



Haematological Alterations in Fish *Clarias batrachus* Exposed To Pesticide Ethion

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Introduction:-

Blood is the pathophysiological reflector of the body and hence, blood cell like erythrocytes are important in diagnosing the functional and structural position of fish exposed to toxicants. The blood of fishes is made up of cellular components suspended in plasma. The cellular components of blood of fishes are Red blood cells (RBC), White blood cells (WBC) and thrombocytes designated as formed elements of the blood. Blood acts as a carrier medium for distributing the metabolites to various parts of the body while the liver and kidney's are the major organs of accumulation, biotransformation, detoxification and excretion. pesticides do effect the biochemical changes in the blood and also parameter of the blood changes. In the opinion of (Shanker Murthy K. et al., 2013) the review articles on toxicity of pesticides in fish documented the work where pesticides induce alteration in blood parameters and stressed the impact of such changes. Maheshwaran et al., (2008) studied the haematological parameters of chloride could cause immunological impairments in *Clarias batrachus*, which implies that metal could interfere with the immune system and could result in different physiological disorders, which leads to the death of the fish. Many reports have been published on the toxic effects of pesticide on haematology of fishes (Koundinya and Ramamurthi, 1979; Sharma and Gupta, 1984; Thakur and Pandey, 1990). The impact of pesticide can be analyzed by blood because blood acts as a medium for the translocation of pesticides, the medium to various organs or system of an animal. In aquatic animals, like fish the entry of pesticide is through gills or mouth, therefore into blood and subsequently to various organs or body systems. Haematological parameters are important for toxicological research and has been widely use in environmental monitoring as an indicator of disease and environmental stress (Li ZH et al.; 2010). The aim of present study was to analyse the effect of pesticide Ethion on certain hematological parameters like total count of red blood corpuscles (RBC), white blood cells (WBC), concentration of hemoglobin (Hb) in the blood of the fish *Clarias batrachus*.

Materials And Methods :-

The fresh water fish *Clarias batrachus* measuring 250-260 gm in weight and in length 33cm-35cm were collected from Nanded fish market with assistance of local fisherman and carried to laboratory. The fishes were firstly washed by tap water. After that they were washed with 0.1% potassium permanganate solution and acclimatized under laboratory condition for seven days. The fishes were kept in glass aquarium to observe any visible pathological symptoms. The fishes were kept in large glass aquarium of 10 liter capacity. The water was changed daily during acclimatization period. The fish were feed on

earthworms and artificial pelleted commercial food on alternate days.

A stock solution of pesticide Ethion was prepared in laboratory after acclimatization, fishes were transferred to next glass aquarium. Fishes were exposed to concentration of pesticide Ethion value (1.25ppm). They were divided into two groups.

Each group contain 10 fishes in normal and treated group. The fishes were exposed to pesticide Ethion for 24hrs, 48hrs, 72hrs and 96hrs. And blood parameters analysed in both normal and treated groups compared with normal group.

A Review on Impact of Climatic Change on The Global Environment Aspect.

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Abstract :-

Any change in the climate affects the environment including natural ecosystem, water, temperature, energy and human health. The paper discusses the climate changes on various aspects of environment degradation of forest, mountain, with heavy rainfall increase erosion of soil and makes soil less fertile. The paper also includes the effects of climate changes reduces economic sector of people like agriculture and food security. In the end, the paper put forward some suggestions about how to prevent climatic changes in the environment.

Introduction :-

Climate science is one of the most important areas of scientific research in the world today, and we still have a lot to learn to fully understand this crucial problem (D. Coen; 2019). The impact of global climate on various aspect in the environment will be comprehensive, multi-scale and multi-layered. Global warming refers to the fact that the atmosphere is warming is a sign that the earth has passed and will pass away in the future. and it is happening because of human activities , industrial pollution, degradation of land as well as natural disasters and it will have many serious and potentially harmful effects in the coming decades .The scientific evidence shows a clear picture: climate change is occurring at least in the last few decades and possibly for many decades to come (S.Becken et al., 2017).

Climate change will alter the quality and functioning of ecosystem, reducing their capacity to perform role as important life support systems. The degree of local environmental degradation will influence the vulnerability of an ecosystem to climate change. Degradation of forested mountain slopes in conjunction with intensified rainfall may increase erosion and loss of fertile soil and affect the quality of watersheds. Climate change leads to changes in species distribution and abundance and increase the risk of extinction and loss of biodiversity (IPCC 2001 b).

Some ecosystem are highly sensitive, even small changes can have large effects. Small rise in water, temp, change can cause climate changes for the example damage coral reefs, exacerbating other stresses such as pollution and over-fishing and there by cause a reduction in fish stocks and tourism depend livelihoods.

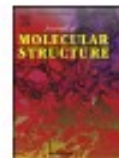
Change in ecosystem composition and provision of good and services may also

have broad economic effects. Essential ecosystem services of peoples such as agriculture, water and food security.

Climate change is projected to further region, particular in subtropics ,due to changes in rain fall patterns and runoff, rise frequency of drought and increase evaporation. As rainfall events are expected to become more intense, affects human settlements and infrastructure. The melting of glaciers has become a serious concern in the Himalayan resion, because of the growing risk of glacial lake out -burst floods (UNEP/ ICIMOD; Bhutan 2000).

Effects of global warming on aquatic communities are currently unknown, but because these communities are strongly tied to their territorial settings. Through energy , nutrients and water (Likens 1985, Minshall et al., 1985), change in terrestrial vegetation could have pronounced effect on freshwater system (Minshall et al., 1983). Agriculture is most important sector of developing countries. Increasing the food demand but climatic changes affects the production of food in agriculture Crosson and Rosenberg ,1989 showed that overall, the future rate of growth in worldwide demand for food and fiber can be met, even with most commonly projected climatic changes. The impact of climate change on food supply varies significantly by regions. In general, crop yield are projected to decreased in most tropical regions due to changes in temperature.

Large temperature change that have now become a reality on earth will greatly accelerate other changes already underway in the climate system, such as changing precipitation pattern , increasing evaporation due to warming ,and increasing temperature extremes (D. Koll et al., 2018). It remains to be seen to what extent the extent of this development is reflected in elevated temperatures and extremes, but the fact that



Study of the binding interaction between bovine serum albumin and carbofuran insecticide: Multispectroscopic and molecular docking techniques

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ABSTRACT

Carbofuran is an agricultural use nematicide, acaricide, and broad-spectrum systematic anticholinesterase carbamate insecticide. Carbofuran accumulates in foodstuffs and has many hazardous effects on animal and human health through ingestion and respiration. People with a cardiovascular condition, asthma, diabetes, mechanical obstruction of the gastrointestinal or urinary tract are more prone to these effects. Therefore, there is a need to develop a responsive and economical approach to understand the molecular interaction between carbofuran and serum protein. In this paper, carbofuran is examined for interaction with bovine serum albumin across several spectroscopic methods. The fluorescence quenching study of bovine serum albumin with

Carbofuran revealed the static nature of quenching. The Stern-Volmer constant (K_{SV}) for Carbofuran interaction with bovine serum albumin was found to be $2.02 \times 10^4 \text{ dm}^3 \text{ mol}^{-1}$ at 298 K. Circular dichroism studies showed minor changes in the secondary structure of albumin on interaction with bovine serum albumin. The binding of carbofuran at Site I of bovine serum albumin was confirmed by competitive molecular docking studies. The present work may provide new insights into the mechanism of carbofuran toxicity and its health consequences.

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1. Introduction

The colossal use of pesticides in agriculture directly affects human health through food intake [1]. The spillage of pesticides during their use is another way of contacting it. The repercussions of pesticides on the human body vary from mild to extreme, depending upon their binding capacity to the blood components. The pesticide binds to the blood serum protein to compose a complex that can adversely affect the pesticide's metabolism, transport, absorption, and toxicity. Therefore, it is paramount to know the deleterious effects of the pesticide-protein interaction. Blood serum albumin is a vital plasma protein in the circulation, transport, and metabolism of many exogenous ligands like amino acids, fatty acids, pharmaceutical drugs, and medicines [2]. Serum albumin is possibly a binding protein that plays the role of carrier and distributor of foreign molecules. The binding affinity and type of binding determine

the toxicity of the pesticide. Thus, we tried to study the mode and binding affinity of pesticide-serum albumin system in the proposed work.

Bovine serum albumin (BSA) (Fig. 1a) was chosen as a standard protein (*In vitro* model) for the studies owing to its 75.6% sequencing homology and 76% tertiary structure resemblance with Human Serum Albumin (HSA), its easy availability, and affordability [3,4]. BSA can bind reversibly to hormones, nutrients, pharmaceuticals, fatty acids, and even toxins.

Carbofuran (Fig. 1b) is an effective carbamate (2, 3-dihydro-2, 2-dimethyl-7-benzofuran-7-yl methyl carbamate) used in agricultural practice as a broad-spectrum contact insecticide, nematicide, and acaricide [5,6]. Carbofuran is sprayed on several fruits, vegetables, grains, seeds, and seedlings to protect insects and soil pests [7,8]. Carbofuran is said to be highly toxic to mammals. It is moderately toxic through dermal absorption and extremely poisonous through inhalation and ingestion, posing a significant risk to those in direct contact (in agricultural fields, plant production, and formulation) [9]. Its inimical effects include violent seizures, neuromuscular dysfunction, and cholinesterase inhibitory effect [10]. Carbo-

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Ligand-free MnBr_2 -Catalyzed Chemo- and Stereoselective Hydroboration of Terminal Alkynes

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Developing simple and benign protocols for synthesizing alkenylboronates is crucial as they are synthetically valuable compounds in various organic transformations. In this work, we report a straightforward ligand-free protocol for synthesizing alkenylboronates via atom-economical hydroboration of alkynes with HBpin catalyzed by a manganese salt. The reaction shows a high level of chemo and regioselectivity for the terminal

alkynes and exclusively produces *E*-selective alkenylboronates. The hydroboration scope is vast, with the resilience of a range of synthetically beneficial functionalities, such as halides, ether, alkenyl, silyl and thiophenyl groups. This reaction proceeds through the involvement of a metal-hydride intermediate. The developed alkenylboronate can be smoothly converted to useful C-C, C-N and C-I bond-forming reactions.

Introduction

Organoboronates are synthetically crucial compounds used in a wide range of organic transformations due to their unified physiochemical properties.^[1] Boronate compounds also play a significant role in pharmaceuticals and material science.^[2] Mainly, the alkenylboronates are extensively used as coupling partners in well-known Suzuki-Miyaura coupling reactions,^[3] and strategically transformed into valuable functionalities such as alcohols, aldehydes and ketones in the late-stage functionalization of complex organic molecules. Therefore, the development of novel approaches for synthesizing alkenylboronates is given significant consideration and is substantially emerging over time. Conventionally alkenylboronates are synthesized from alkenyl halides, triflates or silanes by metal exchange reactions.^[4] Moreover, non-catalyzed borylation reactions of alkynes via hydroboration and haloboration are known, albeit at elevated reaction temperature and/or using excess borylating reagents.^[5] Despite these methods, the chemo- and stereoselective controlled hydrofunctionalizations of alkynes, which are hardly accessible by conventional protocols, remain a challenging problem in organic synthesis.

In that context, enormous effort has been devoted to developing alkenylboronates by the transition metal-catalyzed hydroboration of alkynes,^[6] which provides alkenylboron compounds in a high regio- and stereoselective manner. This straightforward and atom-economical strategy has made substantial progress and is well-established by employing noble

metal catalysts such as rhodium,^[7] iridium,^[8] ruthenium,^[9] palladium^[10] and platinum.^[11] In recent years, the hydroboration of alkenes and alkynes has taken an incremental step, and the cost-effective 3d metal catalysts have been successfully introduced in this field. Considering the sustainability and environmental benefits, the metal complexes of Fe,^[12] Co,^[13] Ni,^[14] and Cu^[15] have been employed for the hydroboration of alkenes and alkynes. Notably, most of the reports are dominated by alkenes hydroboration, and the synthesis of alkenylboronates compounds via hydroboration of terminal and internal alkynes is extremely limited.^[16] Being the 3rd most earth-abundant transition metal and non-toxic, manganese, has also been recently explored for hydroboration reactions.^[17] In a unified example, Rueping reported the (NNN)-pincer ligated Mn(II) catalyst for the hydroboration of propargylic alcohols and amines as well as internal alkynes with high regio- and stereoselectivity (Scheme 1a).^[18] Similarly, a notable example of *trans*-1,2 diboration of terminal alkynes using a phosphine-ligated Mn(I) complex was demonstrated by Kirchner (Scheme 1b).^[19] Interestingly, this protocol provided both mono- and di-borylated products and the reaction lacks with the chemoselectivity. Considering the importance of alkenylboronates, a straightforward protocol employing a user-friendly catalyst system for the chemo, regio- and stereoselective hydroboration of alkynes is very much essential. Based on our interest in developing 3d metal-catalyzed organic transformations,^[20] we wished to investigate and create a simple protocol for the selective hydroboration of terminal alkynes with dialkoxyboranes such as pinacolborane (HBpin) that we report herein (Scheme 1c).

Results and Discussion

Optimization of Reaction Parameters

We have initiated the optimization of reaction conditions using phenylacetylene (**1a**) as a model substrate and pinacolborane (HBpin) as a borylating partner (Table 1). The use of manganese salt MnBr_2 (5 mol%) as a catalyst and NaBEt_3H (10 mol%) as an

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Reaction Kinetics With 1-Chlorobenzotriazole As A Versatile Oxidant Compound : A Review

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ABSTRACT

Chlorobenzotriazole is a potential oxidant because of its ease with which it is prepared, its stability, reactivity under mild conditions and the ease of isolation of products. Basically the triazoles are weak bases and are very stable compounds. Benzotriazole is quantitatively changed over into the colourless crystalline 1-chlorobenzotriazole, the science of which is overwhelmed by the positive halogen character of the chlorine molecule. It is less hazardous and simpler to prepare precursor to N-substituted benzotriazoles by way of nucleophilic displacement of chlorine from nitrogen. The predominant role of 1-chlorobenzotriazole involves as initial one electron abstraction from the compound followed by a product determining deprotonation of the resulting products. In this review of literature reveals the systematic and comprehensive approach in the investigations on the kinetics of oxidation of some medically important compounds such as amino acids, carbohydrates, ethanol amines, phenothiazines and amides by using 1-CBT [1-2, 3-10], a new oxidant, in acidic and alkaline media. Assay of medical compounds has been exhaustively worked out by a number of methods. However, in most of these methods, procedures are tedious and involve difficulties. Hence further development made on simple kinetic procedures for the oxidation and removal of toxicity of few industrially important dyes, pharmaceutical drugs and vitamins.

A comparative study of Kinetics of 2, 3-disubstituted 1, 4 - benzothiazines in presence of oxidant 2-IBX and DMSO

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ABSTRACT

The comparative kinetics study of oxidative cyclocondensation of 2, 3-disubstituted 1, 4-benzothiazines in oxidants DMSO (dimethyl sulphoxide) and 2-IBX (2-iodoxy benzoic acid) has been investigated. The kinetic measurements have been carried using spectrophotometric technique. The reaction is found to be first order with respect to 2-aminothiophenol and first order with respect to 1-3 dicarbonyls in all above oxidants. Hence over all order of reaction is found to be two which is in good agreement with rate law. The effect of oxidants on the rate of the cyclocondensation and the thermodynamic parameters are also evaluated. The reaction products have been isolated and characterized.

Key words : 2-aminothiophenol, 1-3 dicarbonyls, oxidants and kinetic study.

Introduction :

2,3-Disubstituted 1,4-benzothiazines have attracted our interest due to their broad biological activities. This heterocyclic system possesses wide range of pharmacological activities such as antifungal, immunostimulating, antialdoso reductase, anti-rheumatic, anti-allergic, vasorelaxant, anti-arrhythmic, antihypertensive

neuroprotective, cytotoxic and anti-inflammatory, potassium channel opener, antidepressant, anti-HIV activities,¹⁻⁵ antidiabetic,⁶ antihypertensive,⁷ antimicrobial,⁸ antifungal⁹ and anticancer¹⁰. 1,4-Benzothiazines are known for their utility as dyestuffs,¹¹ photographic developers,¹² ultraviolet-light absorbers and antioxidants.¹³ Recently Reddy's Lab has reported



Powdery mildew of *Spermadictyon suaveolens*: A report from Maharashtra, India

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Abstract

Spermadictyon suaveolens (Rubiaceae), is a branched shrub, commonly known as Forest champa. During routine survey in November 2021, said host was found to be infected with a typical symptoms of powdery mildew disease. The infected plant specimen was collected and deposited in Herbarium of the Institute of Biology, Department of Geobotany and Botanical Garden, Martin Luther University, Halle, Germany. The pathogen was analyzed based on morphological characteristics and the pathogen was identified as *Erysiphe prasadii*. This is the first report of powdery mildew on *S. suaveolens* from Maharashtra.

Keywords: *Erysiphe prasadii*, Rubiaceae, *Spermadictyon suaveolens*

Introduction

S. suaveolens Roxb. branched shrub growing up to 1-2 m tall. The leaves are oppositely arranged and elliptic-lance like about 10-20 cm in length and finely velvety in surface. Leaf stalks are 1-2 cm long. Flowers occur in many-flowered spherical heads which are arranged in panicles at the end of branches. The species name *suaveolens* means sweet scented, and refers to the fragrant flowers. It is potent antidiabetic plant and used in folk, Ayurvedic and homeopathic systems of medicine (Kapoor, 1997).^[1] During field survey of Mahabaleshwar Dist.- Satara, Maharashtra, India (17°55'46.12"N, 73°45'45.22"E and Elevation- 2289 ft.) During November 2021, *S. suaveolens* was found to be infected with powdery mildew fungi. Disease symptoms included grayish white, circular to irregular patches consisting of epiphytic mycelium and conidia on both surfaces of leaves (Fig. 1 a). As disease progressed, leaves were covered by a gray powdery fungal mass, and older leaves became yellow and dropped prematurely. Ascomata visible as small black to brown spherical structures upon examination of fresh or dried leaves using a dissecting microscope.

Material and methods

Infected leaves were collected and symptoms were examined by light microscopy. A reference specimen has been deposited in Herbarium of the Institute of Biology, Department of Geobotany and Botanical Garden, Martin Luther University, Halle, Germany. (HAL 2952 F)

Result & discussion

Erysiphe prasadii on *Spermadictyon suaveolens* is morphologically characterized as follows

Mycellium amphigenous, persistent, forming a dense covering over upper surfaces of leaves; conidia formed singly, cylindrical (-ellipsoid), 25-50 × 15-18 µm (Fig. 1b, c). Chasmothecia gregarious to scattered, (85-) 90-140(-170) µm diam.; peridium cells not very conspicuous, polygonal to rounded, about 10-20 µm diam (Fig. 1f); appendages very numerous, mostly about 40-60 (Fig. 1g), densely crowded, arising equatorially or from the upper half, about 1-2 times as long as the chasmothecial diam., 5-9 µm wide, aseptate or with a single septum at the base, rarely with a single septum in the upper half of the stalk, hyaline, rarely pigmented at the very base, walls smooth, thin throughout or somewhat thicker towards the base, apices irregularly and diffusely branched, tips straight; asci 4-12, obovoid-saccate, 50-80 × 35-50 µm, short-stalked or sessile, (2-)4-5(-6)-spored; ascospores ellipsoid-ovoid, 16-25 × 9-18 µm, colourless (Fig. 1h).

A literature survey (Bilgrami *et al.*, 1991, Jamaluddin *et al.*, 2004, Paul & Thakur 2006, Pande 2008, Hosagoudar & Agarwal 2009, Braun & Cook 2012.)^[2,3,4,5,6,7,8] showed that no powdery mildew has been reported on *Spermadictyon suaveolens* from Maharashtra. Therefore this is the first report of powdery mildew on *S. suaveolens* from Maharashtra.

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CLIMATE CHANGE ON PLANT POPULATIONS AND ECOSYSTEMS

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Abstract

Changes in climate always lead to alterations in distributional boundaries since climatic factors impact the vast ranges of plants. These changes are intimately related to adjustments in the physiology, growth, and production of plants. Different regions, or biomes, are among the most usually taken into consideration among settings that have had the biggest temperature rise over the last ten years and the best determined warming anticipated for what's to come. While the biggest and tallest areas are spread throughout a significant portion of the globe, evidence for distributional changes has mostly been observed in Europe and America. The current research uses herbarium specimens as a possible tool to identify alterations in elevation and eco-physiological characteristics of indigenous herb species from various states that are caused by climate change. Rather than the typical overall shifting pace of 6.1 m/decade, we found a considerable quick up elevational shift of 55.2 m/decade and erratic changes in secondary metabolite concentration. With the passage of time, a significant negative association between stomatal density and $\delta^{13}C$ was discovered. The average most extreme and least temperatures have expanded throughout the past hundred years by 0.31 °C and 0.79 °C, respectively, according to an analysis of instrumental temperature data.

Keywords: Climate change, distributional shift, $\delta^{13}C$, plants, metabolites, stomatal density.

1. INTRODUCTION

Ecology's biggest difficulty is predicting how climate change will affect plant populations and communities. Due to their ability to directly connect climatic factors to population dynamics, population models are the best tool for addressing this dilemma. However, since the necessary data are difficult to gather over wide species ranges, inference from population models is often restricted to modest geographical extents (Barnes et al. 2019). The majority of studies on the dynamics of plant populations rely on meter-to-sub-meter-scale demographic data. Building population projection models using local-scale demographic data is simple, but extrapolating small-scale studies to huge regional extents reliably is quite challenging since the data most likely only reflect a limited portion of parameter space and environmental circumstances. Making accurate population predictions at regional scales that are important to management and policy choices is the actual difficulty (Bornman et al. 2019).

The state of the climate on our planet is frightening, and the ongoing rise in sea levels immensely affects plant development and efficiency. There are imbalanced climatic conditions, with some areas experiencing lengthy droughts (in dry and semi-arid regions) and others experiencing issues from increasing floods (in mid- to high-latitude regions). We are all affected by the complex phenomena known as climate change (Fordham et al. 2020). Although climate changes are a worldwide concern, they first appear and are felt on a local scale. It encompasses many fields outside of science, such as sociology, economics, politics, and most crucially moral and ethical dilemmas.

Today, climate change unquestionably has a significant influence on human existence and is often linked to widespread phenomena. One of the biggest issues of the twenty-first century is the danger that climate change poses to global food security. How to provide enough food in a pressured environment when there is a constant population increase? According to a WHO assessment, 60% of the world's population relies on traditional medicines, the majority of which are made from plants (Harvey & Enright 2025). Worldwide, human activities have a significant impact on and contribute to climate change. Because they are sessile, plants are unable to escape dangerous situations as humans can. Plants must thus use alternate mechanisms metabolic adjustments more exactly; we may state that a plant's defensive mechanism against adverse circumstances is thought to involve vacillation in the grouping of optional metabolites. Alkaloids, terpenes, and cyanogenic glycosides are examples of secondary metabolites that aren't required for a plant to work ordinarily yet cooperate to frame the insusceptible framework (Jansson & Hofmøckel 2020).

USE OF PLANT BIOTECHNOLOGY IN CROP IMPROVEMENT AND GENETIC ENGINEERING

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Abstract

The power of genetic engineering has made it possible to modify the genetic makeup of agricultural plants. Transgenic technology, often known as recombinant DNA technology, is responsible for this. Plants in a crop may have a lot of desirable traits, but the presence of even a few undesirable traits might cause the crop's area and output to be severely constrained. Because of this, many farmers have been forced to switch to growing other types of food. Issues brought on by biotic and abiotic stressors may also be addressed with the use of recombinant technologies. There is always a chance to take stock of human endeavor in a given field and plot a course for the future because to the fluid nature of time. Researchers are required to respond to the dynamic global situation in which they work since science and technology cannot exist in a vacuum. Conclusion New plant features and varieties developed using plant biotechnology need to be mass-produced to be economically viable and to meet the needs of both commercial producers and the general public.

Keywords: Plant biotechnology; crop improvement; genetic engineering; plant tissue culture.

1. Introduction

For more than a century, plant breeding has played a significant role in raising agricultural productivity. Continued attempts have been undertaken to breed a single line or genotype with desired traits like as disease tolerance, greater yield, abiotic stress tolerance, etc. Crop development is based on the characteristics of originality, stability, uniformity, and usefulness, which a breeder accomplishes by combining the use of traditional breeding with biotechnology tools; this focus of plant biotechnology enhances breeding for crop improvement.

Crop plants have been in need of improvement for better yield, improved quality, and to meet altering human tastes ever since agriculture was first developed. This is becoming an increasingly pressing issue, particularly in developing nations where the population is continually rising.

No doubt, human-initiated genetic change of plants started about a long time back, when human farming exercises initially started, through the determination of novel sorts, and numerous helpful results were regularly the consequence of irregular or chance occasions. The revelation of the genetic regulations and the improvement of sub-atomic instruments for investigating plant science prompted the accessibility of particular crops since plant rearing turned into an arranged and unsurprising movement. To feed the world's growing population of 6.109 billion people, conventional plant breeding methods have proven fairly successful. Breeding efforts, together with the introduction of novel genes from wild species, have resulted in astounding diversity among existing crop species and the development of whole new crops like triticale. Current trends in agricultural production suggest that the increasing need for food, fiber, and fuel cannot be met by using just traditional practices. Yield gains for several staple crops have stalled or are falling behind the pace of population growth. Farmers in South and Southeast Asia must continually produce 30% more cereals to ensure food security and maintain current levels of nutrition. Closing the gap in yield improvement offers a challenging job for biotechnology. The availability of less land and water makes this task no less difficult. Feasible answers for these new difficulties might be created with the assistance of plant biotechnology and, later on, nanotechnology to support plant reproducing endeavors.

Biotechnological approaches

Vegetable quality and quantity have been improved using a variety of biotechnological techniques. Based on their understanding of DNA, scientists are effective in extracting the desired gene, transferring it, and integrating it into the host species. Improvements are made feasible by plant biotechnology that are not attainable via conventional crossing of related species alone. These strategies have been succinctly worked.

Genetic engineering

Vegetable crops may benefit from modern genetic engineering in terms of quality, production, and value. To create GM crops, which are grown commercially in many nations, it entails altering the genetic makeup

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**SPORTS JOURNALISM IS THE NEW ASPECT OF SPORTS
INDUSTRY: AN OVERVIEW**

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ABSTRACT:

Sports journalism is an essential part of every news media firm. It is a kind of journalism that focuses on sports-related topics and events. Journalistic reporting on athletic events and events is known as sports journalism. A crucial component of many news media organizations is sports journalism. Sports have been the subject of writing in some form since competition began. In 1954, Sports Illustrated debuted in print. Sports Illustrated was founded by Henry Lucie, who felt that the established publishers at the time were underutilizing the public's great appetite for sports. Given that sports have become more significant than just a form of entertainment across the world, the sports sections of today's newspapers probably get the largest viewership of any section. Our population has increased their interest in gaming, sports, and physical activity since the past. The lack of high-caliber publications, particularly in Indian languages, is a concerning element in Indian sports writing. A few English publications serve the needs of sports enthusiasts, but the number of instructive and instructional journals in Indian languages is shockingly small. It is a type of journalism that covers sports-related subjects and activities. Sports journalism focuses on covering news and events in both amateur and professional sports. Sports writers are employed by all forms of media, including print, broadcasting, television, and the internet. For the future of sports journalism, there are a variety of courses available in India and around the world.

KEY WORDS: Sports journalism, Print media, Television media, Broadcasting & internet, Sports Science.

INTRODUCTION:

Sport has the power to change the world. It has the power to inspire. It has the power to unite people in a way that little else does. It speaks to youth in a language they understand. Sport can create hope where once there was only despair.-*Nelson Mandela*

A vital component of any news media organization is sports journalism. It is a type of journalism that covers sports-related subjects and activities. Sports coverage has become more significant as sport has become more lucrative, powerful, and influential, despite the sports department in some newspapers being mockingly referred to as the "toy department" since sports journalists don't care about the important themes covered by the news desk. Sports journalism refers to writing on events and topics in the sporting world

Sports journalism focuses on covering news and events in both amateur and professional sports. Sports writers are employed by all forms of media, including print, broadcasting, television, and the internet. Like other reporters, sports journalists must locate the story on their own rather than relying just on information provided to them by a sports club, organization, or coaching staff.

The current controversy over professional athletes' pay, the use of anabolic steroids and other illegal performance-enhancing substances, and the cost to local and national governments of building sports facilities and related infrastructure, particularly for the Olympic Games, demonstrate that sports can still make headlines.

MEANING OF SPORTS JOURNALISM:

Sports journalism is a form of writing that reports on matters pertaining to sporting topics and competitions. As a sports journalist, you can expect a variety of job duties such as reporting game statistics, interviewing coaches and players and offering game commentary. You can work in a variety of media, including radio, television and print.

Sports journalism is a form of writing that reports on sporting topics and competitions. Sports journalism is the essential element of many news media organizations.

HISTORY OF SPORTS JOURNALISM:

Since the beginning of competition, writers have written about sports in some capacity. The earliest documented example of sports journalism can be found in Homer's 850 B.C.E. account of the first wrestling match to end in a tie, in which Achilles triumphantly raised the hands of both Ajax and Odysseus. Early Greek writers recorded wrestling, throwing, boxing, and racing among other sports. Although sports writing has been around for a while, it has just recently become more common. American writers started writing only about sports in the middle of the 1800s, although there weren't many of them. Modern sports journalism finds its roots as content started to appear in newspapers in the early 1800s. Boxing and horse racing were briefly included in the beginning of the sports. Newspapers' main audience throughout the 1820s and 1830s was the social elite because it was too expensive for the average person to purchase. As the 19th and 20th centuries drew near, a number of significant events happened that contributed to the increased saturation of sports journalism in the general media.

As technology advanced, new innovations like radio, television, and the internet appeared. The emphasis of sports coverage evolved from play-by-play analysis to game analysis based on statistics and individual profiles. Sports Illustrated was first published in 1954. Henry Lucre, who believed that the established publishers at the time were not utilizing the public's enormous thirst for sports, was the creator of Sports Illustrated.

SPORTS JOURNALISM IN INDIA:

The establishing of the National Institute of Sports, the Sports Council of India, and the Sports Authority of India are all examples of the new trend. Sports have been made a required topic in schools in a number of States, and some of them have even created sports schools and dormitories.

In today's newspapers, sports articles have gained enormous popularity. The sports sections of current newspapers likely get a wider audience than any other section since sports throughout the world have grown more important than only as a form of entertainment. Readers are thus seeking an increasing amount of reading material on sporting events. Compared to before, our people are now more interested in games, sports, and athletic activities. The hitherto tepid interest of the government in sports has also significantly increased.

The Development and Importance of Sports Journalism:

Sports journalism is highly specialized and requires specialist knowledge, but the disciplines and practices employed by a sports journalist do not differ greatly from those of a standard journalist. It is hardly surprising that the route into working in sports journalism is the same as that of any other form of journalism, training takes place either on site (most usually on a local newspaper) or through a formal course.

Growth of Indian Sports Journalism:

Sports journalism in India has grown recently, nevertheless. In the early years of independence, it generally developed in a highly noticeable way. There were hardly any regular sports pages in many publications before that.

The first noteworthy development in India's history of sports journalism was the establishment of a sports section by a prestigious English daily in Bombay in the late 1930s. However, a disconcerting aspect of Indian sports writing is the dearth of quality publications, particularly in Indian languages. There are a few English periodicals that cater to sports fans' interests, but the number of informative and educational journals in Indian languages is appallingly low.

Sports Journalism Organizations:

Most countries have their own national association of sports journalists. Many sports also have their own clubs and associations for specialist journalists. These organizations tend not to operate as trade unions, but do attempt to maintain the standard of press provision at sports venues, oversee fair accreditation procedures and to celebrate high standards of sports journalism.

The International Sports Press Association, AIPS, was founded in 1924 during the Olympic Games in Paris, at the headquarters of the Sporting Club de France, by Frantz Raichel, the press chief of the Paris Games, and the Belgian, Victor Boin.

Education and Career Opportunities:

To become a sports journalist, you should plan to complete a post-secondary program in the journalism field. All journalists and reporters are typically required to have at least a bachelor's degree. You might enroll in a bachelor's degree program in journalism and choose a sports journalism concentration or simply take sports journalism courses. Through bachelor's and master's degree programs, you can develop writing, interviewing and reporting skills in multiple media format, and actively engage in field internships to build professional contacts and gain insight into the profession.

After the 2008 debut of the Indian Premier League (IPL) cricket, sports media in India has significantly caught up. Numerous more sporting tournaments were started after the IPL's popularity and are currently hosted on a seasonal basis. The Indian Hockey League, the Pro Kabaddi League, the Indian Super League (for soccer), the Indian Wrestling League, the Indian Badminton League, the Golf Premier League, the Indian Volley League, and the Indian Racing League are a few examples of new sports competitions in India.

Broadcast:

For radio and television broadcasts, broadcast sports journalists give in-the-moment news and analysis of a sporting event. Sports telecasts are directed, edited, and produced by production teams. Sideline reporters interview athletes before, during, and after a game. Similar to its print equivalent. ESPN and other specialized sports networks on television provide news, entertainment, and coverage of sporting events.

Photojournalism:

Sports photojournalists shoot athletic events in order to convey the excitement of the game in a single image. Newspapers often publish the work of sports photojournalists. The internet, periodicals like Sports Illustrated, and television.

Print and Internet:

In today's newspapers, sports articles have gained enormous popularity. The sports pages of today's newspapers likely draw the interest of readers across the board more than any other section.

Sports are much more important than just being leisure activity all around the world. As a result, readers are asking for more reading material about athletic events. Print-media sports writers offer comprehensive box scores, player data, and team standings in addition to in-depth post-game commentary and detailed previews of forthcoming events. Major national newspapers cover local and interstate sports and connect to their online material. Large, sophisticated web presences are maintained by major sports networks like ESPN. You may blog, produce narrative sports features, or write sports columns as a sports journalist or reporter.

Future of sports journalism:

The last ten years have seen a significant change in sports as more teams begin to use analytics. This transition has occurred mostly as a result of the numerous articles that have been written about the improved advantages of employing analytics to make strategic decisions in games. Sports data analysis has grown as more data is gathered on every event in every sport. In order to publish pieces describing the study these teams are undertaking, sports magazines are increasingly recruiting individuals with substantial backgrounds in statistics and mathematics. Sports stars from every sport participate in a series called "Sports Science" on ESPN where they test how cutting-edge statistics impact on-field performance. Many people have been opposed to the use of analytics in sports. Many seasoned coaches are quick to criticize analytics, calling them limited and uninformed of the broader picture.

Types of Courses for Careers in Sports Journalism:

There are various forms for sport journalism courses in India. The following are the nation's most sought-after sports journalism programmers:

- Bachelor of Science
- Postgraduate Diploma Programs
- Master's Degree Courses
- Certificate programs for Postgraduates
- M.Phil. and Ph.D. programs are available

Top 10 Colleges to Study Sports Journalism in India:

- Indian Institute of Journalism and New Media, Bangalore.
- Symbiosis Institute of Media and Communication, Pune.
- Lady Shri Ram College for Women, New Delhi.
- Christ College, Bangalore.
- School Of Communication, Manipal.
- Delhi College of Arts and Commerce, New Delhi.
- Indraprastha College for Women, New Delhi.
- Kishinchand Chellaram College
- Kamala Nehru College, New Delhi
- Madras Christian College

CONCLUSION:

Reporting on sporting events and subjects is known as "sports journalism." Sports coverage has become more significant as sport has become an increasingly important source of income, power, and influence, despite the sports section in some newspapers being mockingly referred to as the "toy department" since sports journalists don't care about the "serious" themes covered by the news desk. Sports, athletes, or other sports-related topics are covered in sport writing, which is a type of journalism or creative nonfiction. A sportswriter is a journalist who covers sports. Sports journalists cover athletic events for the general audience whether working for a magazine or newspaper, television, radio, or internet. As a result, a sports journalist has to have strong writing, interviewing, and presentation skills as well as organizational and research skills, a great eye for detail, curiosity, and the capacity to work under pressure.

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Education and Society
(शिक्षण आणि समाज)

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ISSN 2278-6864

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Since 1977

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July 2023

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Institute of Education

A Study of the Effect of Selected Recreational Activities on the Performance of Under 17 Handball Players

Mr. Vishal Rajendra Honmane

Director of Physical Education

Uma Mahavidyalaya, Pandharpur

Abstract:

The aim of the present research is to study the effect of variable game practice on the tactical performance of 17-year-old handball players. At the same time, filling the ballots based on tactical skills from experts. An experimental research method was chosen for this study. For the said research, a questionnaire was prepared based on tactical skills with the help of mentors and given to various levels of experts in Pandharpur city. Voters were filled by former players, senior players, umpires, guides and association officials. 20 players below 17 years of age studying in secondary school in Pandharpur city were selected randomly. These players underwent six weeks of practice in four alternating games. Three days of each week were practiced in alternating games. Each game was played on a rotational basis, with a total of eight days of practice over six weeks. Student practice routines were filmed. The post-shooting was followed by practice games alternating with pre-shooting. Analysis was done through observation chart from the tapes. The collected data was analyzed statistically. Analysis shows that handball Wave Break, Dodging, Jump shoot, and one man less attack have positively changed the tactical performance of under 17 handball players.

Keywords: Recreational Activities, Performance, Tactical Skill, Players

Introduction:

In the present time, it is seen that scientific approach is being used in the field of sports. In the West, if a player is to be developed in a particular sport, they go through all sorts of tests before training for that sport. As a result of training him in the sport according to his interest and ability, these players prove their abilities at a young age. Different teaching methods have been adopted since time immemorial to achieve better skill performance and skill acquisition in sports. It mainly includes dictation method, part method, direct method, imitation method, progressive method, dramatization method, full part full method, audio-visual method. Not all students in the class have the same skill in the game. Some students pick up the skill quickly while others take time. Students who cannot pick up the skill quickly try for a while but then give up the game. Recreational sports are used to encourage such students to participate in sports or to improve the skills of athletes to return to sports. What can be done to acquire skills and abilities can be considered in the transition game. In order to achieve high success in the field of sports and sports, one has to use scientific training methods to increase the physical and skill



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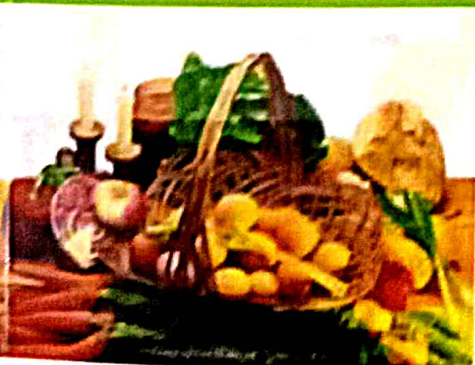
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The Role of Nutritious Diet in Boosting Athletic Performance

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Abstract:

Athletes and sportspeople should be aware of the importance of nutrition. The performance of a sportsperson during competition can be impacted by numerous elements, each of which may be related to a different domain. Sportspeople who do not take enough dietary energy as a whole frequently experience nutritional-related issues. It is no secret that in the contemporary era of top sports, nutrition has become a critical aspect that can impact an athlete's performance. It's not by chance that we hear a lot about athletes' tight diet regimens; the optimum diet programme will vary depending on the sport, the athlete's goals, and their unique tastes. Each of them has a particular purpose in supplying the body with nutrition. Recognizing what each does to his body under the physical, mental, and emotional pressures of competition is crucial for the sportsman. The primary source of energy utilized to meet the work demands of a given sport will depend on the length and intensity of the exercise performed in that sport. The right diet and nutritional strategies can improve athletic performance, and nutrition is crucial to an athlete's success. The diet of the athlete should contain plenty of carbs, moderate amounts of proteins, and little or no fat. Teenagers who participate in sports have higher nutrient requirements due to the additional demands of increased physical activity in addition to needs for growth, development, and wellness. Due to a lack of appropriate nutritional counselling, the health and nutritional status of this population may be impaired. Additionally, false information about wholesome foods spread by the media to school-age children can be highly dangerous. This review paper's objectives are to illustrate the dietary requirements of young people and athletes taking part in various sports, as well as to educate young people and athletes on the value of proper nutrition when engaging in physical activity.

Keywords: Physical activity; Nutrition counseling; Food and health, Sports nutrition

Introduction:

High levels of carbs, moderate levels of proteins, and little to no fat should make up the athlete's diet. Teenagers who participate in sports have higher nutritional needs than non-participants because to the increased physical activity requirements beyond growth, development, and wellbeing. Due to inadequate nutritional counselling, the population's health and nutritional status may be impaired. Additionally, false information about wholesome foods spread by the media to young readers who are attending school might be quite dangerous. This review paper's objectives are to illustrate the dietary requirements of teenagers and athletes taking part in various activities, as well as to inform and educate teenagers and athletes about the value of nutrition during involvement in games and sports. Sports nutrition can be summed up as the application of nutrition science to a realistic daily eating programme designed to maximize athletic performance in competitive events, facilitate the repair and rebuilding process after strenuous physical work, and provide the fuel for physical activity. It also aims to support general health and wellness. Sports nutrition is sometimes perceived as being exclusive to "athletes," which implies that only those people who are competing at the highest level are included. Any person who engages in regular physical activity, from fitness enthusiasts to competitive amateurs or professionals, is referred to as an athlete in this literature. Along this defined spectrum of athletes, there may be variations in specific nutrient requirements, posing the fun issue of individualized sports nutrition programmes. Professionals advising athletes on proper eating methods first need to have a command of general nutrition as well as exercise science. This will enable them to completely comprehend and then apply sports nutrition concepts. The second stage is to learn how nutrition and exercise science are connected, realizing that healthy eating and exercise depend on one another to generate the best results. The third step—the practical application of sports nutrition knowledge to individual athletes participating in a sport or physical activity—can be regarded as one of the most crucial. Professionals in sports nutrition must be able to instruct athletes by applying "book" information to real food choices and meal planning, while taking into account the difficulties posed by hectic training, competition, work, school, and other commitment schedules. After completing an undergraduate or graduate programme in sports nutrition, dietetics, exercise science, or athletic training, many professionals are missing this third step.

Objectives of the Research:

1. To define Concepts of nutrients
2. To study good eating habits of athletes
3. To study the impact of all-round nutrition for athletes
4. To study the nutritional information required to enhance sports performance of the athlete

Research Methodology:



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Types of Doping and Its Side Effects on Athletes: An Overview

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Abstract:

Doping is a serious problem in sport physiology nowadays on an international scale. The moral and ethical principles of mankind that affect the fair competition of sports are also taken into consideration. Worldwide sporting events are being directly impacted by this. Blood doping is the use of particular substances improperly to raise red blood cell mass, which enables the body to carry more oxygen to muscles and boosts performance and stamina of a player or individual. Blood doping has been linked to a long range of harmful effects, including blood viscosity increases, myocardial infarctions, emboli, strokes, infections, allergic reactions, and an increased risk of blood-borne illnesses like HIV and hepatitis, among others. Local legislation may contradict with anti-doping policies implemented by various athletic governing bodies. These authority & government legislation don't correlate in this way. Nowadays, players use a variety of methods and medicines, making it difficult for professionals to identify them and win the battle against doping. However, it is our duty to combat them, using the most recent information and developments.

Keywords: Doping, Erythropoietin, Sport Physiology, Anti-doping policies

Introduction:

Doping is currently a serious problem in sport physiology on a worldwide scale. In addition to physical issues, this also has moral and ethical implications for the integrity of teamwork in athletic competition. This has a direct impact on international sporting events. The term "doping" was formerly primarily used to refer to blood doping. But as doping becomes more prevalent nowadays, the present tests are rendered useless for detecting it. However, it is the responsibility of professionals to stay informed in this area in order to avoid doping. Any type of behaviour that encourages the use of particular medicines for the purpose of enhancing athletic performance or endurance is referred to as doping. According to the organisations concerned, this is unethical because it frequently happens at both the national and international levels. The International Olympic Committee deems this situation to be illegal and immoral. These committees frequently accuse such events of regular, significant offences. occasionally took place. This organisation makes constant, unrelenting efforts to promote doping-free sports. Sportspeople frequently utilise doping in an effort to enhance their performance without concern for or ignorance of its repercussions or negative effects. These actions not only degrade sportsmanship, but they may also be viewed as a component of sports corruption, which weakens the competitive spirit.

Purpose of the article:

To make coaches, trainers, players and parent to aware of anti-doping and side effect of doping.

Objectives:

1. To know about different types of doping
2. To create awareness amongst people about anti-doping.
3. Good health and success in sports and physical activities through nutrition and anti-doping.
4. To make athletes aware of the side effects of doping

Research Methodology:

This research paper is based on secondary content. For data collection, the researcher has relied on various research materials, reference books, books, research papers, magazines, newspapers, YouTube, media, TV, Internet and through conference and seminars for promoting health and anti-doping to spread awareness.

Definition of Doping:

The word doping is probably derived from the Dutch word dop, the name of an alcoholic beverage made of grape skins used by Zulu warriors in order to enhance their prowess in battle.

The use of a substance (such as an anabolic steroid or erythropoietin) or technique (such as blood doping) to illegally improve athletic performance.

Reasons for Athletes Taking Drugs

1. There are a large number of reasons why an athlete may decide to take Drugs, the reasons are listed here:
2. Feeling under pressure to perform, whether it comes from their instructors or families; • Believing that their rivals are using drugs