main adenomatous polyposis syndromes (Familial adenomatous polyposis FAP and attenuated familial adenomatous polyposis AFAP) are autosomal disorders (dominant for FAP and recessive for AFAP)-which can develop into cancer in early adulthood (penetrance is close to 100%). They are the result of germline mutations in the adenomatous polyposis coli (*APC*) and the *MUTYH* genes, respectively. The aim of this study was to assess the clinical, endoscopic and anatomopathological information of colorectal cancer cases associated with FAP or AFAP of patients treated in Batna Cancer Center.

**Method:** In a census-based cross-sectional study, colorectal cancer cases associated with FAP or AFAP were selected (between 2019 and 2021) from Batna Cancer Center Registry a government-owned establishment, that contributes to the medical coverage of the South-Eastern region of the country. Clinical, endoscopic and anatomopathological information were collected and analysed using computer tools.

**Result and conclusion:** From 2019 to 2021, 372 cases of unrelated probands with colorectal cancer were assessed, of whom 25 (6,72%) were associated with FAP or AFAP. 17 of them (68%) were males and 08 (32%) were females. The median age was 43 [15, 76] years. 13 patients (52%) were diagnosed with FAP and 12 patients (42%) with AFAP. Only 09 of them (36%) presented a family history of FAP or AFAP. A total of 04 (16%) of all screened colorectal cancer cases were the result of family screening. Seven cancers (28%) were right-sided including the transverse colon, 07 (28%) were left-sided, and 11 (44%) were rectal. Regarding the anatomopathological reports, adenocarcinoma was the dominant histological type and the stage I (T2N0Mx) was the most detected stage. According to our data, only one patient presented an extracolonic manifestation and 07 patients (28%) were diagnosed with metastatic colorectal carcinoma.

**Keywords:** Familial adenomatous polyposis, attenuated familial adenomatous polyposis, colorectal cancer.

## **Session2: COVID-19**

## Impact of Covid-19 on patients with chronic disease

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**Background :** Covid-19 infection is spreading rapidly around the world causing a pandemic. This infection can cause simple respiratory symptoms to severe and even fatal pneumonia. The presence of risk factors such as chronic diseases increases the severity of the infection. The aim of our study is to know the impact of Covid-19 on patients with chronic diseases.

**Method :** The present study is descriptive, using an online questionnaire. This survey was conducted among 165 patients, the patients considered were all people with chronic diseases and with an age higher than 18 years.

**Results :** Of the 92 patients with chronic diseases, hypertensive (22.2%), thyroid (15.6%), type 2 diabetic (8.4%) and type 1 diabetic (5.1%) patients seemed to be the most affected by Covid-19. Most of these patients maintained regular follow-up of their chronic disease during the pandemic. Of all infected patients, 16 (17.4%) patients required hospitalization while 14 (15.2%) patients were subjected to oxygen therapy; these complications were noted mainly in patients with arterial hypertension and type (1) and (2) diabetes. Modification of treatment was noted in 25% of patients during the infection and 22.8% after the infection. In addition, 81.4% of the patients showed stabilization of their chronic disease against 18.6% showing disruption of it. A total of 8.7% patients developed new chronic diseases such as: diabetes, renal failure, anemia, blood circulation problems, stress, heart rhythm disorders, depression and anxiety.

**Conclusion:** the infection of Covid-19 had an important impact during the infection where it was noted a modification of the frequency of follow-up of the diseases during the confinement but also a modification of the treatment and the appearance of new diseases

**Keywords:** infection, Covid-19, chronic diseases.

## Secondary Blood Stream and Urinary Tract Infections in COVID-19 Patients

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### Abstract

**Background:** There is a long history of bacterial secondary infection with respiratory viral epidemics. Patients with SARS COV2 infection may have bacterial and fungal super infections including pneumonia or bacteremia which increase disease mortality.

**Objectives:** The aim of this study was to determine the (frequency) occurrence and causative microorganisms of bacteraemia and urinary tract infection (UTI) in COVID-19 patients.

**Methods:** This study was performed at the Covid 19 unit in Yessaad Khaled hospital Mascara Algeria. 35 patients admitted with COVID-19 between 2th February 2022 and 5th March 2022 were included in this study. We assessed bacterial secondary infections identified in blood culture and urine samples. We considered secondary infections occurring 48 hours after hospital admission until death or discharge. Samples were cultured with the relevant media (nutritive, differential and/or selective), the phenotypic detection was done using MALDI-TOF MS.

**Results:** Among 35 patients, a secondary bloodstream infection was diagnosed in 1 patients (2%), although 21.48% of the studied patients have UTI. Gram-positive bacteria were the most prevalent microorganism specifically staphylococci.

**Conclusions:** Patients hospitalized with COVID-19 had a high incidence of secondary urinary tract infection but not blood stream infections.

**Key word :** Covid 19, bacteremia, urinary tract, infection

## **Determination of biochemical parameters in pregnant women who have recovered from Covid-19**

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### **Background**

COVID-19 is an infection caused by the severe acute respiratory syndrome virus (SARS CoV 2), responsible for a global health crisis. The aim of this study was to determine the effects of COVID-19 on the metabolism of pregnant women by measuring some biochemical parameters.

### **Methods**

The present study was a case-control study carried on 61 women divided into three populations; 20 healthy non-pregnant women, 20 healthy pregnant women and 21 pregnant women recovered from COVID-19.

### **Results**

The results of this work showed a significant decrease in body mass index (BMI) in the recovered group from COVID-19 compared to the pregnant control group ( $P < 0.05$ ). There was also a significant increase in glycaemia values in the pregnant control group and the recovered group from COVID-19 compared to non-pregnant controls ( $P < 0.05$ ). By comparing the recovered population from COVID-19 to the non-pregnant control population, there was a very significant increase in total cholesterol and a significant increase in triglycerides ( $p < 0.01$ ). And comparing the recovered group from COVID-19 to the pregnant control group, authors observed a highly significant increase in total cholesterol and triglycerides ( $p < 0.001$ ).

### **Conclusion**

The results of the present study confirmed the persistence of some metabolic disturbances in pregnant women even after recovery.

**Keywords:** COVID-19, Omicron, pregnancy, total cholesterol, TGO, TGP, recovery.

### **Session3: Infections**

## **The effect of *Negilla sativa* on biofilm formation of *Staphylococcus aureus* isolated from medical devices at the university hospital of Tlemcen**

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### **Abstract**

*Staphylococcus aureus* is a gram-positive bacterium and one of the leading causes of healthcare-associated infections. It is caused by chronic and acute infections that are due to its ability to adhere to the surfaces of medical devices and form a biofilm.

Biofilm is a heterogeneous dynamic polymicrobial community that adheres to abiotic or biotic surfaces. The aim of this work is to study the formation of the biofilm by *S. aureus* isolated endotracheal probes by different techniques then test the effect of Nigel oil on anti biofilm activity and a preformed biofilm. Over a period of 2 months, 16 strains of *S. aureus* were isolated from endotracheal tubes collected from 50 patients hospitalized in the intensive care unit CHU Tlemcen. According to the 2 techniques studied (TCP without supplement and with supplement of sugar, RCA) the strains of *S. aureus* are formers of the biofilm and producers of slime. The oil of Nigel tested, showed a very good activity on the *S. aureus* in different concentrations (10%, 20%, 30%, 40%, 50%). This proves their ability to treat medical devices and acts as an antibacterial agent.

**Key words:** biofilm, *Staphylococcus aureus*, endotracheal tube, oil nigella

## Biofilm formation in clinical isolates of *Proteus mirabilis* and its relationship with multidrug resistance

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### Abstract

**Purpose:** *Proteus mirabilis* is among the most common opportunistic pathogens involved in infectious pathology. To check biofilm formation by *Proteus mirabilis* clinical isolates and show their susceptibility to different antibiotics and investigate a possible link between establishment of biofilm and multidrug resistance.

**Methods:** This study was performed on clinical samples collected from patients hospitalized in the intensive care unit of the university hospital of Tlemcen (Algeria). *Proteus mirabilis* strains isolated from different samples are purified and then identified by standard microbiological methods. Their susceptibilities to 12 antibiotics of different classes were determined by disc diffusion method according to Clinical and Laboratory Standards Institute guidelines. The ability to produce biofilm was investigated using the standard microtiter plate method.

**Results:** The results obtained made it possible to demonstrate a resistance of all strains to the  $\beta$ -lactams tested, tobramycin and ciprofloxacin. Only two strains had resistance to the association trimethoprim / sulfamethoxazole. The intermediate resistance observed to imipenem was confirmed by the evaluation of the levels of CMI (2 to 4  $\mu$ g/ml) to this antibiotic. The  $\beta$ -lactams resistance phenotypes observed were the expression of a cephalosporinase alone or associated with that of an extended spectrum  $\beta$ -lactamase. Isolated *Proteus mirabilis* have the ability to form biofilms and are assigned to the group of high biofilm producers.

**Conclusions:** Since most of the multidrug resistant strains were highly biofilm forming, it seems necessary to provide continuous monitoring and determination of antibiotic susceptibility of clinical *Proteus mirabilis*. This would help to select the most appropriate antibiotic for treatment.

**Keywords:** *Proteus mirabilis*, Biofilm, Antibiotics, Multidrug resistance.

## **ICMT'22: International Conference on Medical Technologies 2022**

## **Session 1 Emotions recognition**

## Categorization of Emotion Causes

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### Abstract:

**Background:** Emotions come in all shapes and forms. Some of them can be external, visible, and clearly comprehensible, while others can seemingly be coming out of thin air. Knowing what causes an emotion is crucial for better therapy and mental health. Therefore, in this manuscript, we address the problem of emotions causality.

**Methods:** We propose a comparison of three traditional clustering models: Gaussian mixture model, HDBSCAN, and fuzzy c-means, to categorize each emotion described in the DEAP database. It contains over 1700 points, and has no prior label as to which type of stressor the subject's emotion is generated from. This labelling task has been conducted by a psychiatrist.

### Results

The fuzzy c-means yields the highest results, with an accuracy of 57.13%, followed by the Gaussian mixture model at 39.49% and the HDBSCAN method with only 18.86%. Another score computed is the mutual information score which shows how homogenous the clusters are for each model.

### Conclusion

The data from DEAP is very heterogeneous and its density is stable, which may indicate that classification would be the better option, in terms of accuracy and homogeneity of the clusters.

**Keywords:** Emotions, Causality, Psychiatry, Artificial Intelligence.

## Prediction of GSR Emotional Attributes based on SVR and PLS Regression Models

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### Abstract:

**Background:** The prediction of the exact value of emotional attributes is a crucial step in the area of sentiment analysis. Several approaches in the literature have been investigated in this predictive task, however, their prediction power depends on the nature of the data at hand. In other words, it is difficult to disclose a-priori which prediction method fits the data seamlessly.

**Method:** We have investigated the performance of two state-of-the-arts regression models: (i) Partial Least Square Regression (PLSR) and (ii) Support Vector Regression (SVR) for predicting four emotional attributes, namely, arousal, valence, dominance and liking. The Partial Least Squares regression is a technique that reduces the variables, used to predict, to a smaller set of predictors. These predictors are then used to perform a regression. As in classification, support vector regression is characterized by the utilization of kernels, sparse solutions, and Vapnik-Chervonenkis control of the margin as well as the number of support vectors. Although less popular than its classification counterpart, SVR is well established in the machine learning community. It has been proven to be an effective method in the case of real-value function estimation. As a supervised-learning approach, this method train is based on a symmetrical loss function during training, which equally penalizes high and low misestimates.

The Galvanic Skin Response data extracted from DEAP dataset are used to conduct this study.

**Results and conclusion:** Performance scores are presented for both models. The results obtained demonstrate the slight superiority of SVR over PLSR for predicting GSR attributes. The SVR model fits perfectly the electrical signals distribution generated from human skins. However, optimization and implementation of PLSR is a way faster and easier than SVR. Therefore, PLSR is a better choice in this predictive task.

**Keywords:** GSR, Regression Models, DEAP Dataset, PLS, SVR.

## Semi-Supervised Classification of Emotional States based on EEG Signals

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### Abstract:

#### Background

Classification of emotions is a crucial step for stress level evaluation. For example, a higher level of stress at a point in time may increase negative emotions at the next time including depression, anger and anxiety. Electroencephalography (EEG) is one of several medical analyses that allows a thorough investigation in this medical field. Several approaches in the literature have been proposed to address this issue, however, their classification performance depends on the meta-information conveyed by the data. In this manuscript, we are proposing a modified version of the co-training semi-supervised model for emotions categorization.

#### Method

Our approach combines a small amount of labeled data with a large amount of unlabeled data during the training phase. Large unlabeled data, when used jointly with a small amount of labeled data, can improve significantly the learning accuracy. However, in order to promote the attention mechanism known in cognitive science, we propose a criterion that selects the small set of data to be labeled. The EEG data extracted from DEAP dataset are used for training and testing the proposed model.

#### Results and conclusion

The modified version of the Co-training algorithm based on a semi-supervised mode of training outperformed the support vector machines supervised (SVMs) model.

**Keywords:** Modified Co-Training, Active Learning, Semi-Supervised Training, DEAP dataset, Attention Mechanism, SVMs.

## **Session2: Ophthalmology and optometry**

## Interaction between topographic parameters And DES for Algerian keratoconus patients

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### Abstract

**Purpose:** To determine the interaction between corneal topographic parameters and dry eye syndrome (DES) on Algerian patients with keratoconus.

**Methods:** fifty-seven eyes of twenty-nine patients with keratoconus were included in this study. in these 57 eyes, we compared the kc stage with the bi-but stage and meibography. we used the SIRIUS+ corneal topograph to provide elevation topographic map, NI-BUT a non-invasive and meibography we assessed in 57 KC eyes OSDI questionnaire. Patients were also subdivided into OSDI questionnaire positive and negative groups.

**Result:** we found a correlation between the stages of KC and the stages of NI-BUT; on the other hand, we did not find a correlation between the stages of KC and the STAGES of meibography

**Conclusions:** the results were not significant because the sample was not complete.

**Keywords:** corneal topography, dry eye syndrome, keratoconus.

## **Comparative study between standard methods and new approaches in the treatment of amblyopia (review and approach)**

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### **Summary**

Amblyopia is a complex multifaceted developmental pathology due to deprivation or abnormal binocular interaction. The treatment of this deficit is ensured by several methods of treatment.

Our work focuses on the successes and failures of new approaches to the treatment of amblyopia in clinical trials over the past 20 years. The first part is a literature review on patching, atropine penalization and pharmacological treatments. The second part is dedicated to perceptual learning, video games and binocular dichoptic approaches.

The amblyopia treatment was mainly based on increasing visual stimulation of the amblyopic eye by occlusion or optical penalization of the dominant eye. Furthermore, it has been established that optical treatment alone improves visual acuity and while these standard treatments can be effective, they have significant limitations. In fact, patching itself can lead to reduced binocular vision and stereopsis, in addition, recent evidence has suggested that the visual system retains some degree of neuronal plasticity well after the critical period, and clinical trials reveal the effectiveness of treatment in older children (13 to 17 years) who have not been treated before.

New approaches targeting the restoration of binocular functions, such as perceptual learning, video games and dichoptic training, reveal little improvement in visual acuity and have failed to demonstrate non-inferiority compared to standard treatments.

Significant evidence of better management of amblyopia with occlusion and penalisation was marked. Recent studies show notable results on new techniques for treating amblyopia, especially on the binocular part, although these techniques can only be a complementary treatment and do not replace patching or penalization, which are important means of conventional treatment and accelerate the recovery of visual acuity. Further advanced clinical trials of these new treatment modalities are still warranted to establish their role in the treatment of amblyopia.

**Keywords:** amblyopia, occlusion, penalization, perceptual learning, video games, dichoptic training.

## The impact of digital devices on the child's vision

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### Abstract:

Currently, electronic devices have taken an important place in our professional and personal living spaces, especially for children. With the onset of the Covid-19 pandemic and the requirement for containment, the daily overexposure of these visual defects to the screens has become increasingly evolved, attracting our attention. Refractive errors are common vision problems that affect the majority of the population and can trigger from early childhood. However neglect of these visual defects in children can cause serious visual problems.

**Background:** This study investigates the amount of time students spend on their smartphones and their patterns of digital devices usage from a refractive error perspective, and the evaluation of visual and ocular performances in front of screens.

**Methods:** First, we describe the clinical profile of refractive errors and estimate their prevalence in schools, children aged between 6 and 18 years at the ophthalmic service of EHS Canastel Oran, by developing and acquiring a thorough knowledge of screen correction by using autorefractometer under cycloplegia and biometer with the help of optometrists and ophthalmologists.

**Results:** The results expected show a refractive disorders, visual discomfort: blurred vision, headache, eye fatigue, double vision, eye surface discomfort: irritation, tingling, burning, itching and excessive accommodation and convergence.

### Conclusion:

This study represents a large sample of users of digital devices across the whole education level and the age group in which the development and progression of refractive error is most likely and therefore period during which environmental influences may cause a significant risk for the development of refractive error.

**Keywords:** screens, digital device, refractive error, near work.

### **Session3: Medical Device and Image Processing**

## Medical image watermarking for authentication, integrity, and confidentiality of data

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### Abstract

**Background:** The most common method of protecting information or maintaining the integrity and confidentiality of the owner or the patient's electronic data is to hide it in medical images; however, this can alter the medical image and change critical patient health information.

**Method:** The paper presents the watermarking technique for hiding the patient's information. The proposed method is based on the separation of the two regions of the medical image by using the region-growing segmentation algorithm and then hiding the secret information as a watermark in the non-interest region (RONI) by the least significant bit (LSB) algorithm in the spatial domain. The secret message represents the necessary patient information transformed into the binary form.

**Results:** The result of the method applied to several medical images shows that the imperceptibility and security of the watermark are better. When the medical image watermark's quality is excellent, and the necessary information about the patient's illness is not changed, the embedding data are authenticated, and all that is verified by PSNR (between 37.4341dB & 37.4341dB), SNR (between 27.4307 & 41.7069), and NC (between 0.9986 & 0.9999) values respectively.

**Conclusion:** The proposed watermarking method for medical images has a high level of security and authentication of patient information without any distortion of ROI data when transmitted over an unsecured channel, and the experimental result confirmed also the integrity and privacy of the watermark.

**Keyword:** medical image, watermarking, authentication, integrity, confidentiality

## Abnormalities Detection in Radiotherapy Service based on Machine Learning

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### Abstract:

**Background:** A computers network for abnormality detection in radiotherapy services is presented in this work. The Radiotherapy or radiation oncology is the final step used to treat cancer. Cancer treatment involves either chemotherapy, surgery, radiotherapy or other means. Services quality in radiotherapy remains a big challenge in the entire world.

**Methods:** The system used for this work consists of a set of five personal computers (PC's), one PC server, three linear accelerators (VARIAN model) and two scanner simulators (VARIAN and General Electric) located in four cure rooms. The system proposed in this manuscript is used in order to improve the services quality and increase medical care. The PC's are put in a computers network and three of them are used to control the check-list of the apparatus (linear accelerators). One special PC (the server) is used as a data server in order to store all data of the system like the check-list of the devices, the temperature and the moisture data and the physicians and patients' management. The main contribution in this field is the use of machine learning techniques like Artificial Neural Network (ANN) for avoiding fatal mistakes during the cancer treatment and some results are obtained.

**Results:** Our proposed system achieved 95 % for the overall accuracies, these warrants the efficiency of the proposed protocol for abnormalities detection.

**Conclusion:** The dispositive achieved could detect automatically the abnormalities in the treatment process. In our future work we plan to implement other machine learning techniques

**Keywords:** radiotherapy, sensors, abnormalities detection, artificial intelligence, classification, artificial neural network, expert system, client/server architecture

## An Optimized Medical Image Watermarking Approach For E-Health Applications

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### Abstract:

**Background:** Information and communication technologies are widely used in the healthcare sector in recent years which allows E-Health applications to transmit medical data, as well as their sharing and remote access by healthcare professionals. However, medical data in general, and medical images particularly, are exposed to various illegitimate attacks due to their sensitivity, necessitating appropriate security and effective protection during transmission. In this context, digital watermarking is a security technique that permits the addition of information to the medical image; this method is the most frequently utilized to ensure ownership, authenticity and integrity.

**Methods:** In this paper, we propose an optimized medical image watermarking scheme to protect the integrity of the medical image by embedding a binary watermark image. In this approach, Integer Wavelet Transform (IWT) was used as an embedding technique, where a binary image was embedded into the medical image. In addition, Particles Swarm Optimization (PSO) was employed in order to select an optimal scaling factor.

**Results:** As a result, medical images from various modalities were used in the experiment as cover images. The findings demonstrate that the method provides a high level of imperceptibility (PSNR>44 for watermarked images) and robustness in the majority of tested attacks.

**Conclusion:** As it is suitable for a lossless-data application, IWT is the best choice for medical images integrity. Furthermore, using the PSO algorithm enables the algorithm to be compatible with different medical imaging modalities. As a result, our method could manage the security of images from various modalities, and the experimental results indicate that the proposed scheme performs better in terms of both imperceptibility and robustness compared with similar watermarking algorithms.

**Key words:** eHealth, Watermarking, Medical Imaging, Data Security, Optimization

## Classification of histological images of thyroid nodules based on a combination of Deep Features and Machine Learning

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### Abstract:

Thyroid nodules are considered a common disease in the world. Their pathological types are complex. They are divided into two categories, benign thyroid nodules, and malignant thyroid nodules. This article proposes a tool for the automatic classification of histological images of thyroid nodules, particularly the papillary carcinoma of the thyroid which is a malignant lesion, and the follicular adenoma which is considered a benign lesion. we adopted two pré-trained Convolutional Neural Network (CNN) architectures, the VGG16, and the VGG19, to extract the deep features. Then, a principal component analysis was used to reduce the vector dimensionality. Three machine learning algorithms were used to perform the classification step: Support Vector Machine (SVM), K-Nearest Neighbor (KNN), and Random Forest. The proposed investigations have been applied to our database collection. The highest accuracy rate was obtained by the VGG16 deep feature and the SVM classifier.

**Keywords:** Thyroid nodules, Papillary carcinoma, Follicular adenoma, Deep feature, pre-trained VGG16, pre-trained VGG19, SVM, KNN, Random Forest.

## Detection of knee osteoarthritis based on the combination of texture features: data from osteoarthritis initiative

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### Abstract

**Objectives:** Knee osteoarthritis (KOA) represents one of the most common causes of pain and long-term disability associated with musculoskeletal disorders. Early detection and quantification of risk are critical for effective treatment and disease progression reduction. However, existing disease parameters, such as Joint Space Width (JSW), have been shown to be insufficient for predicting OA. Trabecular bone texture information seen on 2D radiographs represents a promising possibility for assessing the status of OA. This research aimed to see if a combination of texture parameters can be used to diagnose knee osteoarthritis.

**Methods:** Knee radiographs of men and women were obtained from the Osteoarthritis Initiative dataset (OAI). The proposed technique involves image enhancement followed by Daubechies wavelet transformation. Local binary patterns were extracted from the transformed image and these attributes were used to differentiate the radiographs into two groups of patients composed of 100 normal subjects (KL 0) and 100 pathological cases with osteoarthritis (KL2). The validation of the classification was carried out using the K-fold cross-validation technique with  $k = 10$ .

**Results:** The results revealed that the LBP approach achieved an accuracy of 82.5 %. Compared to the other classifiers studied (logistic regression and SVM), our proposed method provided a low root mean square error (RMSE) of 37.88%. This method has the potential to aid doctors in the prediction of knee osteoarthritis.

**Conclusion:** The developed method shows that the combination of subchondral bone texture parameters can increase the diagnostic performance for detecting the presence of knee OA, when compared to methods in the literature, the results obtained are promising. We intend to improve the classification of KOA. In the future by implementing new statistical features and growing the dataset.

**Keywords:** Knee osteoarthritis, dwt, LBP, Classification, Texture analysis, X-ray images.

## Effect of the binder concentration on the quality of the pharmaceutical granules obtained by melt granulation

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**Abstract:** The aim of this study is to investigate the effect of binder type on the quality of pharmaceutical granules obtained by melt granulation using a lactose monohydrate as a diluent for the granulation. The granules will be used to formulate a pharmaceutical product. For this, three types of binders were tested, namely dibehenate glycerol a (10, 15 and 20%), PEG 6000 a (10.15, 20%) and poloxamer 188 a (5, 7.5, 10%).

The granulation was done into a stainless steel tank with a capacity of two liters which was introduced into water bath allowing the temperature of the tank to be increased to the melting point of the binder used. The mixing tank was equipped with an agitator. This device was adopted in order to simulate a high shear granulator

Two methods of incorporation were also studied for dibehenate glycerol, namely melt granulation (insitu) and spray granulation, and for PEG 6000 and poloxamer 188 melt granulation (insitu) was used. The first step of the process consists of mixing the lactose and the binder using the agitator at a speed of 300 rpm by increasing the temperature between 50 and 80 degrees depending on the melting point of the binder used for the melt granulation (in situ).

For the spray granulation method, the mixing tank containing the lactose has been heated to a temperature between 50 and 80°C, on one hand, on the other hand, the binder was heated in another beaker at a temperature between 50 and 80°C depending on the melting point of the binder used until it melted. When a good temperature was reached, we start the manual incorporation of the binder dispersion. In the end of the granulation, the granules were collected, spread in thin layers on stainless steel trays, and allowed to cool at room temperature for 5-10 min

The quality of the granules obtained is strongly influenced by the quality of the binder used as well as its concentration, it can be noticed that the use of poloxamer 188 as a fusible binder allows obtaining granules with good properties at optimized concentration. Regarding to the effect of the binder incorporation mode, we have observed the obtaining of larger granules in the case of in situ granulation, thus allowing better wetting of the surface of the particles and therefore better coalescence of the particles granules. We have also seen that the melt granulation process can be carried out successfully in high shear mixers.

**Keys words:** melt granulation, binder, granules, high shear.

**ICPCBS'22: International Conference on  
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## **Session1: Toxicology**

## Health risks from desalinated seawater used for human consumption -The case of Honaine Plant (NW Algeria)-

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### Abstract

**Background:** Desalination seawater treatment processes followed by remineralization alter the mineral profile of drinking water compared to groundwater. With a production of 200 000 m<sup>3</sup>/day, Honaine desalination plant applies the reverse osmosis process using sand/anthracite filters as pre-treatment. The objectives of this study aimed to explore the treated water (TW) quality and to address its possible health risks.

**Methods:** To investigate the physical and chemical characteristics of desalinated seawater, obtained by reverse osmosis process, samples were taken thrice daily during one month and analyzed for pH, total dissolved solids, free-chlorine, total hardness, calcium, magnesium and alkalinity at the plant laboratory. pH was measured using a calibrated multiparameter set (HANNA-Combo-Waterproof) and total dissolved solids by Hi 991300 multiparameter. Free chlorine was analyzed with Diethyl-p-Phenylenediamine palintest. Alkalinity measurement was done by titration with HCl and, total hardness and calcium by complexometric titration with EDTA. Magnesium was estimated by the difference between hardness and calcium content. Regarding other parameters such as nitrite and sulfate, analyses have been carried out, out using a spectrophotometer, in the regional Algerian water laboratory (ADE) of Tlemcen.

**Results:** When compared to the WHO and Algerian standards, the obtained results showed that TW Honaine plant reflected low-mineral content with an evident mineral deficiency of Ca, Mg and SO<sub>4</sub>. Chlorine and nitrites are rather lower than the aforementioned guidelines. Alkalinity and hardness revealed that TW Honaine plant is categorized as moderately hard. As for the organoleptic aspect, TW palatability, revealed as excellent according to TDS value, is negatively influenced by chlorination.

**Conclusion:** It should be suitable to review healthy characteristics of TW jointly with epidemiological attainments alongside clinical and nutritional evidence which are enough argued to submit new guidance related to secure limits regarding TW for human consumption.

**Keywords:** Seawater Desalination - Chemical parameters- Quality standards -Health exposure risks.

## The antitoxicity effect of pumpkin on mercury toxicity

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### Abstract :

The bioavailability of some toxic metals used daily as an additive of food or medication, in chemical cleaning products contributes to the occurrence of reactive oxygen species; or radical derivatives of oxygen and other highly reactive non-radical compounds, the methods for identifying the consequences of the bioavailability of these pro-oxidant xenobiotics are reflected at the level of the organism by disorder or enzymatic dysfunction, namely acetylcholinesterase, xantine oxidase and other key enzyme of dopaminergic function. Pumpkin is a plant known by its high nutritional value and therapeutic effects. This study was conducted to evaluate the antitoxicity effects of *Cucurbita pepo*'s juice (pumpkin) on the liver, kidney and neurological function of mice treated with mercuric chloride ( $\text{HgCl}_2$ ). Mice were randomly classified into control, intoxicated by  $\text{HgCl}_2$  (1mg/kg), and intoxicated (1mg/kg  $\text{HgCl}_2$ ) and treated with pumpkin (1/2 concentration juice in place of drinking water). The results clearly revealed that consumption of *Cucurbita pepo* showed improvement in healthy status. Simultaneous treatment of pumpkin's juice had modulatory results against transaminases and blood urea alteration induced by mercury due to its antioxidant and essential amino acids properties, the effect of *Cucurbita pepo* has revealed as well a visible neuroprotection against depression and behavioral disorders likely due to beta-carotene. Our results indicate that consumption of *Cucurbita pepo* juice has a beneficial role against  $\text{HgCl}_2$ -induced toxicity in male *NMRI* mice.

**Key words:** *Cucurbita pepo*, mercury, neurotoxicity, hepatotoxicity, nephrotoxicity, mice.

## Antiparasitic potential of *Cerastes cerastes* venom on *Echinococcus granulosus* protoscoleces is triggered by redox imbalance

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### Abstract

**Background:** The investigation for new antiparasitic compounds in Viperidae venoms represents a promising therapeutic alternative to existing toxic drugs. Human cystic echinococcosis is caused by the larval form of *Echinococcus granulosus*. The aim of this study was to evaluate the *in vitro* antiparasitic activity of *Cerastes cerastes* venom on *Echinococcus granulosus* protoscoleces (PSCs) and to determine its effect on parasite redox balance.

**Methods:** The viability of PSCs was evaluated by microscopic observation using eosin dye exclusion assay after 1 hour of incubation with different amounts of *C. cerastes* venom (3.125, 6.25, 12.5, 25, 50, 100 µg/mL). To assess the effect of the venom on redox balance within parasites, NO and reduced thiols levels were measured using Griess and Ellman's methods respectively, in the presence or absence of enzyme inhibitors (PMSF, EDTA and Catalase).

**Results:** Obtained results showed that the venom inhibited parasites viability with an IC<sub>50</sub> estimated to as 45,09 µg/mL. The microscopic observation of treated parasites indicated that the venom induced deep morphological and structural alterations characterized by loss of motility, hooks disorder and loss of homogeneity of calcareous corpuscles. In addition, results revealed that the venom showed modulatory potential on NO and reduced thiols produced by the protoscoleces. Venom pre-incubation with enzyme inhibitors resulted in the reduction of its antiparasitic potential. These data suggested the involvement of enzymatic proteins in the scolicidal activity of the venom.

**Conclusion:** The obtained results indicated that *Cerastes cerastes* venom constitute a potential therapeutic source of bioactive molecules that could be used in the health management of human echinococcosis.

**Keywords:** Antiparasitic activity, *Cerastes cerastes*, *Echinococcus granulosus*, Oxidative stress, Venom.

## **Session2: Pharmacology**

## Burns healing and anti-acne activity study of a lavender essential oil emulsion using Image processing and survey

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**Background:** Medicinal plants are used empirically as remedies against several diseases; one of them is skin disorders.

Acne and burns are recurring problems for human skin. In order to treat these skin conditions, emulsions provide an effective mean of delivering the active ingredient directly to the required area, the effectiveness of such formulation have to be evaluate by using clinical trials especially when the active ingredient is a natural product.

The aim of this work was to test the effectiveness of an emulsion based on true lavender essential oil.

**Method:** An optimized formula have been used for the clinical trials, true lavender essential oil is used as the active ingredient and tween 60, span 60, Cosmedia SPL, bee wax, glycerin, Vaseline oil, vitamin E and distilled water were used as excipients. The emulsification process was performed by heating both oil and water phases to 70°C, then the oil phase was added to the water one and mixed at 3000 rpm for 5 minutes. The created emulsion was then mixed at 300 rpm until the temperature of the mixture reached 35°C, the essential oil was then added and the emulsion mixed until reaching room temperature.

Clinical trials were than performed on twelve consenting people, the panel was either suffering from acne or burns. The panel had to apply the emulsion and took pictures daily for 25 days, the pictures were then treated with an Image processing software, to evaluate the evolution of their situation. At the end of the treatment, the selected panel answered a survey, which has allowed studying the therapeutic effect felt by them.

**Results:** "Image J" allowed to calculate the healing percentage in each case, from the first day until ten days to 20 days, the healing percentages varied from 46% to 95%, depending on the skin disorder.

For acne cases healing percentages varied from 82% to 95%, the emulsion have shown great efficiency and for the burns, and for burns, healing percentages varied from 46% to 84%, when the emulsion was applied on a recent burn (first day) the result was more efficient (84 %). The survey results have shown that 100% of the panel felt the efficiency of the emulsion, 83 % of them felt the moisturizing effect, and 100% felt the anti-inflammatory effect by a decrease of their acne redness, while 89% attest the healing effect of the emulsion on the acne.

**Conclusion:** The use of an image processing software to evaluate the healing percentage and then to traduce it into histograms allowed to quantify the efficiency of the emulsion. The survey have shown that the formulated emulsion had a great efficiency for burns and acne healing; this is due to true lavender essential oil action known for its anti-inflammatory and healing properties.

**Keywords:** Anti-inflammatory, burns, acne, clinical trial, emulsion, image processing.

## Algerian date seeds extract (*Phoenix dactylifera* L.) play a therapeutic role on neurotoxicity induced by D-galactose/ $\text{AlCl}_3$ -mediated Alzheimer's disease in Mice

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### Abstract

Alzheimer's disease ranks first and makes up the largest share of neurodegenerative diseases about two-thirds- of all differential diagnoses. Scientific research has opted for a new therapeutic approach aimed at developing new natural anti-Alzheimer sources, which are very promising and do not have side effects or toxicity. Based on this scientific orientation, our research aimed to investigate the neurotherapeutic property of date seed extract (*Phoenix dactylifera* L.). Firstly, the determination of the phenolic profile of the date seeds extract was carried out by HPLC-UV. Secondly, the in vivo evaluation of the neurotherapeutic activity of our studied sample was based on an Alzheimer model. Three groups of mice (n=5) were given oral aluminium chloride ( $\text{AlCl}_3$ ) at 100mg/kg combined with a daily intraperitoneal (IP) injection of D-galactose at 120mg/kg for 45 days. The control group (C) received vehicle. The aqueous date seeds extract at 250mg/kg was administered to the ALZ-ADS group by gastric gavage daily until 90 days of the experiment. The Alzheimer's model group (ALZ) received distilled water during this period. Donepezil at 1mg/kg was selected as a synthetic drug in the ALZ-STD group. At the end of the experiment, memory tests were carried out in all groups, as well as a histological study of the brain. The results of the spatial working memory tests indicated a significantly reduced score ( $P \leq 0.001$ ) and significantly shorter time ( $P \leq 0.001$ ) to platform in the Morris pool in the ALZ-ADS group compared to the Alzheimer's model (ALZ) group. Furthermore, the histological study carried out on the cerebral cortex and hippocampus revealed in the ALZ-ADS group a regular appearance with minimised lesions compared to the Alzheimer model (ALZ), which confirms the neurological tests. These results suggest a promising role for Algerian date seeds (*P. dactylifera*) in Alzheimer's disease. This neurotherapeutic role could probably be attributed to the bioactive phytochemicals contained in this natural product.

**Keywords:** Date seeds, Alzheimer, neurotherapeutic activity, aluminium, mice.

## **Allergenic study of a chia-based diet in the intestinal mucosa of Balb / C mice immunized with beta-Ig and alfa-lac.**

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### **Abstract**

The seeds of Chia (*Salvia hispanica* L.) have been described as a beneficial source of lipids, proteins, dietary fiber. Which are revealed as profit for health and nutrition in these last year by the occupation of a large part of the humans' diet, especially among the Europeans.

The objective of our work is to examine the influence of the consumption of chia's seeds on the intestinal mucosa immunized by  $\beta$ -Lg and  $\alpha$ -Lac.

This experiment applied on an animal of (female rats: type of the Balb / c) sensitized (attribute an allergy) to the proteins of cow's milk, introduce the immunoenzymatic methods, with the examination of the histological structure of the intestinal epithelium that allows us to determine the impact of chia seed consumption on the histological appearance of the intestine of Balb / c mice immunized with  $\beta$ -Lg and  $\alpha$ -Lac in a 28-day experimental period.

The results report a decrease in weight gain of the experimental groups in the mice immunized with  $\beta$ -Lg and  $\alpha$ -Lac during the 28-day duration which is based on a chia diet compared to the control mice the values obtained for the A1 groups, C2 and controls in weeks 2,3 and 4 are shown in (g) ( $22.6 \pm 0.012g$ ), ( $15.29 \pm 0.0194g$ ), ( $25.16 \pm 0.012gt$ ) and ( $26.996 \pm 0.0049g$ ), respectively , ( $24.996 \pm 0.005g$ ), ( $30.495 \pm 0.005g$ ) and ( $26.56 \pm 0.005g$ ), ( $30.23 \pm 0.0049g$ ), ( $31.1 \pm 0.00495g$ ). with a pleasant consumption of the chia seeds by the mice sensitized by  $\beta$ -Lg and  $\alpha$ -Lac because the values obtained in (g) for the groups A1, C2 are respectively in the week1, week 2, week 3, week 4 ( $26,325 \pm 0.011g$ ), ( $31.85 \pm 0.011g$ ) and ( $7.8 \pm 0.024g$ ), ( $20.16 \pm 0.024g$ ) and ( $8.2 \pm 0.013g$ ), ( $11 \pm 0.012g$ ) and ( $8 , 66 \pm 0.006g$ ), ( $9.5 \pm 0.006g$ ), the effect of chia seed consumption by immunized mice develops high levels of anti- $\beta$ -Lg and anti  $\alpha$ -Lac specific IgG. A recovery of intestinal villous atrophy with increased villous height in the structure of the intestinal mucosa of chia-seeded mice compared to positive control groups, and decrease lymphocyte infiltration.

In conclusion, introducing chia seeds into the diet of men can be a positive sign to manifest against allergy, and as it is described as a medicinal and nutritional plant it can be a barrier against several diseases, despite this it is possible to designate as an essential dish in our life because it has a complete chemical composition.

**Keywords:** Chia, intestinal mucosa,  $\beta$ -Lg and  $\alpha$ -Lac;the intestinal epithelium.

## Use of herbal medication in rheumatic diseases in Mostaganem (Western Algeria)

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### Abstract

A descriptive cross-sectional epidemiological survey is carried out on 235 patients who were interviewed consecutively during a routine rheumatological consultation in the rheumatology service of Mostaganem region, this survey is focused on the socio-demographic characteristics of the patients and the medicinal plants that contribute to the relief of this pathology. 235 cases were included in our study, of which 194 were women (83%) and 41 men (17%); the average age of the patients was 55 years with a predominance of women. Most of the patients were housewives (46%) and illiterate people (53%). As for the type of disease, osteoarthritis ranked first with 43%, followed by rheumatoid arthritis with 30%, ankylosing spondylitis with 12%, osteopathies with 8% and gout with only 6%. It appears that the majority of rheumatism patients use medicinal plants to relieve their pain such as *Zingiber officinaler*, *Marrubium vulgare L*, *Lepidium sativum*, *Curcuma longa L*, *Syzyrium romaticum*. As the use of herbal medicine is not free from some risks due to potential interactions with drugs and the toxicity of certain plants, rheumatologists should become accustomed to discussing this aspect of herbal use in their daily consultation with their patients.

**Key words:** plants, rheumatological disease, Mostaganem

## Immunomodulatory effect of new baclofen analogues complexed with $\beta$ -Cyclodextrin

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### Abstract:

**Aim and Objective:** Baclofen – also known by the brand name Lioresal – received FDA approval in 1977 for its ability to reduce muscle spasms, muscle stiffness and pain associated with back conditions. While commonly used to treat multiple sclerosis and spinal cord injuries, **baclofen is still undergoing testing as a treatment for alcoholism**. The main objective of this work was study in vivo the immunomodulatory effect of baclofen and tow analogues in an immunization rat model and alcohol-dependent rat model .

**Materials and Methods:** The immunomodulatory effect of both compounds was tested in a rabbit red blood cell immunization model. Agglutinating antibody levels were measured as an indicator of the humoral response so the delayed hypersensitivity reaction through immunization in the foot gave us insight into the effect of baclofen and its analogue on the cellular response.

**Results:** The evaluation of the immunomodulatory effect in vivo indicate that the two analogs of the baclofen inhibit the humoral and cellular immune response and thereby delay hypersensitivity reactions. ABF1 is less toxic than baclofen, but it has the same effects on the inflammatory and immune response.

**Conclusion:** Both analogues appear to stimulate cellular immune response. With its characteristics the new baclofen analogue seems more suitable for the treatment of multiple sclerosis than baclofen. Further clinical works are needed to confirm its effectiveness. In conclusion, baclofen and its tow analogs have an immunosuppressive effect on both humoral and cellular response, the formulation ABF1- $\beta$ CD has a similar effect as baclofen.

**Keywords:** baclofen, immunomodulatory effect, cyclodextrin, inclusion complex.

## The Relationship between depression disorder and some routine biochemical parameters in Algerian population (Chlef province)

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### Abstract:

**Background:** Depression is a mental illness characterized by a mood disorder that affect nearly 350 million persons. This disease is less known by people and in fact has many consequences on others health parameters

**Aim:** This study was designed to examine the level of some routine biochemical parameters in patients with major depressive.

**Setting:** The study was conducted at Psychiatric Hospital of Ténès, Chlef province (Algeria)

**Methods:** To evaluate the effect of depression on biochemical parameters in humans, our study was conducted on two types of populations (case-control) in a duration of 03 months visiting the psychiatric hospital of Chlef. The tested biochemical parameters were: fasting blood glucose, urea, creatinine, triglyceride, cholesterol, Aspartate aminotransferase (ASAT), Alanine aminotransferase (ALAT), sodium ( $\text{Na}^+$ ) and potassium ( $\text{K}^+$ ).

**Results:** There was a significant difference ( $p < 0,05$ ) between major depressed patients (MDD) and healthy control group in the level of sodium ( $\text{Na}^+$ ). Hence, there was no significant variation in the other parameters (Glucose, Urea, Creatinine, and Triglyceride) in subjects with major depression compared to the healthy subjects. In addition, Age, sex, socio-professional level and family situation were the main risk factors in our study.

**Conclusion:** this research does not confirm the impact of depression on the variation of biochemical analysis values.

**Key words:** Depression, mood disorders, neurotransmitters, biochemical parameters.

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## First Clinical Case of blaKPC-3 gene producing E.coli in Tlemcen hospital, Algeria

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**Background:** Carbapenem-resistant Enterobacteriaceae have become a public health threat worldwide. The aim in this study was to describe the first clinical case of *Escherichia coli* harbouring a KPC gene in a hospital in north-western Algeria.

**Methods:** 103 enterobacteriaceae were isolated between mars 2018 and October 2019. The isolates were identified by using biochemical tests API 20E identification systems (bioMe'rieux, Marcy-l'Etoile, France). The antimicrobial susceptibility was determined by the disc diffusion and agar dilution methods according to CA-SFM (Comite de l'Antibiogramme de la Societe Francaise de Microbiologie) guidelines. The following 16 antibiotics were tested: amoxicillin, amoxicillin/clavulanic acid, piperacillin/tazobactam, ticarcillin, ticarcillin/clavulanic acid, aztreonam, cephalothin, cefotaxim, cefepime, imipenem, ertapenem, trimethoprim/sulfamethoxazole, amikacin, gentamicin, ciprofloxacin, colistin.

ESBL genes were identified by PCR using universal primers of the CTX-M family and specific primers for CTX-M groups (CTX-M-1, CTX-M-2, CTX-M-9). TEM and SHV have also been detected. Quinolone resistance genes (*qnrA*, *qnrB* and *qnrS*) were screened using specific primers.

PCR screening was also performed for carbapenemase including *bla*<sub>KPC</sub> *bla*<sub>VIM</sub> *bla*<sub>NDM</sub> *bla*<sub>GES</sub> *bla*<sub>OXA-48</sub>. Sequencing reactions were performed on a GenAmp PCR System 2400 thermocycler (Applied Biosystems, Warrington, UK), using the "BigDye Terminator v3.1" kit (Applied Biosystems, Foster City, CA, USA) with the same primers as used in PCR.

**Results:** Besides resistance to beta-lactams, isolates were resistant to almost all antibiotics tested. A susceptibility to imipenem is reduced for one *E.coli* isolate. Moreover, all these ESBL producers showed resistance to aminoglycosides (gentamicin and amikacin), ciprofloxacin and trimethoprim-sulfamethoxazole. PCR amplification and sequencing revealed that almost all enterobacteriaceae isolates produced ESBL belonging to all groups of CTX-M, TEM and SHV with coharboring at least 3 of them. Most isolates possessed the PMQR genes including *qnrB* et *qnrS*. PCR screening and sequencing revealed that one imipenem-resistant *E.coli* was positive for the *bla*<sub>KPC-3</sub> carbapenemase gene and also coharboring *bla*<sub>OXA-48</sub> carbapenemase gene. None of all clinical isolates contained the *bla*<sub>NDM</sub> gene.

**Conclusion:** We report here the first identification of blaKPC-3 produced in *E.coli* in the university hospital center of tlemcen, north west of Algeria.

**Keywords :** E.coli, carbapenemase, KPC gene.

## Association study between asthma and single nucleotide polymorphisms of the *IL-18* and *IL-1β* genes in an Algerian population

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**Background:** Genetic factors have an important role in the development of asthma. The goal of this study was to investigate the association of (-137G/C) *IL-18* and (-511C/T) *IL-1β* genetic polymorphism with allergic asthma in an Algerian population.

**Methods:** The study included 100 cases with asthma and 100 healthy controls from the same locality of Algeria. DNA was extracted and processed by the PCR-SSP and RFLP-PCR technique for characterization of genetic variants of the *IL-18* (-137G /C) and *IL-1β* (-511C/T) polymorphisms respectively. The statistical analysis was performed using the IBM SPSS software.

**Results:** A significant difference in the genotype distribution of the *IL18* gene polymorphism was observed ( $\chi^2=16.239$ ;  $P=0.0003$ ), as well as the allelic frequency was statistically significant between the patient and control groups ( $OR=2.333$ ; 95%CI [1.548-3.517];  $\chi^2 = 16.667$ ;  $P=4.5 \cdot 10^{-5}$ ). However, the T allele of the -511 C/T polymorphism of the *IL-1β* gene shows that there were no significant differences in allele and genotype frequencies between the asthmatic and control groups with respective  $P$  values of 0.249 and 0.208.

**Conclusion:** These results may suggest that the polymorphism of the (-137G/C) *IL-18* gene is associated with allergic asthma in the Algerian population. Comparatively, the polymorphism of the (-511C/T) *IL-1β* gene shows no association with asthma.

**Keywords :** Algerian population, asthma, *IL-1 β* gene, *IL-18* gene.

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