HYBRID INTERNATIONAL CONFERENCES
19-20 October 2024

ICBMS24, ICNFEAS24 (Turkey)
ICCMM24 (Italy)
ICBM24 (Hungary)

Conference Abstract Book

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PREFACE

We are delighted to introduce the Conference Abstract Book for the "HYBRID INTERNATIONAL CONFERENCES: ICBMS24, ICNFEAS24, ICLS24, (Turkey); ICCMM24 (Italy); and ICBM24 (Hungary)" scheduled for October 19-20, 2024. This conference served as a platform for engaging discussions on recent advancements across a wide spectrum of fields, including biological, medical, biomedical, food and nutrition, environmental, and agricultural sciences.

The conference provided a unique opportunity for participants from Asian, African, and European countries to showcase and discuss their research in their respective domains.

Contained within this Conference Abstract Book are written versions of the majority of the contributions presented during the conference, as well as the refereed abstracts submitted for publication in this volume. These submitted abstracts underwent rigorous blind peer review by experts from the Scientific Committee and editorial board. Acceptance for oral or poster presentations was determined based on originality, context, and clarity, ensuring the quality of the content presented. Please note that this book exclusively contains abstracts, while both abstracts and full-text papers will be published in the International Journal of BioLife Sciences (IJBLS) (ISSN: 2821-1642), which will be available online and accessible to all.

We extend our sincere gratitude to all participants for their invaluable contributions to the Conference program and this Conference Abstract Book. We would also like to express our appreciation to the Conference/Session Chairs and the Technical Support Team for their unwavering support. We are honored to acknowledge the scientific support received from Akdeniz University (Turkey), Avicenna International College (Hungary), Colombian Society for Biological Development, Bulgarian Society of Neurology, Argentina Society of Nutrition, International Scientific Association for Support and Development of Medical Technologies (Poland), and the Fruit Growing Institute (Bulgaria).

Lastly, we wish all participants a fruitful and enjoyable conference experience and extend our best wishes for success in your technical presentations.

With the Best Regards,
Organizing Committee
October 19-20, 2024

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WELCOME MESSAGE

Dr. R. AHMADI

AIC Member, Budapest, Hungary; IAS, AIREC and GREEN Scientific Committee Member

Dear Distinguished Colleagues, Precious Researchers,

As the head of the organizing committee, it is with great pleasure and pride that I extend a warm welcome to all the participants of the 6th International Conference on "HYBRID NTERNATIONAL CONFERENCES: ICBMS24, ICNFEAS24 (Turkey); ICCMM24 (Italy) and ICBM24 (Hungary)" taking place on October 19-20, 2024. These hybrid international conferences are made possible through the collaboration and support of Akdeniz University, Avicenna International College (AIC), the International Association of Scientists (IAS), the Global Research, Education and Event Network (GREEN), and the Academy of International Research, Events, and Courses (AIREC). They will delve into significant and intriguing topics in life sciences, medicine, biomedicine, food and nutrition, as well as environmental and agricultural sciences.

I am confident that each of you will find subjects aligned with your interests and derive great value from the numerous enriching discussions that will take place. I am particularly excited about the prospect of this event providing all attendees with the opportunity to engage in exchanges of views and the sharing of experiences with esteemed professors, colleagues, and friends hailing from renowned universities, research institutes, and relevant international organizations. Furthermore, I would be deeply honored if this conference sparks new thoughts and ideas, inspiring scientific research and investigations within your respective fields.

Once again, I extend a heartfelt welcome and convey my best wishes to each and every one of you.

Kind regards,
Dr. Rahim Ahmadi
Organizing Committee (Head)
October 19-20, 2024

WELCOME MESSAGE

Prof. Dr. Bülent TOPCUOĞLU

Plant and Animal Production Department, Technical Sciences Vocational School, Akdeniz University, Antalya, Turkey.

Dear Distinguished Delegates, Colleagues and Guests,

The Organizing Committee warmly welcomes our distinguished delegates and guests to the HYBRID INTERNATIONAL CONFERENCES: ICBMS24, ICNFEAS24 (Turkey); ICCMM24 (Italy); and ICBM24 (Hungary) scheduled on October 19-20, 2024. The conferences are being organized with the joint efforts of Akdeniz University (Turkey), Avicenna International College (Hungary), Colombian Society for Biological Development, Bulgarian Society of Neurology, Argentina Society of Nutrition, International Scientific Association for Support and Development of Medical Technologies (Poland) and Fruit Growing Institute (Bulgaria).

These events are organized to gather members of international community scientists so that researchers from all around the world can present their leading-edge work. The conference has solicited and gathered technical research submissions related to all aspects of major conference themes and tracks. All the submitted papers/abstracts in the proceedings have been peer reviewed by the reviewers drawn from the scientific committee, external reviewers and editorial board depending on the subject matter of the paper/abstract. After the rigorous peer-review process, the submitted papers/abstracts were selected on the basis of originality, significance, and clarity for the purpose of the conference. The conference program is extremely rich, featuring high-impact presentations. The conference will therefore be a unique event, where attendees will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other fields. We would like to thank the organization staff, and the members of the program committees for their work. We are grateful to all those who have contributed to the success of the conferences. We hope that all participants and other interested readers benefit scientifically from the proceedings and also find it stimulating in the process.

With our warmest regards,
Prof. Dr. Bülent TOPCUOĞLU
Conference Chair
October 19-20, 2024

WELCOME MESSAGE

Prof. Dr. Afrim TABAKU

Aldent University, Tirana, Albania.

Dear colleagues,

As a IAS, GREEN and AIREC scientific committee chief member and conference chair, it is my great pleasure to warmly welcome you to the International Conferences: ICBMS24, ICNFEAS24, (Turkey); ICCMM24 (Italy); and ICBM24 (Hungary). These conferences aim to broaden up the scope with fresh insights towards recent findings in medical, biological, food and nutrition, environmental and agricultural sciences. The topics to be discussed include a variety of sciences including AI, life sciences, biology, biomedical sciences, health sciences, and medicine and pharmaceutical sciences as well as food, environmental and agricultural sciences.

By hosting this event we hope to enhance the scientific exchange and dialogue among young researchers as well as PhD and MSc students. We greatly appreciate your attendance and contribution to the success of the events.

With best wishes,
Prof. Dr. Afrim TABAKU,
Aldent University,
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ABSTARCTS

The *in vitro* Influence of Emulsifier Concentration and Mixture Temperature on the Degree of Oil-Water Emulsification

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Background and Aim: Emulsions, mixtures of two immiscible liquids, are commonly stabilized by emulsifying agents. This study investigates the in vitro influence of emulsifier concentration, specifically egg yolk, and mixture temperature on the extent of oil-water emulsification. The aim is to determine how varying these factors affects emulsion stability and volume.

Materials and methods: Emulsions were prepared by adding different amounts of egg yolk (2.00g, 4.00g, 6.00g, 8.00g, and 10.00g) to a water-oil mixture, followed by mixing and a 2-hour waiting period. This process was conducted at room temperature (25℃) and at an elevated temperature (60℃). The volume of oil loss was measured to assess emulsification.

Results: The mass of egg yolk used as an emulsifier significantly affects the volume of oil emulsion. At 25℃, every increment in egg yolk mass leads to a significant increase in emulsion volume, demonstrating a strong and clear relationship between the two variables. However, at 60℃, although the mass of egg yolk still affects emulsification, the relationship is weaker, and fewer pairwise comparisons show significant differences.

Conclusion: These findings underscore the importance of temperature in emulsification. At 25℃, egg yolk is more effective as an emulsifier, leading to better emulsification. In contrast, at 60℃, the emulsifier's effectiveness decreases, resulting in a smaller increase in emulsion volume with more egg yolk. The research confirms that both emulsifier mass and temperature are crucial, with optimal emulsification achieved using more egg yolk at lower temperatures.

Keywords: *Emulsification, Emulsifier concentration, Egg yolk, Oil-water mixture, Temperature, Emulsion stability.*

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Personalized Medicine and Aspirin: Tailoring Cancer Prevention and Treatment Strategies

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Background and Aim: Aspirin, a widely used anti-inflammatory drug, has potential anticancer effects against various types of cancers. However, the efficacy and safety of aspirin in cancer care may vary significantly depending on individual patient factors, highlighting the importance of personalized medicine. The aim of this study was to investigate the anticancer effects of aspirin in the realm of personalized medicine.
Methods: We carried out a literature review using key terms such as "aspirin," "personalized medicine," "cancer prevention," "cancer treatment," and "pharmacogenomics." Databases including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. The selected studies were analyzed to identify the key factors that affect aspirin's role in cancer prevention.
Results: Although a variety of studies reveal the anticancer effects of aspirin on various cancer cells *in vitro* and *in vivo*, some findings indicate that aspirin itself may contribute to the development of some types of cancer, particularly when it is used inappropriately and without considering the individual condition. The potential risks associated with aspirin use, including gastrointestinal bleeding, and how these risks can be mitigated through a personalized approach have been discussed in clinical research. Additionally, personalized medicine can tailor aspirin therapy for cancer prevention and treatment strategies.
Conclusion: Using personalized medicine strategies can optimize the use of aspirin in cancer prevention and treatment. By tailoring aspirin therapy based on individual genetic and molecular profiles, healthcare providers can enhance therapeutic outcomes. However, further research is needed to refine the use of personalized medicine in tailoring aspirin for cancer prevention and treatment strategies.
Keywords: *Aspirin, Personalized medicine, Cancer prevention, cancer Treatment*

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Synergistic Effects of Traditional Plant Drugs and Synthetic Pharmaceuticals: A New Frontier in Pharmacology

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Background and Aim: Traditional plant drugs have been shown to have significant effects on human diseases. Additionally, advanced synthetic pharmaceuticals have been applied in modern medicine in recent decades. The synergistic effects of combining these two approaches have been studied by scientist demonstrating a body of evidences supporting the synergism. This review aims to investigate the potential synergistic interactions between traditional plant-based medicines and synthetic pharmaceuticals.

Methods: A thorough literature search was conducted using key terms including "synergistic effects," "traditional plant drugs," "synthetic pharmaceuticals," "combination therapy," and "pharmacology." Data was collected from multiple databases, including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. Relevant peer-reviewed articles published in the last 20 years were analyzed to assess the outcomes of combining traditional plant drugs with synthetic pharmaceuticals.

Results: Analyzed data show the enhanced therapeutic effects of traditional plant drugs when used in combination with synthetic pharmaceuticals. Examples include improved efficacy in cancer treatments, anti-inflammatory responses, and cardiovascular therapies. The findings demonstrate that the adverse effects have been significantly decreased. Additionally, the review identifies key pharmacokinetic and pharmacodynamic interactions that underpin these synergistic effects.

Conclusion: The synergistic combination of traditional plant drugs and synthetic pharmaceuticals offers a promising approach to developing more effective and safer therapeutic strategies. Although there are contradictory opinions, using this approach in pharmaceutical companies could pave the way for innovative treatments, enhancing the efficacy of both traditional and modern medicine. Further research is required to fully understand the mechanisms behind these interactions and to optimize their clinical applications.

Keywords: *Synergistic effects, Traditional plant drugs, Synthetic pharmaceuticals, Pharmacology*

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Sterile Inflammation: Unveiling the Nexus of Tissue Damage, Thrombosis, and Immune Response in Covid19

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Sterile inflammation (SI) is an inflammatory response triggered by the release of damage-associated molecular patterns (DAMPs) from dying cells, distinct from normal inflammation in its origin from tissue injury and necrosis rather than microbial invasion. Circulating nucleic acids, HMGB1 (High Mobility Group Box 1), vWF (von Willebrand Factor), and s100b protein are notable markers of sterile inflammation, indicative of tissue damage and implicated in thrombotic disorders. Innate immunity, involving cells like macrophages and dendritic cells, recognizes damage-associated molecular patterns or DAMPs via pattern recognition receptors (PRRs) like Toll-like receptors (TLRs) and NOD-like receptors (NLRs), initiating inflammatory signalling cascades central to sterile inflammation and its cardiovascular consequences. Thrombosis, a common outcome of sterile inflammation, underscores the intricate interplay between inflammation and hemostasis, with hypoxia exacerbating thrombotic risk through platelet activation and endothelial dysfunction. The established link between inflammation and thrombosis highlights the clinical significance of sterile inflammation, where molecules like HMGB1, eRNA, and eDNA actively participate in thromboembolic disorders. Sterile inflammation's relevance is particularly evident in COVID-19-induced thrombotic disorders, where dysregulated immune responses and endothelial dysfunction contribute to systemic inflammation and heightened thrombotic risk. Understanding sterile inflammation's mechanisms in these contexts is vital for developing targeted therapies to mitigate vascular complications and enhance patient outcomes in cardiovascular diseases and COVID-19-associated thrombosis.

Keywords: *Sterile inflammation, Innate immunity, DAMPs, PRRs, PAMPs, TLRs, (ROS), HMGB1, vWF, Circulating nucleic acid, Covid-19, Thrombotic disorder*

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Potential Drug-Drug Interactions in Hospitalized Patients

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Background and Aim: The topic of drug-drug interactions has received a great deal of recent attention from the regulatory, scientific, and healthcare communities worldwide. In cases where many drugs are used together, they may interfere with each other. DDIs sometimes may increase the unexpected effects of some drugs.

Polypharmacy is considered one of the major risk factors in the precipitation of DDIs. The patient population at high risk includes the elderly and patients with co-morbidities as they are usually prescribed more drugs. Critical evaluation of such prescriptions by medical staff could result in identifying and reducing such problems. This survey aimed to assess potential DDI's prevalence, severity, and significance in hospitalized patients with cardiovascular disease.

Materials and methods: A retrospective survey was conducted on 180 hospitalized hypertensive patient files of the cardiovascular and diabetes unit in Elbasan regional hospital from 2021 to 2023. Potential DDIs were identified using Medscape Drug Interaction Checker. The data were analyzed using SPSS 21 software.

Results and discussion: Among 180 patients, 83% were exposed to at least one DDI. Out of the 972 potential interactions identified, 50.80% were pharmacokinetic type, 38.14% were pharmacodynamic, and 3.06 % were unknown mechanisms. Serious potential DDIs accounted for 13.50 % of the interactions; 65.61 % were moderate interactions; and 20.89% were minor interactions. Number of drugs used by patients/day was oscillated from 2 to 16. Occurrence was significantly more prevalent in patients with a higher number of drugs, co-morbidity, and longer lengths of stay in the hospital.

Conclusion: According to this survey, it can be concluded that there was a high prevalence of potential DDIs in the regional hospital when the survey was conducted, and some factors that can influence were the increased number of drugs per patient, comorbidities, and length of hospital stay which were to be associated with the occurrence of potential DDIs**.**

Keywords: *Drug-drug interaction, hospitalized patients, poly-pharmacy, pharmacokinetic interactions, pharmacodynamic interactions*

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Psilocybin-Induced Neural Plasticity

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Background and Aim: Psilocybin, a serotonergic psychedelic, has recently been implicated in inducing neural plasticity in the brain. This review aims to explore the current evidence on how psilocybin affects neural plasticity, focusing on its impact on brain activity, connectivity, and potential therapeutic implications.
Materials and methods: systematic review of recent studies was conducted, including research on electroencephalography (EEG) theta power changes, structural and functional neural plasticity, and neuroimaging findings. Studies evaluating psilocybin's effects on neuritogenesis, spinogenesis, and alterations in brain function were reviewed to understand its impact on neural plasticity.
Results: research indicates that psilocybin administration leads to a significant increase in EEG theta power, reflecting changes in neural activity and connectivity. Psilocybin promotes structural and functional plasticity, evidenced by increased neuritogenesis and spinogenesis. Imaging studies have shown psilocybin-induced desynchronization and alterations in brain activity, which correlate with its therapeutic effects. These findings suggest that psilocybin induces rapid and persistent growth of dendritic spines, affecting neuronal structure and function.
Conclusion: Psilocybin demonstrates significant potential to induce neural plasticity, with implications for treating neurological and psychological conditions. The observed changes in brain connectivity and structure underline the need for further research into the mechanisms of psychedelic-induced neuroplasticity and its potential therapeutic benefits**.**

Keywords: *Psilocybin, Neural plasticity, Neuritogenesis, Neuroimaging, Brain connectivity.*

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The Association Between Bacterial Infections and Cancer Development

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Background and Aim: Bacterial infections have been reported to play a role in cancer development. Bacteria can contribute to carcinogenesis through mechanisms such as chronic inflammation, immune system evasion, and the direct alteration of cellular pathways. This study aims to explore the association between bacterial infections and cancer development, focusing on key bacterial species such as Helicobacter pylori, Salmonella typhi, and Chlamydia trachomatis, and their roles in various types of cancer.
Method: Google scholar, PubMed, Scopus, and Web of Science were used to extract the data. Papers published in English language between 2000 and 2024 were included. *In vitro* and *in vivo* and clinical studies concerned with the association of testosterone with brain cancer cells were explored.
Results: Chronic infections with certain bacteria have been found to significantly increase the risk of specific cancers. The relationship between Helicobacter Pylori and duodenal ulcer disease and gastric cancer suggests a potential link between bacterial infections and the development of cancer in the gastrointestinal tract. It has been shown that there is a link between long-term consequences of bacterial infections and development of certain types of cancer. Salmonella enterica serovar Typhi (S. Typhi) has been associated with an increased risk of gallbladder cancer. Moreover, there is an association between Fusobacterium species and pancreatic cancer. Chlamydia trachomatis has been linked to an increased risk of cervical cancer.
Conclusion: Although the mechanism behind the effects of bacterial infection on cancer development is unclear in many cases, further research can reveal the mechanism behind this connection.

Keywords: *Bacterial infection, Cancer development, Carcinogenesis*

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Controversies in MDS Classification Systems

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Background: The classification of myelodysplastic syndromes (MDS) is essential for appropriate treatment and management. However, several controversies exist regarding the most effective and universally applicable classification systems. The revised World Health Organization classification system for myelodysplastic syndromes provides a more homogeneous subgroup division and presents a greater prognostic power compared to the FAB classification system, while on the other hand, the International Prognostic Scoring System provides a more complete clinical picture and accurate prognostic assessment of the patients diagnosed with MDS.

Evolution and Comparison of Classification Systems: The French-American-British (FAB) classification system, established in 1982, has been a reference standard but is primarily based on morphological criteria and myeloblast percentages.

The World Health Organisation (WHO) has revised the FAB criteria to include additional categories and distinctions, providing more homogeneous subgroups and greater prognostic power, though controversies remain. The International Prognostic Scoring System (IPSS) combines blast percentage, karyotype, and cytopenias to estimate the overall survival and the probable risk of transformation to acute myeloid leukaemia (AML), often used alongside FAB or WHO criteria.

The classification of Secondary MDS : Significant controversies exist in classifying secondary MDS, especially regarding risk factors overlap such as genetic predisposition and post-cytotoxic therapy (MDS-pCT).

Current classifications do not fully account for the overlapping scenarios of these risk factors, necessitating future classifications that integrate all risk factors for a more accurate diagnosis.

Challenges in Defining MDS and AML: The distinction between MDS and AML is often undefined, with considerablee overlap between those two conditions. Some argue that current definitions are arbitrary, contributing to this controversy.

Performance of WHO Classifications in Different Regions: The 2022 WHO classification, which includes genetic abnormalities and morphological definitions, was developed based on data from high-income countries. Its applicability in low- and middle-income countries (LMIC) is limited due to challenges like the availability of molecular analysis. Studies show deviations in patient classification between the 2016 and 2022 WHO editions, highlighting the importance of heterogeneity and challenges faced in applying these classifications universally.

Conclusion: Controversies in MDS classification systems generate from the continuos evolution of the classification criteria, from the overlap between MDS and AML, and from the applicability of these systems across different regions worldwide. While the WHO and IPSS systems have improved the prognostic accuracy, the need for a comprehensive and universally applicable classification remains, especially for secondary MDS and in LMIC settings. Future classifications must integrate all risk factors and consider regional differences to provide the most accurate and effective clinical management.

Keywords: *Myelodysplastic syndromes, controversies, classification, WHO and IPSS systems*

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Prevalence of Basal Cell Carcinoma in Aruba: A 15-Year Retrospective Study (2008–2023)

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Background and Aim: Basal Cell Carcinoma (BCC), the most common skin cancer, is influenced by factors like ultraviolet (UV) radiation. Aruba, a Caribbean island near the Equator at approximately 12.5 degrees North latitude, experiences intense year-round UV radiation with UV Index levels often exceeding 11. Its ethnically diverse population, especially individuals with lighter skin phototypes, may have increased susceptibility to UV-induced damage. This study investigates BCC prevalence in Aruba, focusing on age, gender distribution, and treatment outcomes among patients at a dermatology clinic from 2008 to 2023.

Methods: This retrospective study reviewed medical records of 24,443 patients from 2008 to 2023, identifying 1,051 BCC cases. Data were categorized by age groups (under 40, 40–60, over 60 years) and gender. Treatment modalities and patient histories were analyzed. Statistical calculations determined prevalence rates.

Results: BCC prevalence was 4.30%. Among 1,051 cases, 572 (54.4%) were female and 479 (45.6%) male. BCC predominantly occurred in older patients: 95 cases (9.0%) under 40, 289 (27.5%) between 40–60, and 667 (63.5%) over 60 years. The median age was 66.0 years (67.0 for males and 66.0 for females). Prevalence increased with age: 0.2% under 40, 0.7% in 40–60, and 3.4% over 60 years. Most cases were early-stage and effectively treated surgically. No advanced tumors were reported. Follow-up ensured positive outcomes.

Conclusion: Aruba's intense UV radiation significantly contributes to BCC risk. The study found a strong association between BCC prevalence and advancing age, with most cases in patients over 60. Early detection and surgical treatment led to favorable outcomes. These findings highlight the importance of public awareness, regular skin examinations, and UV protection, particularly for high-risk groups. Implementing skin cancer screening and promoting UV protection could enhance early detection and treatment success. Future multi-center research would confirm these findings and inform public health strategies.

Keywords: *Basal Cell Carcinoma (BCC), Prevalence, UV Radiation, Aruba, Epidemiology*

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Prevalence of Acne in Aruba: A Retrospective Study

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Background and Aim: Acne is a common skin condition affecting individuals from adolescence into adulthood, impacting quality of life. Regional data in the Caribbean, particularly Aruba, are limited. This study aims to estimate the prevalence of acne among dermatology patients in Aruba and analyze its distribution across age and gender.

Methods: A retrospective analysis was conducted on medical records from a dermatology clinic in Aruba from 2008 to 2022, encompassing 24,443 patients. Acne prevalence was calculated overall and stratified by age groups and gender. Statistical analyses included calculation of the median age at diagnosis and assessment of gender and age-based prevalence differences.

Results: The overall prevalence of acne was 10.94%, with 2,675 patients diagnosed. Females accounted for 1,788 cases (7.32% of total patients), and males for 874 cases (3.58%), yielding a gender ratio of 0.49. Although females had a higher prevalence, this difference was not statistically significant. The median age at diagnosis was 20.78 years. The highest prevalence occurred in the 15–19 age group, with 857 patients (3.51%), followed by the 20–24 age group, with 732 patients (3.00%). Notably, 676 patients aged 25 years and older were diagnosed with acne, representing 2.77% of the total patient population, indicating that acne significantly affects adults as well. Yearly trends in acne diagnoses showed minor fluctuations without significant variation.

Conclusion: Acne is prevalent among dermatology patients in Aruba, affecting a substantial number of adolescents and adults. The findings highlight that acne is not confined to adolescence, with significant cases persisting into adulthood. The absence of statistically significant differences across gender suggests that acne is a widespread concern affecting both males and females equally. These results underscore the need for public health initiatives, patient education, and further research to improve acne management in the region.

Keywords: *Acne, Prevalence, Epidemiology, Age Distribution*

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Nutritional Impact of Vegetables on Cancer Risk Reduction

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Background and Aim: The association of vegetable consumption with cancer risk has been a significant topic of research in recent years. This study aims to investigate the impact of nutritional interventions, particularly the intake of vegetables, on lowering cancer risk and improving outcomes for cancer patients. The focus is on understanding the role of dietary behavior, personalized nutrition, and the impact of specific vegetable groups on different types of cancer.

Method: A comprehensive review of recent literature was conducted, examining studies that explore the role of vegetables and nutritional interventions in cancer prevention and management. The review included clinical trials, observational studies, systematic reviews, and meta-analyses that assessed the effects of vegetable intake, oral nutritional supplements, and other dietary interventions on cancer risk, recurrence, and patient outcomes.

Results: The findings indicate that vegetable consumption plays a crucial role in cancer risk reduction, with specific studies highlighting its impact on colorectal, gastric, and breast cancers. Nutritional therapy, including precision medicine approaches and oral nutritional supplements, has been shown to improve chemotherapy tolerance, reduce readmission rates, and enhance the quality of life in cancer patients. Additionally, the role of vegetables in modulating immune responses and reducing disability-adjusted life years (DALYs) for major diseases was emphasized.

Conclusion: The evidence supports the importance of vegetable consumption and personalized nutritional interventions in reducing cancer risk and improving patient outcomes. Future research should focus on refining dietary recommendations and exploring the long-term benefits of vegetable intake in diverse populations.

Keywords: *Vegetables, Cancer risk, Nutritional therapy.*

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Personalized Medicine and Aspirin: Tailoring Cancer Prevention and Treatment Strategies

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Background and Aim: In traditional Iranian medicine, a variety of medicinal plants have been described for cancer prevention and treatment. With advances in modern medicine, there is growing interest in integrating the herbal remedies into targeted cancer therapies. This study aims to investigate the role of Iranian herbal drugs in modern targeted cancer therapy.
Methods: A detailed literature review was conducted using key terms such as "Iranian herbal drugs," "targeted cancer therapy," "phytochemicals," "anticancer agents," and "integrative medicine." Data were collected from databases including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. The review focused on peer-reviewed articles, clinical trials, and case studies published over the past two decades.
Results: In traditional Iranian medicine, more than 200 medicinal plants have been described for cancer treatment. The recent *in vitro* and *in vivo* studies indicate that several Iranian herbal drugs have significant anticancer effects against cancer cell through specific molecular pathways including enhanced apoptosis. Compounds such as curcumin, berberine, and thymoquinone have shown promise in inhibiting cancer cell proliferation, inducing apoptosis, and overcoming drug resistance. The results also emphasize the potential of these herbal drugs to enhance the efficacy of existing targeted therapies, reduce side effects, and improve patient outcomes.
Conclusion: Iranian herbal drugs offer promising potential in the field of targeted cancer therapy. Their integration into modern medical practices could provide new avenues for developing more effective and personalized cancer treatments. However, further clinical research and standardization are necessary to fully understand their mechanisms and optimize their use in cancer therapy.
Keywords: *Iranian herbal drugs, Targeted cancer therapy, Anticancer agents, Integrative medicine, Molecular pathways, Apoptosis*

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Synergistic Effects of Traditional Plant Drugs and Synthetic Pharmaceuticals: A New Frontier in Pharmacology

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Background and Aim: Although the traditional herbal medicine has been used to treat a variety of diseases during the history of human life, there are both strengths and weaknesses associated with herbal medicine. This review aims to investigate the strengths and weaknesses of herbal medicine, concerning with its therapeutic potential, safety, and standardization challenges.

Methods: A comprehensive literature review was conducted using key terms such as "herbal medicine," "strengths and weaknesses," "natural remedies," "standardization," and "safety." Relevant articles were retrieved from databases including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. The analysis focused on peer-reviewed research articles, clinical trials, and systematic reviews published in the past two decades that address both the beneficial and problematic aspects of herbal medicine.

Results: Several strengths of herbal medicine have been identified including its natural origin, the potential for fewer side effects compared to synthetic drugs, and its long history of use in traditional practices. However, significant weaknesses were also reported, such as the lack of precise knowledge about their bioactive substances and mechanism of action on target organs and cells, the lack of standardization in dosages, and potential for adverse interactions with conventional medicines. Some herbal drugs may also impose significant side effects when used inappropriately.

Conclusion: Herbal medicine, as a complementary approach to modern healthcare, may offer significant potential benefits. However, lack of sufficient and effective standardization, rigorous in vitro and in vivo studies concerning with herbal medicine, and unknown mechanism of action may address the existing weaknesses.

Keywords: *Herbal medicine, Strengths and weaknesses, Standardization, Safety, Therapeutic potential*

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Selenium Nanoparticles in Cancer Treatment: A Review of Their Antioxidant, Apoptotic, and Antitumor Effects

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Background and Aim: Although selenium nanoparticles (NPs) have been reported to have anticancer effects *in vitro* and *in vivo,* the mechanism of their action in cancer cells is still unclear. This study aims to review the mechanism of action of selenium NPs in cancer cells and their antioxidant, apoptotic, and antitumor effects against cancer cells.

Method: A literature search was conducted using key terms including "nanoparticles," "selenium," "cancer," "apoptosis," "antioxidant," and "mechanism of action." Databases including Google Scholar, PubMed, Clarivate, and ScienceDirect were utilized to gather relevant articles published within the last two decades. The selected studies were analyzed to extract data on mechanism of action of selenium nanoparticles in cancer cells.

Results: It has been found that selenium NPs inhibit cell transformation through different mechanisms. Selenium has apoptotic effects on colon cancer cells. It has been shown that estrogen receptor signaling imparts chemotherapeutic selectivity to selenium NPs in breast cancer. Low doses of selenium can stimulate the repair of oxidative DNA damage in prostate cancer cells. Selenium NPs may prevent cancer cell growth with inverse relationship between NP size and inhibition of cancer cell growth. The anti-cervical cancer activity of selenium NPs, highlighting their potential in inducing S-phase cell cycle arrest.

Conclusion: The studies collectively contribute to understanding the mechanism of action of selenium nanoparticles in cancer cells. Although apoptosis is the common mechanism of action of selenium nanoparticles against cancer cells, further research is required to reveal the mechanism of action behind the selenium NPs in cancer cells.

Keywords: *Selenium, Nanoparticle, Anticancer, Machinsm of action*

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Bacterial Extract-Based Green Nanoparticles Synthesis and Biomedical Applications

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Background and Aim: Studies have shown that green synthesis of nanoparticles using bacterial extracts has recently gained significant attention. The use of bacterial extracts minimizes toxic chemical by-products and offers a novel way to produce nanoparticles with unique biomedical properties. This study aims to review the synthesis of green nanoparticles using bacterial extracts and their diverse applications in biomedical fields.
Method: The prestigious databases including Google scholar, PubMed, Scopus, and Web of Science were explored to extract the data using keywords such as "green synthesis", "bacterial extract", "biomedicine", and "biomedical application". Experimental studies concerned with the bacterial extract-based green nanoparticles synthesis and biomedical applications were explored.
Results: Bacterial extracts contain biomolecules acting as reducing and stabilizing agents in the synthesis of nanoparticles. Green-synthesized nanoparticles exhibit significant antimicrobial properties making them suitable for applications in wound healing and infection control. These nanoparticles also show potential in destroying the cancer cells. In addition, they can enhance imaging techniques such as magnetic resonance imaging (MRI) and computed tomography (CT). They can be designed to release drugs in a controlled manner, therefore, can be used in drug delivery system.
Conclusion: Bacterial extract-based green nanoparticles synthesis represents a safe method of synthesizing the nanoparticles including Ag and gold nanoparticles, offering a sustainable and effective method for producing nanoparticles with diverse biomedical applications. The can be applied in antimicrobial treatments, cancer therapy, diagnostic imaging, and drug delivery systems. Further research into optimizing synthesis methods and exploring new applications will further enhance their potential in biomedical fields.
Keywords: *Bacterial extract, Green synthesized nanoparticles, Biomedical applications*

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Molecular Mechanisms of Genomic and Non-Genomic Sex Steroid Actions in Cancer Cells

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Background and Aim: Although association of sex steroids, including estrogens, androgens, and progestogens, with cancer cells proliferation, differentiation, and apoptosis has been reported in many studies, the precise mechanism of sex steroids action in cancer cells remains to be revealed. This study aims to explore the molecular mechanisms by which sex steroids influence cancer cells growth and proliferation.
Method: A review of the literature was conducted using databases such as PubMed, Scopus, and Web of Science, covering studies published between 2000 and 2024. Experimental *in vitro* and *in vivo* studies focusing on the mechanism of sex steroid action in cancer cells were included.
Results: Anticancer effects of estrogen, progesterone and testosterone can be mediated through both genomic and non-genomic pathways. In breast cancer cells, p130Cas has been shown to interact with estrogen receptor α and modulate non-genomic estrogen signaling. Recent evidence also suggests a cross-talk between tyrosine phosphorylation signaling and steroid hormone action in epithelial cells, including prostate and breast cancer cells. Shc adaptor proteins, specifically p52(Shc) and p66(Shc), have been implicated in mediating steroid hormone-regulated cancers through a novel molecular mechanism involving redox signaling induced by p66(Shc). Sex steroids can induce intrinsic and extrinsic apoptotic pathways in cancer cells.
Conclusion: Sex steroids influence cancer cells growth, proliferation and differentiations through genomic and non-genomic pathways and may have carcinogenic or anticancer effects in human tissues. Further research is required to reveal the exact mechanism of sex steroids on cancer cells.

Keywords: *Sex steroids, Genomic, Non-Genomic, Molecular mechanism*

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Challenges and Opportunities in the Implementation of Molecular Diagnostics for Precision oncology

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Background and Aim: Molecular diagnostics are crucial component of precision oncology, enabling personalized treatment strategies based on the unique molecular profile of each patient 's tumor. However, using these diagnostic technologies may face several challenges. This study aims to investigate the key challenges and opportunities associated with the implementation of molecular diagnostics in precision cancer therapy.

Methods: The key terms including "molecular diagnostics," "precision oncology," "implementation challenges," "biomarkers," and "healthcare access" were used to gather the reasech data. Relevant studies were sourced from databases including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. Peer-reviewed articles and clinical studies published in the last decade were reviewed and analyzed.

Results: The study highlights several major challenges in the implementation of molecular diagnostics, including the complexity of tumor heterogeneity, the need for standardized testing protocols, and the difficulty in interpreting genetic data. However, the review discusses numerous opportunities for implication of molecular diagnostics in precision cancer therapy, such as the integration of artificial intelligence for data analysis, the development of more comprehensive testing panels, and the potential for improved healthcare policies to enhance patient access to these vital diagnostic tools.

Conclusion: Although there are significant challenges to the implementation of molecular diagnostics in precision cancer therapy, there are also substantial opportunities to enhance their integration into clinical practice. By identifying the challenges and overcoming the barriers, molecular diagnostics can play a crucial role in advancing precision oncology and improving patient outcomes.

Keywords: *Molecular diagnostics, Precision oncology, Implementation challenges*

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ABSTARCTS

Breast Cancer in Asian Communities: Future Directions

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Background and Aim: Breast cancer has been a significant health concern within Asian communities. Despite advancements in early diagnosis and treatment, there is a pressing need to improve awareness, screening, and care tailored to these communities. The main aim of this study was to investigate the future directions for breast cancer in Asian communities.
Materials and methods: A review of the literature was conducted using AI-based tools, analyzing studies on breast cancer epidemiology and survivorship in Asian populations. Keywords used for literature review were: “Breast Cancer”, “Epidemiology”, “Asian Communities”, and “Future”. The data websites including “Google scholar”, “PubMed”, “Science direct” and “Carafate” were used to gather the data. Using AI, the review also examined global and regional statistics to project the future burden of breast cancer in Asian communities.
Results: The findings show a significant advancement in advanced imaging technologies, such as ultrasound and mammography enhanced by AI and deep learning, which show promise for early detection in Asian populations which is followed by effective treatment. Cultural considerations were found to be crucial in designing effective survivorship interventions. Additionally, exosomes are emerging as a novel modality for breast cancer diagnostics and drug delivery. The review underscores the need for inclusive, multidisciplinary care models and community-based support services to improve outcomes for breast cancer survivors in Asia.
Conclusion: Future directions for breast cancer research and care in Asian communities should prioritize increasing awareness and screening, leveraging advanced imaging and diagnostic technologies, including AI-based diagnostic technologies, integrating culturally sensitive interventions, and enhancing survivorship support. Addressing these areas will be essential for reducing the burden of breast cancer and improving patient outcomes in these populations.
Keywords: *Vegetables, Cancer risk, Nutritional therapy.*

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Personalized Medicine and Aspirin: Tailoring Cancer Prevention and Treatment Strategies

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Background and Aim: During and after Covid-19 pandemic, telemedicine evolved as a critical component of modern healthcare to offer medical services remotely. Additionally, by emerging the integration of artificial intelligence (AI) and contribution of AI to telemedicine, access to healthcare, especially in underserved and remote areas, has been significantly expanded. This study aims to investigate the role of AI in enhancing telemedicine.
Methods: A comprehensive literature review was conducted using key terms including "AI," "telemedicine," "remote healthcare," "diagnostic tools," and "healthcare accessibility." Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus databases were used to review the peer-reviewed articles, case studies, and systematic reviews published over the past 15 years.
Results: AI-driven telemedicine could enhance and improve the diagnostic accuracy, patient triage, and personalized treatment plans. Applications of different aspects of AI in telemedicine have increased effectiveness in remote monitoring, virtual consultations, and automated health assessments. Recent studies in developing communities also highlight how AI can address challenges such as the shortage of healthcare professionals and the need for timely medical interventions, particularly in rural and low-resource settings.
Conclusion: AI contribution to telemedicine can significantly improve the quality of care and expanding access to healthcare services. By enabling more accurate and efficient remote diagnostics and patient management, AI-driven telemedicine can bridge gaps in healthcare delivery, particularly for populations with limited access to traditional healthcare services. However, challenges such as data privacy, algorithm bias, and the need for regulatory frameworks must be addressed to fully realize the potential of AI in telemedicine.

Keywords: *Artificial intelligence, Telemedicine, Remote healthcare, Healthcare accessibility*

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Molecular Mechanisms in Drug Resistance: Insights from Pharmaceutical Sciences and Molecular Medicine

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Background and Aim: Experimental and clinical evidences show that drug resistance has turned to a major challenge in the treatment of various diseases. Investigating the molecular mechanisms involved in drug resistance is pivotal for modern therapies. In this study we aim to explore the molecular mechanisms associated with drug resistance and to provide insights from both pharmaceutical sciences and molecular medicine, focusing on potential strategies to overcome resistance.

Methods: A detailed literature search was conducted using key terms such as "drug resistance," "molecular mechanisms," "pharmaceutical sciences," "molecular medicine," and "therapeutic strategies." Relevant studies were sourced from databases including Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. The review analyzed peer-reviewed articles, clinical studies, and reviews published over the past 15 years, with a focus on identifying the key molecular pathways involved in drug resistance and the implications for pharmaceutical research and development.

Results: The reports indicate that alterations in drug targets, efflux pump overexpression, enzymatic drug inactivation, and changes in cell death pathways are major components of drug delivery in target tissues. Genetic mutations, epigenetic modifications, and the tumor microenvironment also play a crucial role in drug resistance.

Conclusion: The complexity of drug resistance has been highlighted in a variety of studies, according to which, we need multidisciplinary approaches combining pharmaceutical sciences and molecular medicine to address effectively the drug resistance in target tissues. Using *in vitro* and *in vivo* molecular medicine findings and pharmaceutical sciences provide a deeper understanding of the mechanisms driving resistance, offering avenues for novel therapeutic strategies.

Keywords: *Drug resistance, Molecular mechanisms, Pharmaceutical sciences, Molecular medicine*

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Ganoderma Extracts, Pharmacological Properties and Biomedical Applications

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Background and Aim: Ganoderma, particularly Ganoderma lucidum, commonly known as Reishi or Lingzhi, has been used in East Asian traditional medicine for many years to treat a variety of diseases and wounds. Studies have shown that Ganoderma extract has antioxidant, anti-inflammatory, and anticancer effects. The aim of this study is to review the pharmacological properties of Ganoderma extracts and their biomedical applications.
Method: We explored Google scholar, PubMed, Scopus, and Web of Science to extract the data using keywords such as “Ganoderma”, “pharmacological properties”, “biomedicine”, and “biomedical application”. Experimental studies concerned with the pharmacological properties of Ganoderma extracts and their biomedical applications were explored.
Results: Ganoderma extracts are rich in bioactive compounds, including triterpenes, polysaccharides, and phenolic compounds, which contribute to their pharmacological effects including antioxidant activity, antimicrobial effects, antitumor activity, anti-inflammatory properties, and immunomodulatory effects. The pharmacological properties of Ganoderma extracts make them suitable for biomedical applications such as cancer therapy, dietary supplements aimed at enhancing overall health, cosmetic formulations, particularly in skin care products targeting aging and inflammation, and pharmaceutical formulations for the treatment of various diseases, including metabolic disorders, cardiovascular diseases, and infections.
Conclusion: Ganoderma extracts, particularly from G. lucidum, have been reported to have significant pharmacological properties. The antioxidant property of Ganoderma extracts make them valuable in biomedical applications ranging from cancer therapy to cosmetic formulations. Further research particularly focusing on the mechanism of Ganderma extracts action on target cells can reveal their biomedical effects in target tissues.
Keywords: *Ganoderma extracts, Pharmacological properties, Biomedical applications*

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Molecular Mechanisms of Genomic and Non-Genomic Sex Steroid Actions in Cancer Cells

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Background and Aim: Nanobiotechnology has revolutionized cancer treatment, offering new strategies for targeted drug delivery. Nanovesicles, in particular those synthesized using biological sources such as fruit extracts, can be applied for cancer treatment. This study aims to review the application of nanovesicles synthesized from fruit extracts in breast cancer treatment.
Methods: The published papers were reviewed using well-known sources such as Google Scholar, PubMed, Clarivate, ScienceDirect, and Scopus. The key terms including "nanovesicles," "fruit extract," "cancer," "breast cancer," and "treatment" were used to find the best related papers. Peer-reviewed articles and clinical studies published in the last decade were reviewed and analyzed.
Results: Recently research has focused on the potential of fruit extract-derived nanovesicles (FDNVs) application in breast cancer treatment. Early studies revealed the significant antioxidant properties of FDNVs. As research progressed, scientists found that FDNVs can be applied in targeted drug delivery systems; for instance, ginger-derived nanoparticles could enhance the delivery capabilities in cancer models. Isolating and characterizing FDNVs from fruits like blueberries and citrus, has been reported recently to increase the ability of nanovesicles to induce the cancer signaling pathways *in vitro* in cancer cells including breast cancer cells.
Conclusion: Although there are significant challenges in application of FDNVs for breast cancer treatment, the research underscores the potential of FDNVs as therapeutic agents in cancer treatment as well as using FDNVs as vehicles for chemotherapeutic drugs. Further *in vitro* and *in vivo* research are required to reveal the exact role played by FDNVs in breast cancer therapy.

Keywords: *Fruit extract-derived nanovesicles, Drug delivery systems, Breast cancer therapy, Targeted treatment, Nano-based therapeutics*

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ABSTARCTS

Observed Trends and Projected Impacts of Extreme Climate Change Events: Regional and Global Perspectives

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In general usage, climate change describes global warming, the ongoing increase in global average temperature, and its effects on World's climate system. In a broader sense, climate change also includes previous long-term changes of climates in the Earth. Global average temperature rises in the recent years is primarily caused from the burning of fossil fuels by humans since the industrial revolution. Anthropogenic activities, deforestation, fossil fuel use and some industrial and agricultural practices increase the greenhouse gases to a larger extent. Heats radiated by the Earth are absorbed by some of these gases upon it warms directly from sunlight, reheating the lower atmosphere. The primary greenhouse (CO_2) gas lashing global warming, has grown-up by around 50% and it at levels unseen for millions of years before. Climate change is changing water availability, making it scarcer in more regions. Global warming exacerbates water shortages in already water-stressed regions. It has an increasingly large impact on environment and as such deserts are expanding, while wildfires and heat-waves are fetching more frequent. Amplification of warming in the Arctic has contributed to thawing permafrost, retreat of glaciers and decline of sea ice. Higher temperatures are also causing more intense storms, droughts, and other weather extremes. Rapid environmental change in mountains, coral reefs, and the Arctic is forcing many species to relocate or become extinct. Even if efforts to minimize future warming are successful, some effects will continue for centuries. These include ocean acidification, ocean heating sea level rise and storm surges.

Climate change is progressively threatening people, natural ecosystem and biodiversity with increased flooding, extreme heat, increased food and water scarcity, more disease, and economic loss. Migration of human and conflict among them can also be a result. The WHO (World Health Organization) demands climate change as one of the prime threats to global health in the 21st century. Natural ecosystems and human societies will experience more severe experience more hazards without taking the immediate action against the warming. Climate change adaptation through the efforts, viz., flood control measures or drought-resistance crops partly decreases climate change risks, even though some confines to adaptation have already been reached. The poorer communities in the society are accountable for a little share of global emissions, up till now they have the minimum capability to accustom and most susceptible to climate change effects.

Numerous climate change impacts have been felt in recent years, with 2023 the warmest on record at +1.48°C (since regular tracking began in 1850). Additional warming will increase these impacts and can trigger tipping points, such as melting all of the Greenland ice sheet. Under the 2015 Paris Agreement, nations collectively agreed to keep warming "well under 2°C". However, with pledges made under the Agreement, global warming would still reach about 2.7°C by the end of the century. Limiting warming to 1.5°C would require halving emissions by 2030 and achieving net-zero emissions by 2050. Fossil fuel use can be phased out by conserving energy and switching to energy sources that do not produce significant carbon pollution. These energy sources include wind, solar, hydro, and nuclear power. Cleanly generated electricity can replace fossil fuels for powering transportation, heating buildings, and running industrial processes. Carbon can also be removed from the atmosphere, for instance by increasing forest cover and farming with methods that capture carbon in soil.

Nevertheless, regions around the world are experiencing multiple increasing climate extremes and impacts include extreme high temperatures, heavy rainfall and flooding, river flows, agricultural drought, fire weather and glaciers. Confidence in attribution of trends to human-caused climate change varies between impacts and regions, and information is not available for all impacts. There are numerous other impacts related to human-induced climate change, such as coastal flooding and risks to biodiversity leading to widespread decline in ecosystems, that are also of concern today. Several regions around the world do not have sufficient data for all extremes / impacts, and some impacts are not applicable in all regions and countries. The observed changes in hot extremes since the 1950s and examples of impactful extreme heat events with their severity / likelihood increased by anthropogenic climate change. As climate change worsens day by day, dangerous weather events are becoming more frequent or severe. Trends in climate change have also been observed in historical data and thus projections of future climate impacts are important for focusing on effective adaptation and mitigation strategies to a greater extent in commensuration with regional and global perspectives.

Keywords: *Global warming, climate change, impacts, trends, projections, regional, global, adaptation, mitigation*

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Identifying the Climate Politicization of the EIB Using Natural Language Processing

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This paper aims to illuminate the complex relationships between Europeanization in climate policies via financial institutions, the various forms of politicization as conceptualized by Limbocker et al. (2022), and policy convergence. I assess the EIB's role as both a subject and an agent of these processes, considering how each dimension of politicization manifests in the bank's operations and decision-making. To assess whether the EIB does indeed carry out political objectives, this paper employs a multi-faceted approach. It examines the bank's legal and institutional framework, its policy alignment with EU political priorities, its partnerships and collaborations with other EU institutions, and its responses to significant political events assisted by natural language processing (NLP) techniques. This analysis draws upon EU legislation, EIB annual reports, and United Nations Framework Convention on Climate Change (UNFCCC) Multilateral Development Bank (MDB) documents, 115 in total. The findings in this section show that coordination in the climate finance area among the UNFCCC MDB network, the EU, and the EIB is significant. It is revealed that the similarity between the EIB and the EU Green Deal documents is significantly higher. The UNFCCC MDB documents serve as the central node for document connectedness. This indicates that the EU Green Deal policy documents are also heavily influenced by the UNFCCC MDB documents. The temporal analysis also shows that there is dynamic interaction among the EU Green Deal, the UNFCCC MDB, and the EIB documents.

Keywords: *Climate, Climate Politicization, EIB*

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Risk of Fishborne Trematode Infections by Eating Raw Fish of Vietnam's Thai People in Son La Province

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Background and Aim: Fishborne zoonotic trematode (FZT) diseases are transmitted to humans and animals by eating raw/undercook fish. FZT are of particular importance in Asia. The aim of the present study is to determine the risk of FZT infections by eating raw fish of Vietnam's Thai people.
Methods: The survey were conducted from June to July 2024 in Muong La and Son La city, Son La Province. Restaurants that serve raw fish salad were selected for the survey. Brief interviews were conducted with restaurant staffs and customers. Raw fish salad sample were collected at the restaurant. Fish were collected from fish pond that supplies fish to restaurant. Fish samples were transferred to the lab for examination. Snail were collected and examined by cutting and crushing method. Metacercariae species and cercariae group were morphological identified.
Results: The results showed that Vietnam's Thai people love to eat raw fish salad. Two raw fish dishes were prepared: raw fish salad made from grass carp, local name "Gỏi cá"; and jumping fish salad made from juvenile common carp, local name "Cá nhảy". Vietnam's Thai people have been eating raw fish for many generations and they think eating raw fish makes the body healthy. Small liver fluke was not found in fish sample but two smaill intestinal fluke metacercaria species were found. One *Haplorchis pumilio* metacercaria was found in grass fish salad. Metacercaria of *Centrocestus formosanus* were found in common carp with infection rate 13.6% (27/198). *Melanoides tuberculatus* is 1st intermatidate host of small intestinal fluke in study area, pleulophocercous cercaria infection rate was 9.17% (30/327).
Conclusion: The risk of people being infected with FZT is very high. The results of this study contribute to raising awareness about the prevention of FZT infection to improve public health and one health approach.

Keywords: *FZT, Raw fish salad, jumping fish salad, One Health, Son La, Vietnam*

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Effects of Foliar Cobalt Applications on Vegetative Growth and Stress Responses of Different Onion Varieties

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Background and Aim: In recent years, some elements that are not considered as essential plant nutrients have been the subject of research due to their beneficial effects on plants under both abiotic and biotic stress conditions. Among these elements, Cobalt has a positive effect on plant development and yield, both under normal and stress conditions. However, data on the effects of high doses of cobalt applications on plants are very limited. In this study, the effects of different doses of exogenous cobalt application on vegetative growth of onion cultivars were investigated.
Methods: This study was conducted under controlled greenhouse conditions, increasing doses of cobalt were applied to white, purple and yellow onions foliarly at certain developmental stages. Onion plants were grown in the greenhouse with standard fertigation solution in substrate medium. Cobalt solutions including control, 100, 200 and 300 µM were applied to yellow, white and purple onion by foliar spraying. Onion plant parameters including shoot lenght (SL) and root length (RL), shoot fresh weight (SFW) and shoot dry weight (SDW), root fresh weight(RFW) and root dry weight (RDW) and malondialdehyde (MDA) levels at harvest stage were analyzed.
Results: A 100 µM cobalt treatment increased root length and shoot dry weight in all three cultivars. While the fresh weight of all varieties of onion plants decreased in all Co treatments, the dry weight of white and purple onion varieties increased in 100 mM Co treatment compared to the control treatment. Concentrations above 100 µM caused suppression of vegetative development. Considering that high doses of cobalt cause oxidative stress in the plant, and the highest MDA values were found at high cobalt doses.
Conclusion: The response of onion plants to high doses of cobalt applications differed according to onion genotypes. Cobalt doses above 100 µM increase MDA levels in onion plants, suppress growth and increase stress in plants. As a result, it is recommended that relatively low levels of cobalt be tested to support vegetative growth in onions and to determine the optimum dose for plant development.

Keywords: *Fruit extract-derived nanovesicles, Drug delivery systems, Breast cancer therapy, Targeted treatment, Nano-based therapeutics*

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