

SWACHA BHARAT - WEALTH FROM THE e- WASTE

Dr.S.Sunitha , Lecturer in Botany & M.Venkata Subbamma, Lecturer in Hindi
K.V.R.Govt.College for Women(A), Kurnool.

ABSTRACT

Swachata Abhiyan in India is the biggest ever cleanliness drive organized by any Indian government. Our ever-growing reliance on electronics has led to an intended consequence: the rise of e-waste. In addition to being the largest growing waste stream worldwide, e-waste contains some of the most harmful toxins to humans. And to make matters worse, no federal regulations are currently in place to combat this problem. In this paper the environmental problems related with the discarded electronic appliances, known as e-waste, are reviewed. Moreover, the potential environmental problems associated with their disposal and minimising practices are discussed.

Keywords: Swacha bharat, e-waste , minimise , environmental pollution, reuse, recycle

Introduction

Swachh Bharat Abhiyan is started by the government to make India a completely clean India. Clean India was a dream seen by the Mahatma Gandhi regarding which he said that, "Sanitation is more important than Independence". During his time he was well aware of the poor and dirty condition of the country that's why he stressed on this topic. As he dreamt of clean India , he said that both cleanliness and sanitation are integral parts of healthy and peaceful living. It is a programme run by the government to seriously work to fulfil the vision of Father of Nation (Bapu) by calling the people from all walks of life to make it successful globally.

The campaign was officially launched on 2 October 2014 at Rajghat, New Delhi, where Prime Minister Narendra Modi himself cleaned the road. This mission has to be completed by 150th birth anniversary of Bapu (2nd October of 2019) in next five years (from the launch date). It is urged by the government to people to spend their only 100 hours of the year towards cleanliness in their surrounding areas or other places of India to really make it a successful campaign. As a part of it, the waste released from different sources should not be thrown out to make more dirty. It should be made useful for some other purpose.

Waste from different sources:

While cleanliness is an issue, the bigger challenge is urban waste management that needs a serious rethink. Urban India produces 1 lac metric tonnes of waste, most of which is disposed by dumping (in landfills and water bodies) or by incineration. Even though municipalities incur a huge expenditure on waste management, a staggering 90% of the sector is still unorganized. It is a clear and present danger to the health and well being of all, but mostly affects the refuse collectors and scavengers that have developed their livelihoods from collection and sale of waste materials. It includes solid waste, liquid waste.

E-Waste : E-waste includes worn cell phones, dead computers, broken gadgets, spent batteries and lamps, old TVs, DVD players, functioning but outdated cameras, game consoles, and phones and accessories which cannot be recycled in our council waste or recycling bins.

According to the United Nations Environment Programme (UNEP), "e-waste is one of the fastest growing waste streams in developed as well as in developing countries, generating up to 50 million tons annually with only a 10% recycling rate."

E-waste devices include valuable metals such as copper, silver, gold, palladium and other rare materials which means they are also ending up in landfill. It also contains potentially hazardous

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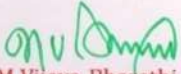
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Role of Ethical Values in Sports

Dr. S. Sunitha

¹ Lecturer in Botany, KVR Govt. Degree College, Kurnool district, Andhra Pradesh.

Abstract

Games and sports are not only important for success in studio but it is important for success in every walks of our life. There goes a good proverb-"All work and no play makes Jack a dull boy". In ancient Greece they formed the principal part of education. In the advanced countries of the present day also they are a regular feature of the school and college curriculum. Sports are required by people to be fit, smart, and good looking, entertaining and are the huge market for countries' economies. Despite of all these benefits, there is a necessity to have ethical values in following the rules and regulations of sports which is becoming a greater problem now a day's. The present paper discusses on the importance of sports, evils prevailed and ethical values to be followed as a responsible citizen in a healthy nation.

INTRODUCTION

"Sport" comes from the Old French desport meaning "leisure", with the oldest definition in English from around 1300 being "anything humans find amusing or entertaining". Roget's defines the noun sport as an "activity engaged in for relaxation and amusement" with synonyms including diversion and recreation.

The precise definition of Sport is an activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment. But it should have

- have an element of competition
- be in no way harmful to any living creature
- not rely on equipment provided by a single supplier
- not rely on any "luck" element specifically designed into the sport

IMPORTANCE OF SPORTS

Sports and games are very important for us. The present teaching which is done in the classrooms, amid four walls and which only insists on cramming without understanding cannot instil such higher values in children. For this purpose, sports are inevitable.

The chief object of sports is bodily exercise. "A sound mind in a sound body" is a well-known saying. To keep healthy, one must take an active interest in sports. Thus sports serve an essential purpose in life because they ensure good health and build a fine physique.

"The image of a country is not just about economic and military strength. The soft face of a country also makes a difference. Sports are one such soft power which can capture the world's attention to India".

"If sports do not hold significance in our life, we cannot nurture sportsman spirit as a "

Sanskar in our society and without such Sanskars, the society cannot flourish! "

"Sports must become an indispensable and inseparable part of our social life. Competitiveness is just a by product".

Great Quotes of Shri Narendra Modi on Sports

Sports-

- Keep us healthy and fit. They give us energy and strength.



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Algal Biodiesel - A Potent Green Energy

Dr. B. Anusha

Lecturer in Chemistry, Smt. N. P. S Government College for Women, Chittoor.
E-mail : anushabheemreddy@gmail.com.

Abstract

Growing concern regarding energy resources and the environment has increased interest in the study of alternative sources of energy. Research on renewable and eco-friendly fuel is growing rapidly and many scientists and governments are interested to grow it fast due to limitation of conventional fuel sources and their harmful effects on the environment. To meet increasing energy requirements, there has been growing interest in alternative fuels like biodiesel to provide a suitable diesel oil substitute for internal combustion engines. Biodiesels offer a very promising alternative to diesel oil since they are renewable and have similar properties. Biodiesel derived from oil crop is a potential renewable and carbon neutral alternative to petroleum fuel. Unfortunately the biodiesel from oil crop, waste cooking oil and animal fat cannot realistically satisfy even a small fraction of the existing demand for transport fuel. Owing to significant advantages over terrestrial oil seed crops, microalgae, is seen as a future third generation source of oil that can be converted into biodiesel. Microalgae make use sunlight and carbondioxide for their growth and give higher oil productivity more than terrestrial oil seed crops. Biodiesel from microalgae is the most promising renewable biofuel that has the potential to completely displace petroleum-derived transport fuel without adversely affecting supply of food and other crops products. The present paper discusses the potential of microalgae for sustainably providing biodiesel for the displacement of petroleum derived transport fuels in India.

Keywords: Microalgae, algal oil, transesterification, lipid, Biodiesel

INTRODUCTION

The significant reduction in the amount of reserves and the subsequent increase in challenges to extract fuel from accelerating variables of oilfields have successfully led to discovery of many promising alternatives of fossil fuels. Currently, the fossil resources are not regarded as sustainable and questionable from the economic, ecology and environmental point of views [1]. Owing to the limited availability and associated environmental problems with fossil fuel utilization, the renewable energy based biofuel i.e., biodiesel and bioethanol are viewed as future substitute fuels for diesel and gasoline respectively. Accordingly, Government of India has announced Bio-fuels Policy in the Year 2008 to promote the production and the use of biodiesel with diesel by 2017. Studies have shown that the usage of vegetable oils in neat form is possible but not preferable [2]. The other sources of commercial biodiesel include canola oil, animal fat, palm oil, corn oil, waste cooking oil [3, 4, 5]. Apart from the non-edible oil resources, microalgae is becoming the focus as future source of biodiesel as these are found exceedingly rich in oil that can be converted to biodiesel using existing technology. The present paper explains possibilities of different algal species as sources of biodiesel, extraction of algal oil, conversion of algal oil into biodiesel and Status of algal biodiesel production in India.

Microalgae comprise a vast group of photosynthetic, auto/heterotrophic organism which has an extraordinary potential for cultivation as energy crops. Also micro algae can invariably grow under all severe conditions irrespective of pH, temperature or salinity extremes. The biomass doubling time for microalgae during exponential growth can be as short as 3 to 4 hr, which is significantly quicker than the doubling time for oil crops [6].

Advantages of Biodiesel than conventional diesel fuel:

- Biodiesel can be used in existing engines without any modifications.
- Biodiesel is made entirely from vegetable sources; it does not contain any sulfur, aromatic hydrocarbons, metals or crude oil residues.



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[REVIEW ARTICLE]

EFFECT OF ABIOTIC AND BIOTIC FACTORS ON ACCLIMATIZATION OF TISSUE CULTURED PLANTS

Indravathi G

Department of Biotechnology, K.V.R. Government College (W), Kurnoor - 518002, Andhra Pradesh, India.
E-mail: gindravathi@gmail.com**Cite this article as:**

Indravathi G (2015). Effect of abiotic and biotic factors on acclimatization of tissue cultured plants. In: New Horizons in Biotechnology. (Eds. Viswanath B and Indravathi G) Parascent Publishing House, India, pp. 232 - 235.

The ultimate success of micropropagation on a commercial scale depends on the ability to transfer plants out of culture on a large scale at low cost and with high survival rate. Tissue culture raised plants possess certain characteristic features i.e. culture induced phenotype due to their acclimatization to special environment in vitro. The in vitro culture conditions result in the plantlets with altered morphology, anatomy and physiology. During field transfer the in vitro grown plantlets are unable to compete with soil microbes and to cope with environmental conditions. Except humidity all other physical factors like temperature, light intensity, water potential, water loss, hydraulic conductivity are low at in vitro conditions where as in ex vitro conditions they are high. The anatomical factors like stomata density, number, wax formation, cuticle formation, calcium present in guard cells, chloroplast number are low at in vitro conditions where as in ex vitro conditions they are high. This review is focused on the effect of both abiotic (physical & chemical environment) and biotic (biotization) during acclimatization of plantlets to ex vitro conditions.

Keywords : In vitro and ex vitro growth, Biotization, Acclimatization, Biotic and abiotic factors, Micropropagation.

INTRODUCTION:

Micropropagated plantlets suffer high mortality when transferred from in vitro to ex vitro conditions. Plantlets should be slowly acclimatized to ex vitro conditions with high light intensity & low humidity conditions. In the hardening technique, attempt has to be made to economize the production process and simplify the technique with low sophistication, which could be adapted at village bio centres in order to transfer the scientific technology from lab to land. The use of biofertilizer and biocontrol agents during acclimatization reduces the loss due to microbial infection of plants and this avoids the cost of maintaining strict and vigorous sterile conditions in shade house during primary hardening involving ex vitro rooting. Thus biotization of micropropagated plants results in enhanced growth and survival during lab to land transfer. Bacterial inoculants containing *Bacillus* species was found to be effective in improving the survival of tissue culture raised tea plants against fungal attack during acclimatization. The micro cloned plantlets of *Chlorophytum borivilianum* [1] registered more than 95% establishment in soil following treatments with bioinoculants like *Glebaea aggregans*, *Trichoderma harzianum* and *Piriformospora indica*. Sahay and Varma [2] used *P. indica* as a potential agent for use in the acclimatization of micropropagated tobacco and brinjal. The plant endophytic bacteria and VAM fungi promote plant growth, resistance to pests and increased productivity. Hence research must be focused on the control of both biotic and abiotic factors in order to increase growth, to reduce cost and mortality in plantlets at the acclimatization stage.

Effect of various abiotic factors on acclimatization:**Humidity**

During in vitro conditions plantlets were grown under relatively air-tight culture vessels where humidity is higher and irradiance lower than conventional culture. These conditions result in the formation of plantlets of abnormal morphology and anatomy which causes high stomatal and cuticular transpiration rates when taken out of the culture

vessels [3]. This typical in vitro anatomy can be prevented by increasing the vapour pressure gradient between the leaf and the atmosphere [4]. The plants that develop under lower relative humidity have fewer transpiration and translocation problems ex vitro and persistent leaves that look like normal leaves [5]. Leaves of *Chrysanthemum* and *Sage* lost which were initiated and developed at relative humidity below 100%, displayed increased epicuticular wax, stomatal functioning and reduced leaf dehydration [6]. Humidity of the culture vessel can also be reduced by the use of desiccants, by coating the medium with oily materials by using large culture vessels, by using special closures that facilitate water loss there by improving the internal structure of plantlets [7,8].

Temperature & Light Intensity

The plantlets grown under in vitro conditions at low light intensity (1,200-3,000 Lux) and temperature (15 ± 2°C), when directly transferred to broad spectrum sunlight (4,000-12,000 lux) and temperature (16-36°C) caused charring of leaves and wilting of plantlets due to chlorophyll photo-bleaching and photo-inhibition [9]. To avoid this, the culture containers can be kept at room temperature for few days and later in the greenhouse with loose lids for 1-2 weeks. Micropropagated plantlets can be left in shade for 3-5 days under diffused natural light to make them adjust to the conditions of new environment. This helps in acclimatization of plants and leads to shoot elongation. So this approach might decrease photo-inhibition which was the cause for the transient decrease in photosynthesis after transplantation. When *Nicotiana glauca* plantlets were acclimatized in two phases, first in green house (30-50 μmol/m²-s⁻¹) and then in open air (200-1400 μmol/m²-s⁻¹) no photo-inhibition was found and photosynthetic capacity increased 46 days after transfer [10].

Sucrose concentration

Reports suggest that carbohydrate concentration influences the acclimatization process because plantlets switch from heterotrophic to autotrophic growth and any



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An Overview of Various Thin Film Growth Techniques

P.Sowjanya¹, Talat Parveen²

^{1,2} Lecturer in Physics, KVR Govt Degree College, Kurnool-518003.
sowji249@gmail.com¹, talatparveen.knl@gmail.com²

Abstract

Thin film materials are the key elements of technological advances made in the fields of optoelectronic, photonic, and magnetic devices. The properties of material significantly differ when analysed in the form of thin films. Most of the functional materials are rather applied in thin film form due to their specific electrical, magnetic, optical properties or wear resistance. There are many techniques to prepare thin films on substrate. This article gives an overview on the vast varieties of thin film deposition techniques.

Keywords: Thin film deposition, growth, evaporation, sputtering, vapor deposition

INTRODUCTION

Thin films, both crystalline and amorphous, have immense importance in the age of high technology like microelectronic devices, magnetic thin films in recording devices, magnetic sensors, gas sensor, A. R. coating, photoconductors, IR detectors, interference filters, solar cells, polarizer's, temperature controller in satellite, superconducting films, anticorrosive and decorative coatings. Thin film materials have already been used in semiconductor devices, wireless communications, telecommunications, integrated circuits, rectifiers, transistors, solar cells, light-emitting diodes, photoconductors, light crystal displays, magneto-optic memories, audio and video systems, compact discs, electro-optic coatings, memories, multilayer capacitors, flat-panel displays, smart windows, computer chips, magneto optic discs, lithography, micro electromechanical systems (MEMS), and multifunctional emerging coatings, as well as other emerging cutting technologies [1].

The deposition techniques for thin films are generally categorised into two.

1) Physical Process, 2) Chemical Process. Physical method covers the deposition techniques which depends on the evaporation or ejection of the material from a source, i.e. evaporation or sputtering, whereas chemical methods depend on physical properties, structure property relationships. The table gives the clear information about the classification of thin film deposition techniques.

While selecting a particular technique it should be tested satisfactorily for the following aspects:

- Cost effectiveness.
- It should be able to deposit desired material.
- Film microstructure and deposition rate should be controlled.
- Stoichiometry should be maintained as that of the starting materials.
- Operation at reduced temperature.
- Adhesive at reduced temperature.
- Abundance of deposit materials
- Scaling up of the process.
- Masking of the substrates.
- Control on film substrate interface and defects created in the film.

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There is an exploration and proliferation of new information and communication technologies (ICT) in recent times. This is also available easily to all ages of people in the society. These new digital technologies are, indeed, a gift to humanity. The teachers have a great role to play in making these technologies really a boon to students by making the students proactively engage themselves in meaningful and ethical ways to incorporate these gifts into their daily lives.

The central problem of the ethics in use of technology is that it tends to arrive too late. In many cases ethical issues are only recognised when the technology is already on the market and problems arise during its widespread use. Ethics can then become a tool to clean up a mess that might have been avoidable. It is desirable to have ethical input at the earlier stages of technology design and development. The central problem of this type of approach is that the future is unknown.

Keeping in view of the above facts the teacher can educate the student 'What is right' and 'What is wrong' of ICT, which promotes the ethics at personal level. Some of the wrong things that should judiciously be avoided by everyone while using ICT are,

- a) Copying and pasting other people's work as your own
- b) Downloading copyrighted music and films
- c) Cyber-bullying on social networks
- d) Taking mobile video or pictures to embarrass or humiliate someone
- e) Using someone else's password
- f) Spreading malicious gossip about someone

'Information and Communication Technology' (ICT) has become a buzz word now - a - days. In the past two decades, there is a rapid and enormous growth of ICT, which has a great influence in the growth of economy, changes in societies by creeping into all walks of life, and, the field of education is no exception. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as a part of the core of education, together with reading and writing. However

there appears to be misconceptions. ICT generally refers to "computer computing related activities". But in the case, although computers and application play a significant role in information management, technologies like telecommunication equipment and services, media broadcasting, library and document centers, commercial information processing network based information services, other related information communication activities are also part of ICT's.

Information and Communication technology (ICT) has been available in education since 1980s, resulting in a question of how ICT has been and is used in educational institutions. The impact of ICT on pedagogy and learning skills is no less than the effect of social and cultural aspects. This creates an opportunity to increase how rewarding meaningful both teaching and learning can be. As a result, how competent and confident the teachers consider their use of ICT could contribute to the success of ICT in the classroom.

The field of education has been significantly influenced by ICT's which undoubtedly affected teaching, learning and research. ICTs have the potential to innovate, accelerate and enrich the learning of the students to deepen their understanding and achieving their goals. ICTs play a vital role in creating opportunities.

India actively promotes the use of Information and Communication Technology (ICT) in education in the education sector today, as it has been in the non-formal sector for more than 40 years. In fact, since the early 1950s, Indian government documents have identified the use of all media for promoting development, implicitly, for education. Subsequent policy and plan documents on education prepared from time to time, have laid out a role for technology application, especially in the non-formal education sector.

Today, the country's education makers, at both central and state levels, have chosen to explore the use of computer and internet based ICT in education, along with broadcast ICT.

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STEPS TO REDUCE POLLUTION TO ACHIEVE SWACHH BHARATH

P.Sowjanya¹, Talat Parveen¹

^{1,2}Lecturer in Physics, KVR Govt. Degree College for Women(A), Kurnool.

¹sowji249@gmail.com, ²talatparveen.knl@gmail.com

Abstract:

Polluting our world should not even be an option, especially where there are alternatives as there are these days. We must be aware about the actions which can help to reduce the amount of pollution in our world. Recycling of each and every thing like plastics, glass, aluminum, newspaper, electronic goods, metals, cardboard-buy organic products-plantation of trees-Making sustainable energy choices-choosing organically grown food items—Making sustainable transportation choices

Key words: Recycling, organic products, plantation

Introduction:

Pollution causes unexpected and sometimes serious and devastating changes in our land, river and sea environments. Pollution can kill animals and plants and it probably kills us too. And also it can cause health problems. Here are some practical steps which can reduce pollution.

1. Recycling:

- The most important part of reducing pollution is recycling everything that we can recycle. Recycling saves natural resources, reduces land pollution and also air pollution as many products require more energy to produce them than to recycle them. This energy is often provided by carbon-emitting fossil fuels so by using less of those there is an indirect benefit in acting to prevent global warming.
- We can recycle almost everything these days like phones, gadgets, computers, plastics, glass, aluminum, tin, other metals, clothes, newspapers, magazines, cardboard, even your organic peelings from our vegetables can go on a compost heap.
- We can use online auction sites and other sites to sell unwanted items, and we can donate useful items to charity shops and collections.
- We can buy recycled products like paper, products that use recycled packaging and plastics, recycled electrical goods, clothes from charity shops.

2. Opting renewable energy:

- Using less harmful detergents.
- Buying organic food can sometimes be slightly more expensive but it will reduce the amount of pesticides, herbicides, fungicides, artificial fertilizers, hormones, antibiotics etc. being used in the agricultural industries which helps to reduce pollution in our rivers and in ourselves.
- Buying organic cotton products, such as clothes, bags and shoes, produced in an eco friendly way.
- Buying products with biodegradable packaging.



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Department of Chemistry

A Two Day National Seminar

"Green Chemistry: Contribution to the Environmental Sustainability"



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National Seminar on "Green Chemistry : Contribution to the Environmental Sustainability

We all are technophile and cannot imagine life without modern gadget. But its time we must learn how to live sustainable lifestyles by using green technology in all arena of our life. Using green technology in homes and office can be accomplished in a number of ways. The way we heat and cool homes, cook and preserve food, wash clothes, use energy resources in our home and office needs to be reviewed. The Indian consumer is increasingly conscious of the benefits of environmentally friendly and sustainable practices (86%) but when it comes to actual buying, only about 44% Indians purchase eco-friendly products as they are 'very expensive' (Global Online Environment and Sustainability Survey by Nielsen).

The strength of environmental movement lies at grassroots level. Though everybody aware of environmental pollution but very few act consciously to protect it. There is a long way to go, so everybody should make a conscious effort to safeguard mother earth from further deterioration. The sooner we adopt an eco-friendly lifestyle, the better it would be for us and the coming generations.

¹ Lecturer in Home Science, K.V.R. GC (w), Rayalseema University, Kurnool
² Lecturer in Hindi, K.V.R. GC (w), Rayalseema University, Kurnool

Sustainable Consumption : Green Consumer Behaviour When Purchasing Products

Dr. D. Sreenivasulu

The "attitude/behavior gap" or 'values/action gap' is where 30% of consumption report that they are very concerned about environmental issues but they are struggling to translate this into purchases. For example, the market share for ethical foods remains at 5 per cent of sales. This paper investigates the purchasing process for green consumers in relation to consumer technology products in India. Data was collected from 80 self declared green consumers through in depth interviews on recent purchases of technology products. A green consumer purchasing model is developed and success criteria for closing the gap between consumer's values and their behavior. The paper concludes that incentives and single issue labels (like the current Energy rating label) would help consumers concrete their limited efforts. More Fundamentally, " being green " needs time and space in peoples' lives that is not available in increasingly busy lifestyles. Implications for policy and business are proposed.

Keywords : ethical, green, environmental, sustainable, consumer, purchase, consumption, behavior.

Lecturer in Commerce, Government Degree College, Pattikonda, Kurnool-518 380.

White Biotechnology a Boon for Green Chemistry

P. Shajahan Begum

White biotechnology other name for industrial biotechnology is the application of modern biotechnology for the industrial production of chemical substances and bioenergy, using living cells and their enzymes, resulting in inherently clean processes with minimum waste generation and energy

Role of Science and Technology Education in Environmental Sustainability

P. Shajahan Begum

Lecturer in Zoology, K.V.R Govt College (W) Kurnool.

Abstract

Science and advanced technology can however only help the process of global sustainable environment in a limited way but they cannot deliver it. The success of the technology lies in its implementation part. In spite of conducting many conferences, seminars and world summits towards the protection of environment for the past two decades, the present world is environmentally less sustainable than in the previous days. The progress whatever the rich developed countries have made so far has not been achieved through the relocation of their dirty manufacturing facilities to poor developing countries. However, the relocation of the manufacturing facilities in this way cannot address the growing problem of anthropogenic pollution. It merely changes the jurisdiction of the pollution created from the 'rich' to the 'poor' world. Therefore in order to achieve an acceptable level of global environmental sustainability, the citizens must be empowered with essential knowledge and information especially in developing countries like India. Since educational institutions are the places where the members of the society are more, it is possible to bring remarkable changes in the mindset of the public. To protect children in the polluted regions, environmental education represents a relevant means of prevention because this type of education enhances the learner's awareness of their environment's ambient conditions, as well as their active participation in solving local problems.

Keywords: Science and technology, environmental sustainability, Environmental Education, students, sustainable development.

INTRODUCTION

There is a strong belief in the international scientific community that the environmental problems can be solved and sustainable development and global environmental sustainability achieved only with the application of science and technology alone. But the progress towards sustainable development is dependent upon a fundamental change in societies' attitude to nature and the environment. It is only with such enlightenment that the affluent would be willing to adopt less consumptive lifestyles commensurate with the Earth's ecological capacity. Science and technology, however advanced, cannot help in this matter. Hence, what is needed to bring about this change of attitude is education in moral and ethical philosophy. In the young minds, it is essential to reinforce the environment-respecting moral values.

SUSTAINABLE DEVELOPMENT THROUGH SCIENCE AND TECHNOLOGY

It is very hard to find any aspect of modern life untouched by science and technology. Directly or indirectly they have brought immense benefits to human societies, and it has given us the means to understand how the physical world around us works. The impacts of science and technology are determined by how they are applied, why they are applied, and whether or not we choose to apply them in the first place. As for the natural environment is concerned, whether they turn out to be good or bad is determined by their environmental impacts. Following the industrial revolution, economic development through industrialization based on science and technology became the norm. But in the international organizations such as World Bank and International Monetary Fund, environmental degradation is considered as the norm. Science and technology have brought immense benefits. However we are paying a high 'price' for it in terms of environmental degradation and the 'price' is escalating to thwart the achievement of even a modest degree of globally sustainable development. And this has serious implications for future generations.

An analysis would show that the main contribution of science and technology to environmental protection has been in two distinct areas. First, alerting us to potential or manifest environmental problems. For example, it is



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[Short communication]

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HAEMATOPOIETIC STEM CELLS

Kusuma kumari N and Shajahan Begum P

Department of Zoology, KVR Govt. Degree College for Women, Kumool-518002, A.P

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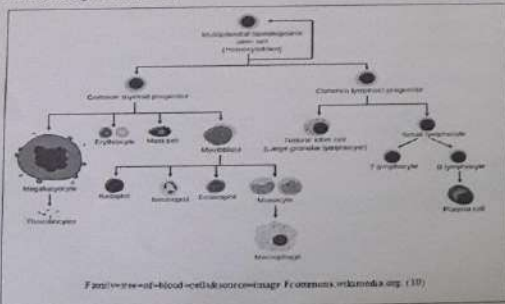
Kusuma kumari N and Shajahan Begum P (2015). Haematopoietic Stem Cells. (Eds. Viswanath B and Indravathi G) Paramount Publishing House, India, pp. 116-117.

ABSTRACT: Stem cell therapy is the use of stem cells to treat or prevent a disease. Bone marrow transplant is the most widely used stem cell therapy, but some therapies derived from umbilical cord blood are also in use. The most well-established and widely used stem cell treatment is the transplantation of blood stem cells to treat diseases and conditions of the blood and immune system, or to restore the blood system after treatments for specific cancers. The US National Marrow Donor Program has a full list of diseases treatable by blood stem cell transplant. More than 26,000 patients are treated with blood stem cells in Europe each year. Since the 1970s, skin stem cells have been used to grow skin grafts for patients with severe burns on very large areas of the body. Only a few clinical centres are able to carry out this treatment and it is usually reserved for patients with life-threatening burns. It is also not a perfect solution: the new skin has no hair follicles or sweat glands. Research aimed at improving the technique is on-going. Currently, these are the only stem cell therapies that have been thoroughly established as safe and effective treatments. Some other applications of stem cells are being investigated in clinical trials, including the use of stem cells to regenerate damaged tissues – such as heart, skin, bone, spinal cord, liver, pancreas and cornea – or to treat blood or solid-organ cancers. The majority of these trials are using mesenchymal stem cells, which are derived from sources such as fat tissue, bone marrow and connective tissue. A small proportion of the trials are using blood stem cells.

Keywords: Bone marrow; Stem cell; Blood system; Transplant.

INTRODUCTION:

Blood stem cells were the first stem cells to be identified. Their discovery in the 1960s marked the beginning of stem cell research. Today, researchers continue to learn from blood stem cells and are working to identify new ways to use them in the clinic. About blood stem cells Blood stem cells are also known as haematopoietic stem cells. Like other stem cells, they can self-renew, or copy themselves. They also produce the different types of specialized cells found in the blood: both red blood cells and the many kinds of white blood cells needed by the body's immune system [1,2].



The tree of blood: Blood stem cells are at the origin of all blood cell types. Once a blood stem cell divides, its daughter cells take various differentiation routes to produce different types of specialized blood cells. Specialized blood cells do not live very long, so the body needs to replace them continuously. Blood stem cells do this job. They are found in the bone marrow of long bones such as the femurs (thigh bones), and in the hips or pelvis, the vertebrae (backbones) and the rib cage. They can also be

obtained from the umbilical cord blood and the placenta at birth [3, 4].

Blood stem cells and disease : Blood stem cells need to make just the right number of each type of blood cell to keep the body healthy. This is a carefully controlled process. When it goes wrong, the result may be a blood disease such as leukaemia or anaemia.

Blood stem cells are already widely used to treat such diseases. A survey in 2008 showed that more than 26,000 patients are treated with blood stem cells in Europe each year. These blood stem cells come from three different sources – bone marrow, the bloodstream of an adult or umbilical cord blood [5, 6].

1. Bone marrow transplants are in fact blood stem cell transplants. Such transplants can be used to treat patients with blood diseases like leukaemias, lymphoma or multiple myeloma. After high doses of chemotherapy or radiation therapy, the patient's own blood stem cells are destroyed. Bone marrow containing healthy blood stem cells is taken from a donor and transplanted into the patient. The donor blood stem cells can then take over the job of making blood cells in the patient's body.
2. Blood stem cells can also be obtained from the bloodstream. Certain proteins are used to stimulate stem cells from the bone marrow to move into the bloodstream so that enough cells can be isolated for a transplant. These stem cells are most commonly used for treating cancers like leukaemias and lymphomas.
3. Blood stem cells can be isolated from umbilical cord blood after birth. The cells can then be used to treat children with some kinds of blood diseases, such as leukaemia, congenital immunodeficiencies, anaemias or sickle cell disease. Researchers are looking for ways to increase the number of stem cells that can be obtained from cord blood, so that they can be used routinely to treat adults too.

Current research: Scientists are still learning about how blood stem cells develop in the embryo, how they are



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Poster titled *"Balanced Nutrition and Stress free life"* in the Two Day National Seminar "Role of Sports and

Nutrition - Its Impact on Personality Development". Held during 18th & 19th February, 2015.

M. Vijaya Bharathi

M. Vijaya Bharathi

Convener

Dr. M. Purushotham Reddy

Dr. M. Purushotham Reddy

Principal

డా॥ రావూరి భరద్వాజ - సాహితీ ప్రస్థానం

వి.వింధ్య వాసిసీ దేవి, తెలుగు అధ్యాపకురాలు,

కె.వి.ఆర్. ప్రభుత్వ మహిళా డిగ్రీ కళాశాల, కర్నూలు.

జీవన ప్రస్థానం :- బదుగు జీవుల (బతుకు చిత్రాలనే తన రచనలకు ముడిసరుకుగా ఎన్నుకొని ఆ బదుగు జీవుల జీవన పాఠ్యాలను లోకానికి చాదిన మహా మానవతావాది డా॥ రావూరి భరద్వాజ. ఆకలి, అవమానం, కష్టాలు, కన్నీళ్లు, పేదరికం, దుర్భర దారిద్ర్యంతో జీవితాన్ని ప్రారంభించి దేశం గర్వించదగ్గ స్థానాన్ని పొందిన మహామనిషి అతి సామాన్య కుటుంబంలో జన్మించి, అత్యంత సాధారణ జీవితాన్ని గడిపి, సామాన్యమైన కథావస్తువులతో అసామాన్యమైన రచనలు చేసిన ప్రజ్ఞాశాలి రావూరి.

సమాజంలో అట్టడుగు స్థాయిలో జీవనం సాగిస్తోన్న పేదల ఆక్రందనలకు చరమగీతం పాడాలన్న తపన వీరి ప్రతి రచనలోనూ గోచరిస్తుంది. పేదల పక్షపాతిగా వారి కన్నీటి గాఢల్ని ప్రపంచానికి చాటాలన్న సత్సంకల్పమే రావూరి రచనల ప్రధానోద్దేశంగా కనిపిస్తుంది. “దరిద్రం చాలా మందికి పిరికిపాలు పోస్తుంది. నాకూ పోసింది. కానీ ఆ పాలు తాగి నేను రాటుదేలాను. నా చిన్నతనంలో అన్ని బాధలు కష్టాలు అవమానాలూ ఈనడింపులూ అనుభవించకపోతే, నేనసలు రచయితను అయి ఉండే వాడినే కాదు”. అంటారు. భరద్వాజ.

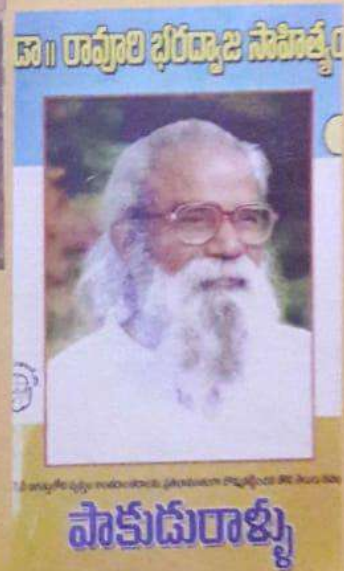
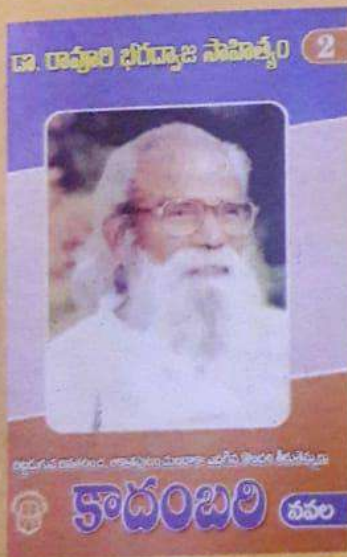
తన జీవన ప్రస్థానంలో ముందుకు సాగడానికి అనేక రకాల పనులు చేస్తూ పొట్ట పోషించుకున్నాడు. పశువుల కాపరిగా, వ్యవసాయ కూలీగా, మిల్లులో అయిల్ మేన్ గా, కమ్మరి దగ్గర తిత్తులు ఊడే కూలీగా, వడ్రంగి దగ్గర రంపం లాగే పనివాడుగా, ప్రెస్సులో కంపోజిటరుగా, ఆనాధాశ్రమంలో గమస్తాగాను, ప్రతికా కార్యాలయంలో రిపోర్టరుగా, సబ్-ఎడిటరుగా, మరోచోట ప్రాఫెసర్ రుద్రుగా ఇలా అనేక రకాల పనులు చేశాడు. ఆయన తన ప్రతి అనుభవాన్ని ఎంతో జాగ్రత్తగా మనసుపొరల్లో నిక్షేపం చేసుకొని ఆయా అనుభవాలసారంతోనే ఆణిముత్యాల వంటి రచనలను సమాజానికందించారు. ఆకలి, అజ్ఞానం, దారిద్ర్యం, నిరుద్యోగం, వ్యాధులు, అన్యాయాలు, అక్రమాలు, అక్షలతలు లేని సమాజానికై కలలు కన్న అక్షర తపస్వి భరద్వాజ.

సాహితీ ప్రస్థానం :-

ఎనిమిదవ తరగతి లోనే బడి చదువు మానేసి, జీవితపు బళ్లీ అడుగుపెట్టేనాటికి భరద్వాజ వయస్సు 15 సంవత్సరాలు. జీవనోపాది నిమిత్తం కూలీ, నాలీ చేసుకుంటూ స్వయం కృషితో సాహితీ ఫలసాయం చేశాడు. అనేకమైన ప్రాచీన గ్రంథాలను పట్టుదలతో చదివి భాషాజ్ఞానాన్ని సంపాదించాడు. మనస్సులో ప్రవహిస్తోన్న అనేకమైన భావాలకు పదునుపెట్టి పద్యరచనలో సాహిత్య ప్రవేశం చేశాడు. ‘నీకు పద్యాలు రాయడం చేతకాదు’ అన్న గురువు మాటలను సవాలుగా తీసుకొని, కొన్ని పద్యాలు రాసి గురువు చేత “మంచి పద్యాలు రాసావు అని పొగిడించుకొని” పద్యరచనను మానేశాడు భరద్వాజ. ఆ తర్వాత భరద్వాజకు చలం సాహిత్య పరిచయం అయ్యేవరకు కూడా వీరి వచనం గ్రాంథికశైలి లోనే నడిచింది. చలం సాహిత్యాన్ని చదివిన తదనంతరమే గ్రాంథికశైలిని విడిచిపెట్టి వ్యావహారిక భాషలో రచనలు చేయడం మొదలు పెట్టాడు.

తెలుగు కథా రచయితగా నవలారచయితగా నాటక కర్తగా స్ఫుటిసాహిత్యం, బాల సాహిత్యం జీవితచరిత్ర, విజ్ఞాన శాస్త్ర రచయితగా అనేక ప్రక్రియలలో భరద్వాజ 37 కథా సంపుటాలు, 18 నవలలు, 5 బాలల కథా సంపుటాల 8 నాటికలు, 5 రేడియో కథానికలు స్ఫుటి కావ్యాలు రచించాడు.

డా. రావూరి భరద్వాజి సాహిత్య సమాలోచనం



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35. డా॥ ఆశావాది ప్రకాశరావు పద్య సౌందర్యం

వి. వింధ్య వాసినీ దేవి

తెలుగు అధ్యాపకులు

కె.వి.ఆర్. ప్రభుత్వ మహిళా డిగ్రీ కళాశాల, కర్నూలు

తెలుగు సాహిత్యవనంలో పద్యసుమ సుగంధాన్ని పరిమళింపజేస్తున్న సాహితీమూర్తి డా॥ ఆశావాది పద్యానికి ఆదరణ కరువవుతున్న నేటి రోజుల్లో తన రచనలద్వారా పద్యప్రాభవాన్ని ప్రకాశింపజేస్తున్నారు. విభిన్నమైన సాహిత్య ప్రక్రియల్లో రచనలు వెలువరిస్తున్నా వారికి అత్యంత ప్రీతిపాత్రమైనది పద్యం అని చెప్పవచ్చు.

“పద్యము కవితావాణికి పాద్యము రసరమ్య పూర్ణభావుక తానై

వేద్యము కాలాబాధిత వైద్యము, చోద్యము పఠించి పరవశులగుడీ!

అంటూ పద్యప్రాశస్త్యాన్ని పేర్కొన్నారు డా॥ ఆశావాది.

ఈనాడు పద్యం పాతబడి పోయిందా! అన్న ప్రశ్న సంధించుకుంటే అవునన్న సమాధానమే వినిపిస్తుంది. సాహిత్యసృష్టి జరిగిన నాటినుండి 19వ శతాబ్దివరకు సాహిత్య జగత్తునంతా అవరించి అనంతమైన సాహిత్య సంపదకు ఆలవాలమై నిలిచి అశేష పాఠకులను అలరించినది పద్యం. కాని కాలక్రమంలో ఆంగ్ల సాహిత్య పరిచయం వల్ల, తెలుగులో పరిచయమైన వచనసాహిత్య ప్రక్రియల (వచన కవితలు, కథలు, నవలలు మొ॥) ముందు కాస్త చిన్నబోయింది పద్యం అనిపిస్తుంది. ఛందోబద్ధమై, గానయోగ్యమై, ధారణాసుకూలమై, వీసులవిందైన పద్యం రసజ్ఞపండితులను అలరించినంతగా సామాన్య పాఠకులను రంజింపజేయ లేదనడం అతిశయోక్తి కాదు. ఈ మాట వారికి భావాన్ని అందవేయటాన్ని దృష్టిలో పెట్టుకొని మాత్రమే అంటున్నది.

తెలుగుసాహిత్యానికే సొంతమైన పద్యప్రక్రియాభివృద్ధికి కృషిచేసిన, చేస్తున్న కవి పండితులెందరో ఉన్నారు. అధునికకాలంలో విశ్వనాథ సత్యనారాయణ, దాశరథి కృషిచేసిన, చేస్తున్న కవి పండితులెందరో ఉన్నారు. రాళ్లబండి కవితాప్రసాద్, బాపురెడ్డి, రావికండి వసునందన్ మొదలైన వారంతా పద్యకవులుగా ప్రసిద్ధి గాంచారు. నేడు అత్యాధునికయుగంలో పద్యానికి వన్నె తరిగిందని