



ISSN 2348-571X

UGC Journal No 645674

EDUCATION, RESEARCH AND ANALYSIS

VOL - 8

ISSUE - 1

JANUARY, 2021



Vijaygarh Jyotish Ray College

In collaboration with

Kalyani Foundation for Media Science and Community Research

Kolkata, West Bengal, India.

Blue Colour Is So Rare In The Nature

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Abstract : With the Blue colouration is very rare in nature as statistics portray the frequency of blue flowering plant is only less than 1 in 10 while animals are even fewer because no true blue colour or pigment is present in nature. Thus both plants and animals have to rely on several physical tricks of light that inclines on their specialised biological surfaces and on some chemical interactions to represent themselves as blue. This paper scrutinises this in depth.

Key Words : Blue colour, Organisms, pigmentary colouration

Introduction : Animals come in almost every colour as they possess various coloured pigments within their cells. These are coloured organic chemical compounds that can selectively absorb incoming light and reflect the remaining wavelengths that in turn, appears as their colour. These pigments are not made within the body but can be derived from food sources after digestion and metabolism.

Pigmentary Colouration

The pigmentary colouration of organisms is the most common phenomenon, which represents their colour and it is chiefly attributed to selective absorption of incident white light. Many animals can carry out this performance and eventually display a version of the pigment in their outer body layer. Prominent examples can be cited with Flamingos, who were born with a light grey body but turn vibrant pink with age due to possession of beta-carotene pigment which they obtained from their diet that includes brine shrimp and blue-green algae. Plants also own various pigments like carotenoids, xanthophyll, anthocyanins etc. for vivacious colours of their flowers and fruits, besides having the most common pigment in nature - the green coloured chlorophyll.

Blue Pigment And Blue Colour

In nature, there is no true biological pigment that can reflect blue light as it has shorter wavelengths and higher energy. This energy is sufficient enough to raise an orbital electron of a pigment molecule to an excited state so that the molecule can absorb the blue light and reflect the others like green or red. Thus no blue colouration is observed due to pigment interferences among organisms. Still, nature exhibit quite a few plants and animals with brilliant blue colours.

How Blue Colours Are Made In Organisms?

Two methods have been employed by the organisms whereby they trust physics and chemistry to create a blue appearance. These are -

1. By Chemical Alteration Of The Colour Causing Pigment

Women Empowerment In 21st Century India

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Abstract: Today in India the concept of Women Empowerment is a vital issue. In the Rigvedic period women were given equal status with men. But the scenario changed in the post Vedic period. The discrimination between men and women started taking shape in the Epic Age. Male dominance became more pronounced in the age to follow. During the Sultanate period despite the era of Razia Sultan social status of women both in Hindu and Muslim communities were pretty low. She was regarded as the property of men and the system of purdah was very much prevalent. There was very little change in the status of women in the Mughal Age. In pre independence era the history of Indian Freedom struggle would be incomplete without mentioning the sacrifices of Indian women like Rani Laxmibai, Hazrat Mahal, Rani Avantibai Lodhi of Ramgarh etc. In early 19th century remarkable contribution was made by Sarojini Naidu, Anne Besant, Madam Cama, Kamala Neheru, Kasturba Gandhi and the list is endless. Later on after independence we find that an Indian politician and a central figure of the Indian National Congress became the 3rd Prime Minister of India. She was none other than Indira Gandhi. She served as Prime Minister from January 1966 to March 1977 and again from January 1980 until her assassination in October 1984. In 1999 Indira Gandhi was named as “ Women Of The Millennium” in an online poll organized by the BBC. In 2020 Gandhi was named by Time Magazine among the world’s 100 powerful women who defined the last century. So Women Empowerment in India has played a major role in bringing up the structural and cultural changes in India.

Keywords: Women, Empowerment, 21st century

Introduction

“In Vedas we find Jatra Nari Pujjante Ramante Tatra Devata Which means Wherever Women is respected, God resides there Man can never be a women’s equal in the spirit of selfless service with which nature has endowed her” ~ Mahatma Gandhi

“There is no chance for the welfare of the World unless the condition of Women is improved” ~Swami Vivekananda.

To me Women Empowerment literally means their ability to speak for themselves, freedom to make their own choices, to understand their self worth and their right to influence social change free from social taboos inflicted on them. Empowering and protecting Women is not only important for their sake but for the overall development of human society. The

GOVT. OF INDIA RNI NO.: UPBIL/2015/62096

UGC Approved Care Listed Journal

ISSN
2229-3620

SIM



SHODH SANCHAR

Bulletin

An International
Multidisciplinary
Quarterly Bilingual
Peer Reviewed
Refereed
Research Journal

Vol. 11

Issue 41

January to March 2021

Editor in Chief

Dr. Vinay Kumar Sharma

D. Litt. - Gold Medalist



sanchar
Educational & Research Foundation



DEVELOPMENT & GROWTH OF WOMEN ENTREPRENEURS IN INDIA

□ Krishnendu Sen*

ABSTRACT

Entrepreneurship is a potentially lucrative professional path. Rewards, on the other hand, are accompanied by difficulties. In today's globalized village, female entrepreneurship is gaining traction. Many women are self-assured enough to work from home, beginning a small business, profiting, and expanding from there. They have succeeded in shattering the glass, as mentioned earlier, ceiling. Their achievements become a source of motivation to be researched. This study examines women's advancement in the workplace and the obstacles they confront in achieving their objectives.

Keywords- Corporate Sector, Momentum, Challenges, Women Entrepreneurs, Inspiration

Introduction

Women in India are expected to conduct home work activities and care for their families due to culture and customs, and as a result, women's entrepreneurship is extremely low. Women are becoming more interested in beginning their own business as a result of increased health care and social awareness over the previous three decades. As a result, the number of female entrepreneurs is increasing significantly. Mujumdar Shaw of Biochemistry, Shahanaj Husana of Shahanaj Husana, Mahila Khadi Udyog of Mahila Khadi Udyog of Mahila Khadi Udyog of Mahila Khadi Udyog of Mahila Khadi.

“Women who create, imitate, or embrace a business activity,” as defined by J. A. Schumpeter. Women entrepreneurs are described by the Indian government as women who own a business and work in it. Women entrepreneurs, according to the Indian

government, are “a business owned and controlled by a woman with a minimum financial interest of 51% of the capital and at least 51% of the employment produced in the enterprise.”

In today's India, women are more willing to take on challenges and take on leadership roles in economic, social, and political groups. They usually put them to work in modest cottage businesses. However, according to a recent survey, women are establishing businesses in every industry that men do.

Literature Review

According to Saurabh (2012), women entrepreneurs encounter challenges in areas such as finances, marketing, family, health, and location. Little training, finance, cooperation, and support in the realm of operations, at all levels - home, society, and government - are all that women require for enterprise management.

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FULL LENGTH ARTICLE

Polyamines and S-Adenosylmethionine Decarboxylase in plant stress response

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Received : 09.02.2021

Accepted : 08.05.2021

Published : 25.06.2021

Polyamines (PAs) are positively charged aliphatic nitrogen-containing compounds of low molecular weight and are widely distributed in living organisms. In plant cells, the diamine putrescine (Put), triamine spermidine (Spd) and tetramine spermine (Spm) include the major PAs. They occur as free, conjugated and bound polyamines. Put is the first polyamine in the polyamine biosynthetic pathway, synthesized from two different precursors (arginine or ornithine). The higher polyamines are synthesized by the successive addition of aminopropyl group donated by decarboxylated S-Adenosyl Methionine (dcSAM). The aminopropyl groups are derived from methionine catalyzed by SAM decarboxylase (SAMDC, EC4.1.1.50). Polyamines take part in a wide range of processes (like cell division, embryogenesis, reproductive organ development, root growth, tuberization, floral initiation and development, fruit development, ripening etc.). Polyamines also have regulatory role in leaf senescence and abiotic stresses. The level of polyamines alters due to adaptation to stresses in a variety of plants. Due to external stress applied to the plant, overexpression or down-regulation of several genes involved in the polyamine pathway have been observed. The characterization and identification of biosynthetic genes of higher polyamines and the expression of these genes under different stressed condition, helped to understand the involvement polyamines in single or multiple stressed conditions.

Keywords: Polyamine, biosynthesis, S-adenosyl methionine decarboxylase (SAMDC), stress, gene regulation, gene characterization, expression.

INTRODUCTION

Among the different molecules that help plant in different metabolic processes, polyamines (PAs) are very important. They are positively charged (polycationic), aliphatic nitrogen-containing compounds of low molecular weight and are widely distributed in living organisms.

Putrescine (Put), spermidine (Spd) and spermine (Spm) are the main three polyamines (PAs) that interact with nucleic acids, proteins and cell substructures and have regulatory role in plant growth and development. PAs have regulatory role on plant physiology including cell division, embryogenesis, reproductive organ development, root growth, tuberization, floral initiation and development, fruit development and ripening as well as in leaf senescence (Evans and Malmberg, 1989; Galston *et al.*, 1997; Bais and Ravishankar, 2002 and Tiburcio *et al.*, 2002).

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ISSN 2348-571X

UGC Journal No 645674

EDUCATION RESEARCH AND ANALYSIS

VOL - 8

ISSUE - 2

JULY, 2021



Vijaygarh Jyotish Ray College

In collaboration with

Kalyani Foundation for Media Science and Community Research
Kolkata, West Bengal, India.

Cyanobacterial Exopolysaccharide (EPS) Synthesis and Metal Sequestration by Biosorption

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Abstract: Cyanobacteria produce extracellular polymeric substances (EPS) that are mainly made by high-molecular-mass heteropolysaccharides, with variable composition and their roles depend on the microorganism and the environmental conditions. Cyanobacteria have the major roles to become an industrially important source of functional biopolymers. Their exopolysaccharides (EPS) consist of various types of chemical complexity, which predicts bioactive potential. Although some are reported to excrete large amounts of polysaccharides, others are still to be discovered. This review organizes available information on cyanobacterial EPS, including their composition, function and their heavy metal sequestration capacity. Compared to various types of conventional heavy metal removal methods, heavy metal removal by cyanobacteria is a potential method, as it is a low cost method, *in situ* operable, and simple chemistry related. They are excellent machines for operation of multidirectional metal sequestration as they can sequester metal simultaneously through biosorption and bioaccumulation. Biosorption is a cell surface method, whereas bioaccumulation occurs within the cell. This study reviewed how cyanobacteria are able to absorb heavy metal ions by these two methods from an ambient water body and the protective machinery of cyanobacteria against heavy metal-induced toxicity. Further, among the different components of the cyanobacteria's cell wall, this blue-green algae is able to absorb the metal ion mainly through Exopolysaccharide (EPS).

Keywords: Industrial Activity, Mining, Agricultural Activity, Sewage Water & Natural Activities.

Introduction:

Heavy metals are foreign particles that are able to deteriorate the surface and groundwater quality and are toxic at low concentrations [1,2]. Heavy metals have a high density (~5 g/cm³) and non-biodegradable [3], which transfer to receiving watershed by various processes such as industrial activity, mining, agricultural activity, sewage water and, natural activities (weathering and erosion of bedrocks) [4]. When these metals enter the aquatic system,

Biochemistry of Iron Metabolism : An Overview

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Abstract: Iron is required for physical growth, neurological development, cellular functioning, and synthesis of some hormones. It is a component of haemoglobin and myoglobin. Maximum part of iron is found in haemoglobin and some are stored in liver, spleen, bone marrow and also in myoglobin. Transferrin helps its transport and hepcidin is responsible for iron absorption all through the body. The recommended intakes of iron vary with age and gender. From infancy to adult the range varies from 0.27mg to 27mg. Many foods are there like nuts, vegetables and many more that contain non-heme iron only whereas meat, seafood, poultry possess both heme and non-heme iron. Upper limits of iron both in male and female is 40mg/day and in case of pregnancy and lactation period it is 45mg/day. The World Health Organization (WHO) estimates that worldwide approximately half of the 1.62 billion cases of anaemia are due to iron deficiency. Iron deficiency leads to iron deficiency anaemia (IDA), which causes neoplastic diseases characterised by low hemoglobin concentrations, and decreases in haematocrit. On the other hand, overdoses of iron leads to multi-organ failure, convulsions, coma and even death. Iron has the ability to interact with many other elements such as N, Mn, Cu, with light energy, etc. It has been suggested, serum ferritin concentration lower than 30 mcg/L indicates iron deficiency, and a value lower than 10 mcg/L indicates IDA.

Keywords: Homeostasis, Hepcidin, Iron, Ferroportin, IDA

Introduction : In nature elements are present in different forms, which are very much essential to perform different functions of the body. To perform important cellular functions at biological, chemical and molecular levels, trace elements play pivotal role [1]. Trace elements refers to “elements that occurs in natural and perturbed environments in small amounts and that, when present sufficiently bioavailable concentrations are toxic to living organism” [2]. These elements act as cofactors for many different enzymes, also responsible for stabilizing the structures of enzymes and proteins, control important biological processes by binding to the molecules on the receptor site of cell membrane, sometimes alternate membrane structure to prevent entry of specific molecules into the cell. Through different analytical methods these trace elements which have clinical significances can be estimated [1]. All over the earth crust, iron is found in large quantities and also available from plants to a great extent. Among all the trace elements, iron plays a crucial role at all levels of functions in the human body. Atomic

Creating an Inclusive Environment for the Transgender Students at School Level: Challenges and Formation of Strategies in West Bengal

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Abstract: The transgender community is one of the vulnerable and marginalized communities in India and seriously lagging behind on human development indices including education. Victimization caused by ignorance of the parents, teachers, school staffs and peers is causing serious negative impact on the mental health of transgender students. This results in a high drop-out rate at the school level. The same scenario has been observed in West Bengal. This paper aims at creating inclusive classrooms for transgender students in West Bengal. It also tries to highlight the challenges and formation of strategies to build school as a safe and welcoming place for them.

Keywords: transgender, community, inclusive, classroom.

Introduction

The term “Transgender” signifies different meanings to different people. It is an umbrella term referring to people who do not conform to culturally defined traditional gender roles associated with their biological sex (Lindsay, 2016). ‘Transgender’ is a less clinical term which does not include sexual orientation or physical sex characteristics; rather it pertains to gender identity and gender expression. The life of transgender people in India is a daily battle of acceptance. They are shunned and often ridiculed by the society (Rajkumar, 2016).

Indian Census 2011 data reveals that there are around 4.9 lakh transgender in the country. According to the Census 2011, this community has very low literacy rates, only 46% transgender are literate (Rajkumar, 2016). There live 30,349 transgender in West Bengal i.e. 6% of the whole population.

In April 2014, the Supreme Court of India in its landmark judgement passed the ruling that “In view of the constitutional guarantee, the transgender community is entitled to basic rights i.e. Right to Personal Liberty, dignity, Freedom of expression, Right to Education and Empowerment, Right against violence, Discrimination and exploitation and Right to work. Moreover, every person must have the right to decide his/her gender expression and identity, including transsexuals, transgender, hijras and should have right to freely express their gender identity and be considered as a third sex.” In the Constitution of India, ‘Right to Education’ is considered as a fundamental right for all children between the ages of six to fourteen years.

Swami Vivekananda's Vision On Inclusive Society

A Comprehensive Review

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Introduction

Social inclusion is the concept by which a socially cohesive society can be made where all groups will be given equal opportunities and everyone in society, regardless of their background, will get a sense of belonging, recognition, participation and legitimacy. Every individual with their own rights and responsibilities can achieve their full potential in life. Being a great social reformer many decades ago Swami Vivekananda had already dedicated his life to eradicate various social evils and he succeeded to create a national consciousness amongst all Indians of past and present time too. He travelled all over the country and identified himself with the people of different regions. He felt that there are some specific reasons that resist human progression. Those are education, poverty and casteism. He was the first reformer in modern India to speak for the poor. He believed that India cannot be fully uplifted unless or until the poor and downtrodden masses are given special attention to fulfill their basic necessities of life i.e., enough food, clothes and proper shelter. Swamiji embraced all kinds of people with equal importance without any distinction of caste, religion, race, gender and nationality. Swamiji has given a great message to mankind that the best form of worship is to see God in the poor, the downtrodden, and the ignorant people and to serve them. So the process of social inclusion was given more importance by Swami Vivekananda a long time ago. Swamiji believed that inequality, deprivation and poverty were not due to the different religious traditions but the exact reason is that the 'dharma' was not practiced properly, Scriptures had provided the examples of different glorious holy men and their lives dedicated to all people seeing divinity in them, yet the poor, the weak, the downtrodden were mercilessly set aside. What Swami Vivekananda believed is that the way to change society is two-fold. Firstly, the spiritual upliftment and secondly the widespread education of masses. Truth, purity and unselfishness are the three pillars on which a great noble society can be built.

Concept of Social Inclusion and exclusion:

Social inclusion is the process of making all groups of people within a society and giving equal opportunities to those people who are deprived in society and they will also be given certain equal rights in case of employment, housing, health care, education and training etc. so that with other groups they will get chance to flourish their abilities. 1995 Copenhagen