International Conference on Recent Trends in Biological Sciences (RTB-2023)

January 10, 2023

BOOK OF ABSTRACTS

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RTB CHAIR WELCOME ADDRESS

Dear colleagues,
International Conference on Recent Trends in Biological Sciences (RTB-2023) was successfully held on January 10, 2023 by World Forum by Young Scientists (WFYS) in collaboration with Faculty of Pharmacy, Gazi University, Turkiye in online platform. Many international invited speakers presented a high quality of topics relevant to Biological sciences to young researchers.
It has provided a multidisciplinary point of views for the young to plan their future research and also led a way for them to establish new collaborations.
I am happy to be part of RTB-2023 as one of the organizers. I really hope that next version of RTB would be organized and looking forward to it. I would like to thank all participants, speakers, and organizing team for 2023 series of this wonderful conference event.

Kind regards,
Prof. Dr. Ilkay ERDOGAN ORHAN
Faculty of Pharmacy, Gazi University
Ankara, Turkiye

International Conference on Recent Trends in Biological Sciences (RTB-2023)

January 10, 2023

Patron in Chief: Dr. Ilkay Erdogan Orhan

Chair: Syeda Anza Hasnain

Co-Chair: Rao Zubair Khaliq

PST (GMT+5)	**Speaker**	**Affiliation**
5:30 PM- 5:40 PM	Opening	
5:40 PM- 6:10 PM	Dr. Tariq Zaman	Research Professor College of Human Medicine, Michigan State University, USA
6:10 PM- 6:40 PM	Dr. Francesco Epifano	Professor Laboratory of Phytochemistry and Chemistry of Natural Products, Department of Pharmacy, University "G. d'Annunzio" of Chieti-Pescara, Chieti, Italy
6:40 PM- 7:10 PM	Dr. Krystyna Skalicka - Woźniak	Professor Department of Natural Products Chemistry, Medical University of Lublin, Poland
7:40 PM – 8:00 PM	Dr. Ahu Musayeva	Scientist Rehabilitation Manual Spine Therapy Center named after Dr. Ahu Musayeva, Azerbaijan
8:00 PM – 8:20 PM	Dr. Khayala Mammadova	Professor Azerbaijan Medical University, Azerbaijan
8:25 PM- 8:45 PM	Dr. Ibukun	Research Scholar Department of Pharmacognosy, Faculty of Pharmacy, Gazi University, Türkiye
8: 45 PM- 10:00 PM	Oral/Poster Presentations	

Recent Trends in Biological Sciences (RTB-2023)-Conference Schedule, January 10, 2023

Abstract book

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Risk factors in the formation of placenta totalis s. centralis in women of reproductive age

Jamila Fazil Gurbanova[a*], Aynur Ali Gasimova[a]

[a] Research İnstitute of Obstetrics and Gynecology, Azerbaijan

[*]Corresponding author: Jamila Fazil Gurbanova
Email: xayale81@yahoo.com

ABSTRACT

Introduction: The presentation of the placenta is one of the serious and urgent problems of modern obstetrics. It is known that the central placental presentation (CPP) - placenta totalis s.centralis, is considered a severe placental anomaly, as it contributes to the occurrence of massive bleeding, the outcome of which is often the loss of childbearing organs (hysterectomy), maternal, perinatal mortality. The frequency of hysterectomy after C-section surgery is 5.3%. With this pathology, maternal mortality is 0.9%, and the bleeding rate reaches up to 20%. Perinatal losses occur up to 26%.

The purpose of our study is risk factors playing a fundamental role in the formation of the central presentation of the placenta.

Results: For this purpose, we have observed 70 women with CPP. The average age of female patients is 32.5±12.5 years. We have identified possible predisposing risk factors for the formation of CPP: menstrual disorders - 32 (45.7%) cases; scar on the uterus after cesarean section - 19 (27.1%) cases; inflammatory diseases of the uterus (endometritis) -17 (24.3%); the number of births in history (3; 4 births) -19 (27.1%); transferred medical, spontaneous abortions - 21 (30%); after abortive inflammatory diseases -7 (10%); pregnancy after IVF - 4 (5.7%) cases; uterine fibroids - 7 (10%); infertility - 6 (8.6%); obesity - 12 (17.1%); multiple pregnancies - 12 (17.5%) endometriosis (adenomyosis) - 10 (14.3%); benign diseases of the cervix - 17 (24.3%).

Thus, predisposing risk factors for the formation of CPP are a burdened obstetric and gynecological history of parturient women. An important role is played by genetic, immunological, and hemodynamic factors. As a result of the influence of the above factors, placentation is disturbed, forming a pathological presentation.

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Biological age and its determination in gerontological age groups

Z. M. Gadimova[a*]

[a]Institute of Physiology, Azerbaijan, Baku

[*]Corresponding author: Z. M. Gadimova
Email: zenfiragadimova.phd@gmail.com

ABSTRACT

The term biological age is used to describe the state of the structures and functions of the organism in a certain period of life, and complex functionality is the ultimate expression of biological age. Our review compares strategies for assessing biological age for clinical purposes. Since biological age is one of the most recent research ares in biogerontology, theories focus on age-related differences in molecular particles, cells, according to molecular mechanisms in general biogerontology.

The purpose of the work is determining the dependence of aging rate from the rate of polymorbidity. 87 patients, aged 60 to 100 years, are included to research. 58 of them are women and 29 of them are men. Based on the comparison of biological and important age parameters, individual aging rate - the speed and degree of development of involutional changes in the organism of the examined patients was calculated. More interesting data were obtained when studying the group of patients who is over 90 years old. Thus, it has been determined that the acceleration of the rate of the involutionary process in old age depends on the number of diseases in each individual, which is more pronounced in men who are more susceptible to the aging process. Compared to men, this indicator is somewhat weaker in women, and therefore reflects the importance of an in-depth study of the somatic and functional characteristics of women as the reasons for their relatively slow aging.

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Toxic melanoderma

Gulnara Salam Mammadova[a*], Irada Arif Mammadkhanova[a], Madina Yunus Ismayilova[b]

[a]Dermatonevrology Department, Azerbaijan Medical University
[b]Azerbaijan State Advanced Training Institute for Doctors named after A. Aliyev

[*]Corresponding author: Gulnara Salam Mammadova
Email: xayale81@yahoo.com

ABSTRACT

Introduction: Toxic melasma (syn.: Riehl's melanosis) is a phototoxic skin reaction that develops as a result of intoxication with photosensitizing substances. It is found in the military, oil, and coal industry workers, spinners; during therapy with photosensitizing drugs, when using low-quality food products, using low-quality decorative cosmetics and perfumes. Some drugs also can cause an increase in sensitivity to sunlight. Riehl's melanosis develops after insolation and begins with the appearance of itchy erythema in open areas of the skin, gradually giving way to hyperpigmentation, which spreads to the skin of the trunk and extremities. If at first, the pigmentation is spotty, then later the spots merge with the formation of a network pattern, peeling and follicular hyperkeratosis appears, and areas of depigmentation and telangiectasia, gradually mild atrophy develops.

Materials and methods: Patient E., aged 30, turned to us with complaints of rashes on the skin of her face, chest, abdomen, and back.

Results: She took the capsules “for weight gain” origin for 7 days ordered from Internet, after she had rashes on the skin of her face. Subsequently, the rash spread to the skin of the trunk. During examination pronounced hyperpigmentation spots were noted in the periorbital region, on the skin of the chest, abdomen, and back. On the skin of the abdomen and back, areas of hyperpigmentation alternated with hypopigmented spots; mild superficial atrophy was noted. An additional examination revealed no pathology. We suspected toxic melasma. The diagnosis was confirmed histologically. It was recommended to exclude the use of dubious dietary supplements, insolation, and treatment was prescribed: enterosorbents, B vitamins, topical corticosteroids, and photoprotective drugs.

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The problem of fat metabolism disturbances from the position of a gynecologist

Hijran Firudin Bagirova[a*], Fakhriyya Alamdar Tagiyeva[a]

[a]Department of Obstetrics and Gynecology, Azerbaijan Medical University

[*]Corresponding author: Hijran Firudin Bagirova
Email: xayale81@yahoo.com

ABSTRACT

Finding out the possible role of the body fat component in the formation of pregnancy complications remains a difficult and completely unexplained task. Impaired fat metabolism contributes to the complicated course of gestation, increasing the likelihood of developing fetoplacental insufficiency, miscarriage, which in general negatively affects perinatal outcomes. The most frequent and formidable complication of pregnancy in overweight patients is hypertension, which occupies a leading place in the structure of maternal and perinatal mortality.

Obesity accompanying pregnancy is considered as a significant risk factor for complications of both the gestational process itself and adverse perinatal outcomes. According to the literature, in women with impaired fat metabolism, the threat of termination of pregnancy complicates the course of pregnancy in 3.7-10% of cases, toxicosis is twice as common as in women with normal weight. The incidence of hypertension in pregnant women with impaired fat metabolism is 2-5 times higher than in the group of pregnant women with normal weight. The proportion of maternal injuries, hypotonic bleeding, infectious and inflammatory postpartum complications in women with impaired fat metabolism is significantly higher compared to women with normal weight.

Thus, at the current stage, the problem of the relationship between obesity and the complicated course of pregnancy remains relevant. It is necessary to further search for effective, non-invasive methods that allow predicting and diagnosing complications of gestation in patients with impaired fat metabolism. Despite the large number of studies on the improvement of the antenatal surveillance and delivery system, the frequency of complications of pregnancy and childbirth in obese women does not tend to decrease, and therefore the study of this issue is significant and relevant.

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Modern aspects of uterine myoma classification systems

Jamila Fazil Gurbanova[a*], Ulviyya Rasim Shahmaliyeva[a]

[a]Research Institute of Obstetrics and Gynecology, Azerbijan

[*]Corresponding author: Jamila Fazil Gurbanova
Email: xayale81@yahoo.com

ABSTRACT

Introduction: Uterine myoma is one of the most common pathological processes of the female reproductive system, its frequency is mainly determined by the age of women. The average age of detection of uterine myoma is 32-33 years, and the average duration of tumor development is five years. Morphologically, the tumor process begins with the formation of "growth zones" in the form of perivascular accumulation of progenitor cells of the extracellular matrix. Presumably, hypoxia is one of the mechanisms that cause the growth and development of myomatosis nodules. This is evidenced by the rare vascularization of nodes, the most frequent localization of nodes in places with the most complex structure of the myometrium (central line, tubular angles), and microcirculation disturbances at the level of the local vasodilating agent of endothelial NO synthetase.

Materials and methods: We analyzed about 50 new articles

Results and discussion: Clinical and anatomical classification is based on the following principles: localization in different parts of the uterus and tumor growth about the muscle layer of the uterus. Uterine fibroids are divided into intramural, submucosal, subserous, inter - ligamentous, cervical, and parasitic parts. In 95% of cases, myomatous nodes are in the body of the uterus, In 5% it is located in the cervix. Microscopically, uterine myoma is a tumor with a hard (fibromyoma) or soft (leiomyoma) consistency. The creation of more perfect classifications of uterine fibroids requires the creation of more accurate and deep examination methods. For this reason, it has undergone certain changes. We believe that determining the form, etiology, and pathogenesis of uterine myoma when diagnosed is of great importance and has an impact on future treatment and prevention measures.

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Features of the social and biological status of the patients with genital herpes

Sevda Alifaga Muslimova[a*]

[a]Obstetrics and Gynecology department, Azerbaijan Medical University, Azerbaijan

[*]Corresponding author: Sevda Alifaga Muslimova[a]
Email: xayale81@yahoo.com

ABSTRACT

Introduction: Over the past few years, there has been a decrease in the incidence of most sexually transmitted infections, except of viral infections. Viruses of both types of genital herpes reveal not only geographical, and age, but also socio-economic characteristics.

Materials and methods: Data from 150 anonymous questionnaires of patients diagnosed with genital herpes were analyzed. The questionnaire included age, number of sexual partners, presence of a registered marriage, frequency of relapses per year or registration of the first episode, history of other sexually transmitted infections.

Results: The proportion of genital herpes in the category of people aged 18 to 29 years was 56% of patients, aged 30 to 44 years - 36%, and from 45 to 59 years - 8%. Among the respondents, 44.7% were married. Two or more sexually transmitted infections were noted in history in 32.7% of patients. Among them, urogenital chlamydia was 34.7%, urogenital trichomoniasis – was 29.3%, urogenital ureaplasmosis – was 27.3%, gonorrhea – was 6%, and syphilis – was 2.7%. The first episode of genital herpes was registered in 18.7% of the respondents. Among patients who applied for a recurrence of genital herpes, 41.3% have relapses more often than once a year, and 58.7% - less than once a year. The proportion of patients with a history of other infectious diseases 1-2 times every six months was 50.7%, 3-4 times every six months 14% of patients get sick, and 1-2 times a year - 35.3%.

A greater number of recurrences of genital herpes was noted in the category of patients suffering from 1-2 times per six months, which confirms the relationship of relapses of genital herpes with a decrease in the overall immunoreactivity of patients.

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Features of the formation and course of the combined pathologies - type 2 diabetes mellitus and cholelithiasis

Ahmedzade Ulviyya İsrafil[a*]

[a]Pathophysiology Department, Azerbaijan Medical University, Azerbijan

[*]Corresponding author: Ahmedzade Ulviyya İsrafil
Email: xayale81@yahoo.com

ABSTRACT

The purpose of the study is to the incidence of cholelithiasis in patients with type 2 diabetes mellitus.

Methods: An in-depth clinical and hormonal examination was carried out on 573 patients with type 2 diabetes mellitus, 269 of them with a combination of type 2 diabetes and cholelithiasis.

Results: The incidence of gallstone disease in patients with type 2 diabetes mellitus was 46%, which is higher than in other countries. The level of glycated hemoglobin averaged 10.04 ± 0.2%. In patients with newly diagnosed diabetes mellitus 2 without cholelithiasis, the level of blood C-peptide was 5.97 ± 1.05 ng/ml, with newly diagnosed diabetes mellitus 2 against the background of cholelithiasis - 3.3 ± 0.88 ng/ml, $p < 0.05$, and increased secretion of C-peptide were observed in these patients in 100% and 27%, respectively, $p < 0.01$. The presence of gallstone disease in patients with diabetes mellitus 2 reduces the insulin secretory function of the pancreas. The blood level of adiponectin in comorbidities was reduced compared to practically healthy controls (15.8 ± 0.4 and 17.6 ± 0.4 μg/ml, respectively, $p = 0.006$). When combined with diabetes mellitus 2c, type 2a cholelithiasis was significantly more common (15.0 and 0%, respectively, $\varphi = 3.6$, $p < 0.01$), and with isolated diabetes mellitus 2, isolated hypoalphacholesterolemia (respectively 43.3 and 13 .3%, $\varphi = 3.08$, $p < 0.01$). When diabetes mellitus 2c was combined with cholelithiasis, non-alcoholic fatty liver disease was detected in 100% of cases, with isolated diabetes mellitus 2 non-alcoholic fatty liver disease present in 65% of cases ($n = 13$), $p < 0.01$. Moderate cytolysis was observed in 26.7% of patients with comorbid pathology.

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Halophilic bacteria and its applications in various fields

Ayesha Sana[a], Zahid Mushtaq[a*], Hafiza Ayesha[a] Nawaz, Amna Shahid Awan[a], Areeba Zaheer[a]

[a] Bioactive Molecules Research Lab (BMRL), Department of Biochemistry, University of Agriculture Faisalabad, 38040, Pakistan

*Corresponding Author: Zahid Mushtaq
Email: zahidmushtaquaf@uaf.edu.pk, ayeshasana016@gmail.com

ABSTRACT

Halophiles are class of extremophiles that can live at high salt concentration. Halophilic bacteria have adapted different strategies to survive at high salt concentration especially accumulation of compatible solutes which protects its biomolecules from denaturation and precipitation. Halophilic bacteria have applications in many fields. Compatible solutes most importantly ectoines and betaines, that are produced by halophilic bacteria are used as bio-preservative in in-vitro for biomolecules like enzymes, nucleic acids etc. They produce hydrolytic enzymes that can work at wide range of physiological parameters like temperature, pH and salt concentration making them advantageous to work under harsh industrial processes. They are helpful in bioremediation and recovery of saline soil. They produce bio-surfactants that help in bioremediation of oil contaminated area. They can act as bio fertilizer and help plant cope salinity and grow in salt effected soil. They are used in synthesis of many fermented food products like salt fermented vegetables, fruits, meats and production of sauces. They are helpful in biodecolorization. They decolorize azo dyes at wide range of salt concentrations, temperature and pH. They produce biomolecules that are important pharmacologically. Antimicrobial peptides produced by halophilic bacteria are stable at wide range of temperature, pH and salt concentration making them an effective antimicrobial agent. Ectoines and betaines produced by halophilic bacteria are used in cosmetics as to protect skin from UV induced damages. Halophilic bacterial extracts have anti-inflammatory and DNA protective properties. Hence, research on halophilic bacteria has great potential for exploration of more benefits and future uses in many fields

Key Words: Halophilic bacteria, Compatible solutes, Salinity, Stable peptides, Bioactive molecules

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Drug Resistant bacterial diversity associated with chicken manure in local poultry farms of District Kohat

Zaib Un Nisa[a], Waheed Ullah [a], Nadia Taimoor[a]

[a]Department of Microbiology, Kohat University of Science & Technology (KUST), Kohat, Khyber Pakhtunkhwa, Pakistan

*Corresponding Author: Dr. Waheed Ullah
Email: waheedwazir@gmail.com

ABSTRACT

Poultry manure is a mixture of faeces, wasted feeds, bedding material and feathers. Beside the advantage of poultry manure it possess some public health risks since they contain pathogenic microorganisms. This work aimed to find out the resistance bacterial pathogen in broiler chicken manure, antibiotic profile and characterization of resistance gene found in chicken manure.

Materials and methods: Total (n50) fresh feacal samples and mixed samples were collected from commercial poultry farms located in different locations (KDA, Toghbala, Khurmato, Lachi bazar) of district Kohat. Samples were inoculated by standard pour plate technique on nutrient agar and Mackonkey media and incubated at 37◦C for overnight. The colonies were classified by performing Gram staining and biochemical tests (catalase, oxidase, citrate, indole, TSI). The antimicrobial susceptibility tests for were performed by using Kirby-Bauer disc diffusion method. Genomic DNA was extracted through phenol chloroform method and was stored at 4◦C.The resistant strains were subjected for molecular detection of antibiotic resistance gene.

Results: *E. coli* and *Salmonella* species were highly prevailed in Khurmato and Toghbala while *Pseudomonas* and *Klebsiella pneumonia* were showing high prevalence in Lachi bazar. *E. coli* and *Salmonella* were sensitive to Linezolid, Doxycycline, erythromycin and ampicilline. *Klebsiella pneumonia* was resistant to deoxycycline and erythromycin while sensitive to ceftazidime, imipenam. *Salmonella* showed resistance to doxycycline, tetracyclin and amoxicillin. *Pseudomonas was* resistant to imipenem, doxycycline and erythromycin. *E coli* and *salmonella* showed the high antibiotic resistance followed by *Klebsiella* and *pseudomona*s.

Conclusion Recommendations: The bacterial strains were highly resistant to doxycycline, amoxicillin and erythromycin. Therefore, chickens manure should be handled with great care ensuring the personal hygienic conditions and manure stuffing.

Keywords: Salmonella, poultry, manure, resistance gene, antibiotics

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Protective role of β-glucan against atrazine toxicity in grass carp

Eishaa Khan[a*], Farman Ullah Dawar[a], Saad Ullah Khan[b]

[a]Department of Zoology, Kohat University of Science and Technology Kohat, Pakistan
[b]Department of Biotechnology & Genetic Engineering, Kohat University of Science and Technology Kohat, Pakistan

[*]Corresponding author: Eishaa Khan*
Email: eishaakhanek100@gmail.com

ABSTRACT

Atrazine (ATZ) is a triazine herbicide commonly applied in agricultural field. The protective role of β-glucan (βG) is little known on the health performance of grass carp (*Ctenopharyngodon idella*) exposed to ATZ toxicity. Hence in the current study, effects of dietary βG were investigated on growth, hematological parameters and antioxidant enzymes activities of grass carp exposed to ATZ. Total 20 fish were equally distributed in four different groups; the control (CNT) group was fed the basal diet only, the atrazine (ATZ) group was fed the basal diet and exposed to 1/5 96-hr LC50 (0.03ml/L) ATZ, the β-glucan (βG) group was fed with basal diet containing 1g/kg βG, and the β-glucan and atrazine (βG/ATZ) group was fed βG and concomitantly exposed to ATZ, for 30 days. The results revealed that ATZ exposed group showed significant decline ($P < 0.05$) in growth performance, survival rate, hematological parameters, blood total protein and albumin. The FCR, blood biochemical parameters (cholesterol level, ALT, AST), antioxidant enzymes activity and malondialdehyde (MDA) was increased significantly ($P < 0.05$). While the CNT and βG group showed increase ($P<0.05$) in growth performance, hematological parameters, total proteins and albumin but decrease in blood cholesterol level and antioxidant enzymes. In βG/ATZ group the blood cholesterol level, antioxidant enzymes activity, ALT, AST and MDA were decreased significantly ($P < 0.05$). As compared to ATZ group the growth, survival rate, and hematological parameters were increased. Hence its concluded that dietary β-glucan is effective and required in fish diets to compensate ATZ induced toxicity in grass carp.

Keywords: Atrazine, β-glucan, Growth, Hematological parameters, Biochemical parameters, Antioxidant enzymes activity, Grass carp.

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Toxic effects and DNA damage caused by malathion in common carp

Unzla Ilyas[a*], Farman Ullah Dawar[b], Mubashir Hussain[b]

[a]Department of Zoology, Kohat University of Science and Technology, Kohat Pakistan
[b]Department of Microbiology, Kohat University of Science and Technology, Kohat Pakistan

[*]Corresponding author: Unzla Ilyas
Email: unzlailyaas@gmail.com

ABSTRACT

Malathion (MAL) is one of the most common organophosphorus pesticides widely used in agricultural fields. The extensive use of this pesticide has various toxic effects on non-target organisms including fish. Therefore, the present study aims to investigate the biochemical, histopathological and DNA damage caused by MAL in Common carp (*Cyprinus carpio)*. The lethal concentration LC_{50} of MAL for *C. carpio* was found to be 15.24 mg/L for a period of 96 hours. A total of 24 fish were distributed equally in two groups; the experimental and control group. The fish in experimental group were exposed to MAL for 96 hours. Three fish from each control and experimental group were examined after every 24 hours for biochemical, histopathological and DNA damage caused by MAL. Overall, the activity of seven antioxidant enzymes of the liver including Catalase (CAT), Peroxidase (POD), Glutathione (GSH), Glutathione reductase (GR), Glutathione peroxidase (GSH-Px), Glutathione s-transferase (GST) and Superoxide dismutase (SOD) were increased significantly ($p<0.05$) while the proteins activity showed significant decrease ($p<0.05$). The histopathological analysis showed progressive damage in the liver, gills and brain tissues of MAL exposed fish. Further, the comet assay revealed significant increase ($p<0.05$) in the DNA damage with increased exposure time as compared to control group. The current study clearly indicated that exposure to MAL led to various damaging effects in *C. carpio*. Thus, its extensive and indiscriminate use in agriculture should be prohibited as it may be a threat to aquatic flora and fauna.

Keywords: Malathion, Biochemical, Histopathological, DNA damage, *Cyprinus carpio*, Lethal concentration, Antioxidant enzymes, Comet assay

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Ameliorative effects of *Spirulina platensis* supplemented diet on grass carp exposed to atrazine

Rashid Mehmood[a*], Kalim Ullah[a], Farman Ullah Dawar[a]

[a]Department of Zoology, Kohat University of Science and Technology, Kohat Pakistan

[*]Corresponding author: Rashid Mehmood
Email: alikhankhannoor555@gmail.com

ABSTRACT

This study evaluated the ameliorate effects of *Spirulina Platensis* (SP) supplemented diet against Atrazine (ATZ) induced toxity on growth, hematology and biochemical profile of grass carp (*Ctenopharyngodon idella*). The 96 hours LC50 value was calculated to be 150µl/L at 25°C. Twenty fish were divided into 4 groups (n=5 per group) for 30 days. Control group fed with basal diet. ATZ group was treated with 1/5µl/L of LC50 value; 30µl/L and was fed with basal diet. SP group was fed with SP (20g/kg diet). SP/ATZ group was treated with 30µl/L ATZ and was fed with SP (20g/kg diet). Results indicated that ATZ group showed significant decrease in final body weight (FBW), weight gain (WG) and survival rate as compared to control group while significant decrease in hematological indices; RBCs, Hb, MCV, WBCs and Ht. Biochemical indices AST, ALT, ALP, γGT and LDH showed significant increase in ATZ exposed group which showed liver damage. SP group showed significant increase in FBW, WG and survival rate, RBCs, Hb, WBCs, Ht and biochemical analysis showed almost same values as with control group. SP/ATZ group showed the ameliorative effect of SP as it improved the hematological and biochemical parameters. SP attenuated the ATZ induced toxity in SP/ATZ group. Hence, it is concluded from the results that ATZ affects the growth, hematology and biochemical profile of grass carp. On the basis of obtained results, it can be suggested that SP is effective in protecting grass carp from ATZ induced toxity by increasing antioxidative response.

Key words: *Ctenopharyngodon idella;* Atrazine; Growth performance; Hematology; Biochemistry; *Spirulina platensis;*

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Phytochemical screening, quantification of selected class of secondary metabolites and biological assays of *Heterophragma adenophylla*

Humerah Jan[a*]

[a]Department of Chemistry, Islamia College University, Peshawar.

[*]Corresponding author: Humerah Jan
Email: Humerahjan@gmail.com

ABSTRACT

Heterophragma adenophylla is a species of flowering plants local name katsagon, belonging to Bignoniaceae. It is found everywhere in Pakistan most commonly in Charsadda, Mardan, Swabi. It is an evergreen tree with large and dense leaves. The nontoxic nature, natural availability, and medicinal importance of the *Heterophragma adenophylla* motivate us to use this plant for phytochemical study. The plant was used for the phytochemical screening of secondary metabolites. Disc diffusion method was used for the antimicrobial activity of extracts. The anthelminthic activity was accomplished on a mature earthworm, Pheritima Posthuma. The allelopathic activity was performed separately for each extract using standard protocols. The insecticidal assay was determined by direct contact application against Tribolium Castaneum, Sitophilus oryzae, Cigarette beetle. The essential oil extraction was carried out by the soxhlet apparatus. The recovered oil was analyzed by GC-MS analysis. The phytochemical analysis has shown the presence of alkaloids, flavonoids, and saponins. The quantitative analysis shows a high concentration of alkaloids of about 6.3% in plants. The antimicrobial test showed some effectiveness of all five extracts even though it was very low as compared to the standard antibiotics. In the anthelminthic activity, saponins killed 100% population in an optimized time of 35 minutes. The plant extracts showed 88.8% mortality within 24 hours for insecticidal assay. The allelopathic study confirmed that the more the concentration more will be the inhibition. It was observed by ethyl acetate extract that at 300ppm there was more inhibition observed by romaine seed which is about 4.37mm of rootlet length thus shows more inhibition as compared to control which is about 4.35mm. Moreover, it has been observed that as the concentration of leaves and fruit extract increases, its inhibitory effect was increased but fruits showed more inhibition of germination percentage as compared to leaves which is about 85.71% for 10g of fruit extract.

Altogether 21 components were recognized as those that constitute more part of the oil. The essential oil is comprised of a combination of various substances 2,2,3,4-tetramethyl- Pentane, Hexane (83.52%) as the overwhelming constituent.

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Bioactive studies of extracellular and intracellular ethyl acetate extracts of *Bacillus clausii* KP 10

Maham Siddiqa [a*], Zahid Mushtaq[a]

[a]Bioactive Molecules Research Lab (BMRL) Department of Biochemistry, University of Agriculture Faisalabad, Pakistan.

[*]Corresponding author: Maham Siddiqa
Email: mahamsiddiqa@gmail.com

ABSTRACT

Living organisms are suffering from different kinds of diseases. Microorganisms including pathogenic bacteria, fungi and viruses are responsible for spreading of several diseases. Pathogens resistant to antibiotics are spreading more rapidly than the discovery of new medicines. Bioactive compounds are found almost in every organism like plants, bacteria, algae, fungi etc. Bioactive compounds produced by bacteria can be used to treat the infections caused by these microorganisms. In the present project solvent ethyl acetate was used for the extraction of bioactive compounds from *B.clausii* KP10 isolated by our group from hot springs of Tatta Pani, Poonch, Azad Kashmir. Extra and intracellular extracts of *Bacillus clausii* KP10 were used to evaluate for its bioactive potential like antioxidant, α-amylase inhibition and lipase inhibition, antimicrobial and cytotoxic activities. Antioxidant activity was done by DPPH free radical scavenging assay. Antimicrobial activities were evaluated with well diffusion method against two Gram positive bacteria and two Gram negative bacteria and four fungal strains. The cytotoxicity was assessed with hemolytic assay, α-amylase inhibition assay was done by using DNS. In our experiments the maximum zones of inhibition were shown by crude intracellular extract against *Bacillus subtilus* (23.33 mm), and crude extracellular extract showed maximum ZOI against *Alternaria alternata* (23.66 mm). Intracellular extract showed maximum α-amylase inhibitory activity (53.30%). Intracellular extract having concentration (5mg/ml) exhibited maximum antioxidant activity (57.30%). Crude intracellular extract showed maximum lipase inhibitory activity (33.63%) by spectrophotometric method. Crude intracellular extract showed maximum pepsin inhibitory activity (75.66%). Finally, results were analyzed statistically through analysis of variance (ANOVA). Hence it is proved that the bioactive fractions obtained from *B. clausii* KP10 can be used for medicinal purpose in future for the treatments.

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Prevalence and genotyping of untypable hepatitis c virus in Khyber Pakhtunkhwa Pakistan

Itezaz Younas[a *], Madeeha Raihan[b], Noor Muhammad[a] and Saad Ullah Khan[a]

[a] Department of Biotechnology and Genetic Engineering, Kohat University of Sciences and Technology, Kohat, Khyber Pakhtunkhwa, 26000, Pakistan.
[b] Department of Biochemistry, Hazara University Garden Campus Mansehra, KPK, Pakistan.

[*]Corresponding author: Itezaz Younas
Email: itezazyounas123.iy35@gmail.com

ABSTARCT

Hepatitis C virus (HCV) is a major cause of liver-related diseases and infected millions of people globally. The prevalence of HCV infection in the Pakistani population is approximately 6%. HCV is classified into seven genotypes and most common with HCV genotype 3a. The aim of the study was to investigate the genotyping data of HCV in various regions of Khyber Pakhtunkhwa. We collected samples from districts Karak, Kohat, and Peshawar. Positive HCV samples detected by PCR were included and proceeded for further genomic analysis. HCV NS5B-genotype 3a sequencing was done successfully, and bioinformatics tools were used for the identification of conserved and variant domain. HCV is common disease as compared to other viral diseases that is why we expected that there will be chances of a untypable mutation. For that purpose, the selected areas were searched out to detect the untypable mutation. Total 271 samples for HCV were analysed but we did not detect any sample of untypable HCV virus in the collected samples. The previous study reported in Pakistan the most common genotype is 3a, same results were obtained from our study as well. Samples recruited from different regions of Khyber Pakhtunkhwa were of different ages ranging from 21 to 70 years. Out of 247 samples, 226 individual were positive for HCV RNA. In order to further identify in specific genotype for each positive individual, PCR based genotyping were performed. Out of 226 samples 127 (56.19%) were of genotypes 3a, 37 (16.37%) were of 3b, 28 (12.38%) 2a, 17 (7.52%) 1a, 11 (4.86%) 1b, 6 (2.65%). In the 3 different areas of the province, HCV genotypes 3a, 3b, 2a, 2b, 1a, 1b were the most prevalent in Peshawar (46.03%), Kohat (32.74%), Karak (25.22%). We further sequenced NS5B gene to identify the causative variant. Sequencing analysis revealed mutation in the studied individual. Bioinformatic tools were used for further phylogenetic analysis. Extensive study is required to pinpoint the epidemiology of HCV genotypes in Khyber Pakhtunkhwa. Furthermore, studies on preventive and genetic screening of different geographical areas of Pakistan are necessary to improve the control measures for HCV infection.

Keywords: Hepatitis C virus, NS5B gene, PCR, Mutation.

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COVID-19 Frontliners survey: Assessing Complications and Quality of life in Health Care Workers in District Swat, Khyber Pakhtunkhwa, Pakistan.

Mohsin Shahab [a*]

[a]Department of Biotechnology, Institute of Integrative Biosciences, CECOS University, Peshawar.

[*]Corresponding author: Mohsin Shahab
Email: mohsin.s@cecos.edu.pk

ABSTRACT

Background: The global COVID-19 pandemic has generated health problems worldwide. Health care workers are the front-line warriors against the pandemic. The aim of this study was to find out the prevalence of COVID-19 (7th, May 2021 to 3rd, August, 2021) amongst Health Care Workers (HCWs), and to assess the complications associated with it, and its effects on their quality of life.

Material and Method: The study was conducted in healthcare facilities which serve as pandemic hospitals in district Swat. A total of 140 healthcare workers, who were employed in the COVID-19 health care facilities. Participants were tested for COVIID-19 using RT PCR test. A Case Report Form (CRF) for conditions during and post COVID-19 was filled to assess the complications and quality of life of HCWs.

Results: A total of 140 Health Care Workers were studied, out of which 40% were doctors, 22% nursing staff, 17% paramedic staff, 9% cleaning staff, lab technologist 6%, 2% operation theater staff, administration staff and pharmacist. The respondents were also investigated for pre-existing illness prior to SARS-CoV-2 infection, hypertension was the most prevalent followed by chronic heart diseases, and neurological disorders. Fever was the most common symptom, recorded 76.42% in the participants while 55.71% participants had dry cough, 55% had sore throat following by chest pain 43.56%. Reinfection rate was 10% with chest pain being recorded in 85.71%. Post disease complication analysis showed that 47.14% of the participants were diagnosed with a new diagnosis after the COVID-19 recovery. Pulmonological diseases were recorded the most as a new diagnosis in followed by gastrointestinal and psychological problems.

Conclusions: The results of the study illustrates how COVID-19 has affected the overall health and quality of life of HCWs in District Swat of Khyber Pakhtunkhwa, Pakistan.

Key Words: SARS-CoV-2, COVID-19, HCWS, Symptoms, Questionnaire, Post COVID-19.

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Response of chronic hepatitis c patients to direct acting antivirals (DAAs) in southern districts of Khyber Pakhtunkhwa

Bushra Andaleeb[a*], Abdul Majid[1], Malik Nawaz Shuja[b]

[a]Department of Zoology, Kohat University of Science and Technology, Kohat, Pakistan
[b]Department of Microbiology, Kohat University of Science and Technology, Kohat, Pakistan

[*]Corresponding author: Bushra Andaleeb
Email: bushraandaleeb2286@gmail.com

ABSTRACT

Problem statement: Hepatitis C virus (HCV) is a caustic agent of hepatitis. Worldwide this virus infects about 71 million people. Recent research shows that Pakistan is on the second number having largest HCV burden. Before the introduction of Direct Acting Antivirals (DAAs) Interferon was used for chronic hepatitis C (CHC) treatment. It had many side effects with low sustained virological response (SVR). Recently DAAs provide more suitable dosing regimens and shown high rate of SVR. Beside their affectivity some resistance has also noticed in many studies which decline the affectivity of DAAs.

Objectives: This study aimed to investigate the prevalence, and response of CHC patients using a combination of various new DAAs.

Methodology: Total of 155 HCV positive patients (65 females and 90 males) were enrolled in this study at DHQ Hospitals of districts Kohat and Karak. The clinical and demographic data were obtained from the patients through a detailed Questionnaire. DAAs (Daclatasvir + Sofosbuvir, Velpatasvir + Sofosbuvir,) were administered to the enrolled patients and followed up for total of 12 months i.e., six months of DAAs treatment (End Treatment Response,) and next six months after completion of medication as (Sustain Virologic Response). The viral load was confirmed through Quantitative PCR.

Significant results: Overall 35 (22.5%) of patients have low viral load (<80000) while 120 (77%) patients have high viral load (>80000) before treatment. After ETR, 20 (12.9%) patients were Resistant to Daclatasvir + Sofosbuvir and 8 (5%) patients were resistant to Velpatasvir + Sofosbuvir and 128 (82%) patients have cleared their infection. 12 (9.3%) patients didn′t achieve SVR, while 100 (78%) patients achieve their SVR.

Conclusion: The HCV prevalence in males in higher due to more exposure. Response of DAAs is more significant from the interferon treatment and Resistance substituted variants are a threatening issue which affect the DAAs affectivity.

Recommendation: It is recommended from this study that although the response of DAAs is high but some resistance also occurs in DAAs treatment which needs further study.

Key Words: HCV, DAAs efficacy, ETR, SVR, Treatment therapy

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Molecular analysis of genetic variants responsible for primary microcephaly in a family of District Kohat, Khyber Pakhtunkhwa

Somal[a*], Kanwal Hameed Khan[a], Hamid Nawaz[a], Sher Alam[a], Naimat Khan[a], Muhammad Essa[a], Sana Zahoor[a], Muhammad Marwan[a], Noor Muhammad[a], Saad ullah khan[a], Abid Jan[a]

[a]Department of biotechnology and Genetic Engineering, Kohat University of Science and Technology, Kohat, 26000, Khyber Pakhtunkhwa, Pakistan

[*]Corresponding author: Somal
Email: somalnaeem@gmail.com

ABSTRACT

Microcephaly is a condition of small head circumference and can be of two types, Primary microcephaly which occurs from birth and secondary microcephaly which develops later in life. Its causes can either be genetic which includes both autosomal recessive and dominant cases, and environmental which includes infections usually intrauterine with different viruses and teratogens including alcohol. A rare condition called autosomal recessive primary microcephaly can be syndromic and non syndromic. In syndromic condition it occurs in combination with other symptoms such as short stature, intellectual disability. As consanguineous marriages are frequently practiced in Pakistan, so the incidence is more here and currently 28 genes are found associated with MCPH.

This study aimed to genetically analyze a family with autosomal recessive primary microcephaly to determine the disease causing variants. From the parents of the affected individuals, written informed consent for participation in the study was obtained. Blood samples from the normal and affected members of the family was collected. After extraction of DNA from the blood samples, Whole exome sequencing and Sanger sequencing were performed to determine the disease causing variants and their segregation in the family. In silico tools were used to determine pathogenic effects of disease causing variants

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Molecular analysis of microcephaly families from District Kohat

Kenza Javed[a], Nazif Muhammad[a], Syeda Iqra Hussain[a], Niamatullah Khan[a], Saadullah Khan[a], Noor Muhammad[a]*

[a]Department of Biotechnology and Genetic Engineering, Kohat University of Science & Technology, Kohat, Khyber Pakhtunkhawa.

*Corresponding author: Noor Muhammad
Email: noormwazir@yahoo.com

ABSTRACT

Microcephaly refers to a condition where the head circumference is under average, either at birth (congenital microcephaly) or later in life (postnatal or acquired microcephaly). Infants with postnatal microcephaly often have average head circumferences at birth, but their heads fail to continue developing properly. Patients with microcephaly may have a wide spectrum of symptoms, including intellectual disability ranging from mild to severe, small stature, epileptic convulsions, and congenital deafness. According to the existing scientific literature, primary microcephaly (MCPH) follows an autosomal recessive pattern of inheritance. Genetic mutations, DNA damage from misaligned mitotic spindles, spontaneous chromosome abridgements, medication usage during pregnancy, fetal infection, brain trauma, metabolic problems including alaninuria, and responses to genotoxic medicines and chemicals are all possible causes of MCPH. Sixty-eight percent of MCPH cases are caused by biallelic mutations in ASPM, followed by mutations in WDR62 (14.1% of cases) and MCPH1 (8% of cases).

In current study two microcephalic families were sampled from district Kohat, Khyber Pakhtunkhwa. Pedigrees were constructed accordingly to the information provided by the elderly persons of the families. DNA was extracted from the blood samples and whole exome sequencing of the affected individuals was performed. Whole exome data analysis revealed a nonsense mutation (c.3978G>A; p.Trp1326Ter) in ASPM gene in both families. Sanger sequencing was performed after designing primers using Primer3 software and co-segregation of the variant in the family was confirmed. The variant was segregation with the disease in a recessive pattern.

Key Words: Microcephaly, ASPM gene, Whole Exome Sequencing, Sanger Sequencing.

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Prevalence and virulence factors of vaginal candidiasis among females in tertiary care hospitals Kohat region

Sadir Zaman[a], Jawad Aslam[a]

[a]Department of Microbiology, Kohat University of Science and Technology Kohat Pakistan

[*]Corresponding author: Sadir Zama
Email: sadirzaman33%@gmail.com

ABSTRACT

The genus *Candida* includes about 200 different species, but only a few species are human opportunistic pathogens. *Candida albicans* is a commensal and opportunistic pathogenic agent that causes infection in immune compromised individuals. This work was conducted to study the detection of virulence factors of *Candida* spp. in clinical samples from tertiary care hospitals of Kohat (*i.e*., LMH, FPH and FFH) during April to July 2017. A total of 150 clinical samples were collected from outdoor patients, in which only 50 were *Candida* positive. Morphological identification was done by using different media i.e SDA and PDA. Further identification was done through gram staining and germ tube method. Among all the 50 isolates of 13(26%) *Candida* spp. were germ tube positive. Further identification were done through Chrome Agar in which 17(34%) isolates were *C. albicans*, followed by 19(38%) were *C. tropicalis*, 4(8%) isolates were *C. glabrata* while 10(20%) isolates were *C. krusei* species. This study aimed to investigate the detection of virulence factors and prevalence rate of *Candida* spp. age wise among females. Detection of virulence factors is done by different methods in which 30(60%) isolates showed phospholipase activity in which 12(24%) of *Candida* spp. were large positive, 7(14%) were weak positive, 6(12%) were poor positive and 4(8%) of *Candida* spp. were moderate positive. In Haemolytic activity showed 28(56%) strong haemolytic activity, 5(10%) were weak positive and 1(2%) poor positive. Results of biofilm that 2(4%) isolates were strong positive, 6(12%) moderate positive, 26(52%) isolates were weak positive. Further analysis of demographic data through questionnaire collected from patients revealed that *Candida* positive patients high 36 (72%) in 21 to 40 years while lowest 3(6%) in 1 to 20 years. In the present study the results concluded that patient infected with *Candida* are highly virulent about more than 60% of Phospholipase, Biofilm and Haemolytic positive. *Candida* species have high prevalence rate among 21 t0 40 years from the rest of very late and early age.

Keyword: *Candida,* Virulence Factors, Germ Tube, Chrome Agar

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Effects Of *Aloe vera* gel extract on growth and proximate composition of grass carp

Sana Ghani[a], Farman Ullah Dawar[a*], Syed Majid Shah[b]

[a]Department of Zoology, Kohat University of Science and Technology, Kohat-26000, Khyber Pakhtunkhwa, Pakistan
[b]Department of Department of Pharmacy, Kohat University of Science and Technology, Kohat-26000, Khyber Pakhtunkhwa, Pakistan

*Corresponding Author: Sana Ghani
Email: fariikhan345@gmail.com

ABSTRACT

This study was carried out to investigate the supplemental effects of Aloe vera gel extract on growth and Proximate composition of juvenile grass carp. The experiment was designed to determine the optimum levels of Aloe vera gel extract as growth promoter during 4 weeks. Four groups of 60 fish with mean body weight of 10 ± 2g were fed with different groups of Aloe vera gel extract G-1 (1 mg/kg diet), G-2 (2 mg/kg diet), G-3 (3 mg/kg diet) and control group fed with basal diets. The dietary Aloe vera gel extracts G-1, G-2, and G-3 had a significant impact on growth of Crass carp as compared to the control group. The maximum WG (%) was observed in G-3 (27.51%) as compared to the control group (21.22%). At the end of 4 weeks of supplementary feeding with Aloe vera gel extract, the Proximate composition of all fish groups were evaluated, including protein, lipid, carbohydrates, Ash, and Moisture. These results are indicate that when the concentration of Aloe vera gel extracts increasing, also the protein, lipid, carbohydrates, and Ash (%) are increasing, while the Moisture (%) is decreasing hen the concentration of Aloe vera gel extracts increasing. The present results suggested that dietary Aloe vera gel extracts could improve growth and Proximate composition of juvenile grass carp.

Key Words: Aloe vera, gel extract, grass carp, growth, Proximate composition

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Effects of dietary allicin on the growth, hematology and lysozyme activity of rohu (*Labeo rohita*)

Somia Tariq[a], Farman Ullah Dawar [a*], Muhammad Israr Khan[b]

[a]Department of Zoology, Kohat University of Science and Technology, Kohat-26000, Khyber Pakhtunkhwa, Pakistan
[b]Department of Environmental Sciences, Kohat University of Science and Technology, Kohat-26000, Khyber Pakhtunkhwa, Pakistan

*Corresponding Author: Somia Tariq
Email: somayasaqib193@gmail.com

ABSTRACT

This study was carried out to show the effects garlic (*Allium sativum*) allicin on growth performance, hematology, and lysozyme activity of *Labeo rohita (L. rohita)*. A total number of 100 fish (8-10g in weight) was used. Fish were divided into four groups fed on diets containing garlic in different forms; G-1 (1 mg/kg diet), G-2 (2 mg/kg diet), G-3 (3 mg/kg diet) and Control group fed on basal diet free from garlic allicin. The experiment extended for two weaks. The results showed that, weight gain of *L. rohita* significantly increased in G-3 21.22% fed on allicin (3 mg/kg diet) than the control group 19.0%. The lysozyme activity of fish was also performed. The lysozyme activity is increased in G-3 53.91 ± 2.2 fed on allicin (3 mg/kg diet) than the control group 38.13 ± 12.51. These finding are indicated that when the concentration of allicin increased, the lysozyme activity is also increased. The hematological analysis of fish blood was performed on both allicin treated groups and allicin untreated control group, and the results compared with control group. The maximum the level of WBCs, Hb, RBCs, Hct, MCV, MCH and MCHC increased in allicin groups as compared to the control group. While the level of Eosinophil decreased in allicin groups as compared to the control group.

Key Words: *Labeo rohita*, *Allium sativum,* allicin, lysozyme activity, Hematological Analysis Garlic Extract,

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Bioprofiling of some indigenous West-African plants using HPTLC and UV-spec methods

Ibukun O. Oresanya[a*], Gertrud E. Morlock[b], Ilkay Erdogan Orhan[a*]

[a]Department of Pharmacognosy, Faculty of Pharmacy, Gazi University, 06330, Ankara, Türkiye
[b]Institute of Nutritional Science, Chair of Food Science, Justus Liebig University Giessen, Heinrich-Buff-Ring 26-32, 35392 Giessen, Germany

[*]Corresponding author: Ibukun O. Oresanya
Email: iorhan@gazi.edu.tr

TALK ABSTRACT

Plants comprises numerous chemicals that have potentials for the treatment of various diseases, yet some of the phytochemicals are untapped especially from African flora. Some important but under-utilized medicinal and leafy vegetables grown in West-Africa were identified for this study; they include *Launea taraxacifolia* (LT), *Solanecio biafrae* (SB), and *Crassocephallum rubens*, (CR) from Asteraceae. Despite their ethnomedicinal uses, there is paucity of research on their biological activities and phytochemistry. Therefore, the first aim of this study was to investigate the different biological activities of these plants using High performance thin layer chromatography (HPTLC)-effect-directed assays. The effect-directed screening of the plant extract components was done on HPTLC plate with different biochemical and biological assays (cholinesterase, glucosidase, amylase, *Aliivibrio fischeri* and *Bacillus subtilis* inhibitory, and DPPH$^{\cdot}$ antioxidant assays). Anticholinesterase and antioxidant activities of crude extracts and partitioned fractions were also evaluated using UV-spectrophotometry method.

The HPTLC bioprofiling revealed the presence of compounds with antioxidant, antimicrobial, antidiabetic, and anticholinesterase activities in the samples. Among the three plants, SB and CR had more compounds that inhibited cholinesterase and α-glucosidase as seen by the white bands on a purple background bioautograms. The three plants contained similar compounds with antioxidant and antimicrobial properties. However, CR had more intense antioxidant bands followed by SB. This is similar to DPPH antioxidant activity from the quantitative method, where the ethyl acetate fraction of CR (87.19%, 27.73 ± 4.46 µg/mL) had the highest antioxidant activity, which was followed by SB ethyl acetate fraction (84.37%, 62.81 ± 2.18 µg/mL). The aqueous methanol fractions of SB (58.84%, 135.33 ± 16.61 µg/mL) and CR (52.03%, 176.80 ± 13.62 µg/mL) and water extract of LT (66.37%, 113.95 ± 24.19 µg/mL) exhibited highest butyrylcholinesterase inhibition, which was comparable to that of galanthamine (69.60%, 112.18 ± 9.71 µg/mL) and in consonance with what was observed in the HPTLC-bioautograms.

So far, our outcomes of the present study have highlighted the antimicrobial, antidiabetic, and anticholinesterase potentials of these plants, which validated some of their ethnomedicinal uses. This project is still on-going with the major aim of isolation and characterization of bioactive compounds from the plants.

Acknowledgement
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Protection of mitochondrial potential and activity by oxyprenylated phenylpropanoids

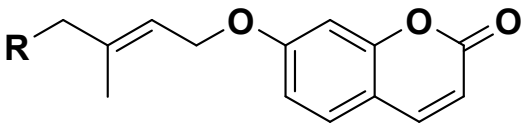
Francesco Epifano [a*]

[a]Department of Pharmacy, University "Gabriele d'Annunzio" of Chieti-Pescara, Via dei Vestini 31, 66100 Chieti Scalo (CH), Italy.

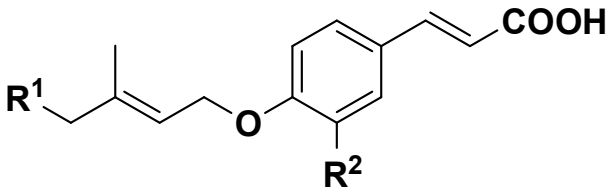
[*]Corresponding author: Francesco Epifano
Email: fepifano@unich.it

ABSTRACT

A series of 5 naturally occurring oxyprenylated phenylpropanoids, namely the coumarins auraptene **1** (7-geranyloxycoumarin) and 7-isopentenyloxycoumarin **2**, and the cinnamic and ferulic acid derivatives, 4'-isopentenyloxycoumaric acid **3**, boropinic acid **4**, and 4'-geranyloxyferulic acid **5** were tested for their effects on mitochondrial functionality using chlorpyrifos and resveratrol as controls. While not showing an appreciable *in vitro* antioxidant activity and a little effect on normal and cancer cell lines viability, all phytochemicals exhibited a marked protective effect on mitochondrial potential and activity with values that were comparable to resveratrol. Auraptene **1** and 7-isopentenyloxycoumarin **2** were seen to be the most effective secondary metabolite to this concern, in particular in being able to completely abolish the decrease of mitochondrial potential induced by increasing concentration of chlorpyrifos. All the compounds tested also exhibited a protective effect on mitochondrial activity. Both effects were comparable or slightly higher than those recorded for resveratrol. The potency displayed contribute to shed more light into the molecular basis of the beneficial effects of auraptene and structurally related oxyprenylated phenylpropanoids so far reported in the literature.



1 R = $CH_2CH_2CH=(CH_3)_2$
2 R = H



3 $R^1 = R^2 = H$
4 $R^1 = H$ $R^2 = OCH_3$
5 $R^1 = CH_2CH_2CH=(CH_3)_2 R^2 = OCH_3$

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Treatment of trigeminal nerve with osteopathic methods

Ahu Musayeva[a*]

[a]Osteopathy and Karabakh Folk Medicine Center

[*]Corresponding author: Ahu Musayeva
Email: xayale81@yahoo.com

ABSTRACT

İntroduction: Osteopathy is the science, philosophy and art, it is a big connection with God which helps the specialist to make the right diagnosis without examination equipment. At the right time, the osteopath, without the use of equipment accurately determines the problems of the patient and makes the appropriate decision based on the patient's condition. Osteopathy takes one of the first places in modern medicine and has achieved great success in the treatment of many diseases, including diseases of the musculoskeletal system. Osteopathic methods are capable of treating diseases of the spine (scoliosis, kyphosis, lordosis, herniated discs, and protrusion) and diseases of internal organs associated with the spine. Scoliosis today is a serious health problem. And 70% of it depends on the etiology and pathogenesis of the disease. Damage to the trigeminal nerve can be cured by osteopathic methods also. Relying on osteopathic methods of treatment, it is possible to cure not only various diseases, but also scoliosis and diseases of the trigeminal nerve without the use of chemicals, corsets, rehabilitation, physiotherapy.

Materials and methods: The use of river stones of various forms and plant thorns (the main method). The mechanisms of treatment with river stones and spines are interdependent. During this treatment, it is applied to non-polar points, i.e., to inactive areas. With acupuncture, needles are inserted into biologically active points.

Results and discussion: We treated 125 patients with facial paresis. Among them, 25 patients were between 18-25 years old, 65 patients were between 25-50 years old, and 35 patients were between 50-70 years old. Visual results and patient satisfaction after treatment were 100%

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From brains to parasites – the diversity of coumarins

Krystyna SKALICKA-WOŹNIAK[a]

[a]Department of Natural Products Chemistry, Medical University of Lublin, Chodźki 1, Lublin 20-093, Poland

[*]Corresponding author: Krystyna SKALICKA-WOŹNIAK
E-mail: kskalicka@pharmacognosy.org

ABSTRACT

In biological profiling studies, coumarins show a surprisingly broad range of biological activities *in vitro* and *in vivo* and different coumarins, both synthetic and natural, have demonstrated effects on the central nervous system (CNS) in preclinical *in vivo* experiments, suggesting their penetration through the blood–brain barrier. Relatively little is known about the pharmacokinetics and specificity of coumarins and how this correlate to activity in different *in vivo* assays. So far, we investigate the neuropharmacological effects of coumarins to understand their mode of action in mice and zebra fish and some examples will be presented here. Additionally latest study on the antiparasitic effects of coumarins will be presented. While the antileishmanial properties of coumarins have been investigated, little is known about their effects on *Trypanosoma cruzi* that causes Chagas disease (CD). CD is a neglected tropical disease prevalent in Latin America. Chemotherapy with benznidazole or nifurtimox is effective when administered in the acute stage but the efficacy is lower in the chronic phase of the disease and these drugs become toxic. Among rural communities with no accessibility to conventional medicine, intervention with botanical drugs seems to be a possible alternative to manage CD. From chemotaxonomic clusters in plant libraries showing selective antitrypanosomal activity, coumarins showed outstanding effects in the *T. cruzi* infection assays. Thereofore, a library of 23 coumarins-containing plant taxa were tested and the most active coumarins were isolated using counter-current chromatography (CCC) and their identity were assigned by NMR. Several compounds were isolated as being the most active antichagasic coumarin derivatives. We are currently working on identifying the possible targets of the antichagasic coumarins in *T. cruzi*.

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Some compounds activity against β– glucuronidase enzyme

Huseyn Azizulla Abiyev[a*], Sevda İbad Aliyeva[b], Khayala Rajab Mammadova[a], Shahin Ganbar Bayramov[a]

[a]Department of Medical and Biological Physics, Azerbaijan Medical University
[b]Department of Normal Physiology, Azerbaijan Medical University

[*]Corresponding author: Huseyn Azizulla Abiyev
Email: xayale81@yahoo.com

ABSTRACT

İntroduction: β-Glucuronidase plays an important role in the hydrolysis of β-glucuronides. Glucuronides are formed in the body during the xenobiotic detoxification process. A large number of toxic compounds are eliminated safely from the body as glucuronides. Since β-glucuronidase hydrolyzes these conjugates, the inhibition of this enzyme may protect the body from the reintroduction of the original xenobiotics. Evidence suggests that inhibiting the β-glucuronidase enzyme has a possible role in controlling different stages in cancer induction. Enhanced activity of this enzyme increases the enterohepatic recirculation of toxins, hormones, drugs, and carcinogens. Recent studies showed that the Gram-positive bacteria in the gastrointestinal tract are also partially involved in β-glucuronidase activity. Initiation of colon cancer is believed to be associated with β-Glucuronidase while its higher levels in intestines are connected with increased risk of colon cancer.

Material and methods: Commercially reagents, solvents, β-glucuronidase *(E. coli),* the substrate (p-nitrophenyl-β-D-glucuronide), and standard inhibitor (D-saccharic acid 1, 4 - lactone) were purchased from Merck Germany, Sigma Chemical Co., and Fluka. All enzymatic reactions were carried in triplicates in microtitration plates, using Spectra Max -340 spectrophotometer (Molecular Devices). The β-Glucuronidase activity was determined by measuring the absorbance at 405nm by the method of Collins with the following modification. The IC50 values were calculated using the EZ-Fit Enzyme Kinetic program (Perrella Scientific Inc., Amherst, U.S.A.).

Results and discussion: It have been isolated some compounds from different classes and tested inhibitory properties against of β – glucuronidase enzyme. IC_{50} value of these compounds were little than standart inhibitor (D-saccharic acid 1, 4 - lactone was 48.40±1.25). So, these compounds more potent inhibitors than standart inhibitor of this enzyme.

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Using plant growth promoting rhizomicrobiome to improve lettuce (*Lactuca sativa*) plant productivity

Izzah Shahid[a*], Javed Iqbal[a], Asifa Shafique[a]

[a]Department of Biotechnology, Faculty of Life Sciences, University of Central Punjab, Lahore, Pakistan

[*]Corresponding author: Izzah Shahid
Email: izzah.shahid@ucp.edu.pk

ABSTRACT

Phyto-microbiomes have been well explored in providing wide range of beneficial services to the plants leading to the enhancement of the plant growth. However, microbiomes of horticultural crops including *Lactuca Sativa* are less explored and must be deciphered to increase the productivity of these important edible plants. This study aimed the isolation and characterization of closely associated bacterial assemblages from lettuce rhizosphere following their use as bioinoculum of lettuce. Five closely associated bacterial communities were isolated from lettuce rhizosphere ensuing bacterial purification, morphological identification, and biochemical characterization using QTS-25 kits. Screening for plant growth promoting traits indicated four isolates positive for protease production, twelve for cellulase, eight for amylase, and five for lipase production. Eleven isolates were capable of producing phytohormone indole-3-acetic acid and three showed production of ammonia. None of the isolates shown the production of volatile hydrogen cyanide and zinc solubilization. Five isolates solubilized phosphate on NBRIP medium (SI= 1.66± 0.03), whereas, three isolates could solubilize KCl. Selected bacterial isolates showing promising plant growth promoting traits were used as bioinoculum of wheat. Highest vigor indices were noted for strains LARS19 (*Aeromonas hydrophila*= 1533.65) and LARS9 (*Klebsiella oxytoca* = 1475.57), following the other three strains used for inoculation experiment. Next, the strains were used as bioinoculum of lettuce plants as single-strain inoculum and consortium (microbial community) and plant growth parameters were recorded. The results demonstrated the potential of these strains to be used as successful biofertilizers of under-pitched lettuce plant suggesting the reduced use of harmful agrochemicals.

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Comparative efficacy of various regimens of antibiotic therapy for bacterial vaginosis

Shahla Rafail Yusubova[a*], Shahla Malik Askarova[b]

[a]Department of Therapeutic Dentistry, Azerbaijan Medical University
[b]Department of Obstetrics and Gynecology, Azerbaijan Medical University

[*]Corresponding author: Shahla Rafail Yusubova
Email: xayale81@yahoo.com

ABSTRACT

Introduction: Bacterial vaginosis is one of the most common infectious non-inflammatory diseases, characterized by a significant decrease or absence of lactobacilli and a significant predominance of polymicrobial associations of anaerobes and/or Gardnerella in the microbial landscape of a woman's vagina.

The aim of our study was to compare 3 recommended regimens of drug therapy for bacterial vaginosis in pregnant patients in the second trimester.

Materials and methods: The study included 38 pregnant patients suffering from bacterial vaginosis in whom the disease was detected during pregnancy. The mean age of the patients was 28.6±3.4 years. The criteria were as follows: the presence of bacterial vaginosis, established by the Amsel diagnostic criteria, the detection of bacterial vaginosis during this pregnancy, the absence of anamnestic indications of the presence of bacterial vaginosis earlier, the 2nd trimester of pregnancy at the time of inclusion in the study. The first group of patients (n=12) received metronidazole 500 mg orally 2 times a day for 7 days. The second group (n=13) received metronidazole 250 mg 3 times a day for 7 days. The third group of patients (n=13) received clindamycin 300 mg orally twice a day for 7 days.

Results: It was found that patients in the first group achieved clinical remission 23 days faster than in the first group and 21 days faster than in the third group. The laboratory remission lagged behind the clinical one by 12 days in all groups. The tolerability of all three regimens of drug therapy was comparable. No adverse drug reactions were observed in all three groups.