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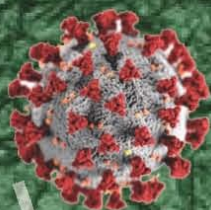
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Our Activities

- An Association with over 600 members from India and abroad working since last 68 years for the growth and development of Leather and its allied industries.
- Organize seminars, symposiums, workshops in order to share information, knowledge & latest development and interactions for the benefit of all concerned.
- Organize Human Resource Development programmes on regular basis.
- Publish for over 60 years, a technical monthly journal namely "Journal of Indian Leather Technologists' Association" (JILTA), widely circulated through out the World.
- Publish books for the benefit of the students at various levels of study, for the Research Scholar and the Industry.
- Work as interface between Industry and the Government.
- Assist Planning Commission, various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies for the growth of the Industry.
- Assist small and tiny leather goods manufacturers in marketing their products by organizing LEXPOs in Kolkata and different parts of India.

Indian Leather Technologists' Association

[A Member Society of International Union of Leather Technologists' and Chemists Societies (IULTCS)]

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ILTA
Since 1950

JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Indian Leather Technologists' Association is a premier organisation of its kind in India was established in 1950 by Late Prof. B.M.Das. It is a Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS).

The Journal of Indian Leather Technologists' Association (JILTA) is a monthly publication which encapsulates latest state of the art in processing technology of leather and its products, commerce and economics, research & development, news & views of the industry etc. It reaches to the Leather / Footwear Technologists and the decision makers all over the country and overseas.

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Since 1950

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Tell me and I forget, teach
me and I may remember,
involve me and I learn

Stahl Campus®

Leather process



As an active proponent of responsible chemistry, Stahl has established the Stahl Campus® training institute in its Center of Excellence for sustainable leather technologies in Kanpur. With our Stahl Campus® Leather Modules, we can offer training and information, such as responsible chemistry and sustainability in leather production. We believe that in this way, we facilitate transparency that inevitably will lead to a better supply chain with responsible chemistry.

Our approach is modular, making it easy to tailor learning programs to specific needs. Stahl Campus® has at its core the drive to unlock human potential and make that new

competitive advantage. By providing the possibility of sharing knowledge, we embrace our role in the dynamic leather and chemical industry. Stahl Campus® is a great opportunity to strengthen skills and capabilities in order to make working methods more efficient by sharing experiences and studying products and procedures.

If you're interested to receive more information on Stahl Campus®, please contact Prasanna Maduri (Prasanna.maduri@stahl.com).

If it can be imagined, it can be created.

We imagine sustainable solutions for the beamhouse and tanning process

Stahl BeTan®



Tanners are facing growing environmental challenges as the market increasingly demands that high-quality leathers are produced more responsibly. Contributing to a more ecological leather production process, our responsible beamhouse portfolio helps tanners meet these challenges without compromising on the quality of the leather.

The Stahl BeTan® portfolio consists of a complete range of responsible solutions for every step in the beam house and tanning process, from soaking to liming and bating. Using the best-in-class responsible technologies from the Stahl BeTan® portfolio, tanners can reduce their water consumption and the amount of sulfides, solids and salt used during leather production.

Moreover, it can result in a shorter production process. Building on years of experience in beam house operations and acquiring the best technical experts in the world, Stahl has become the go-to partner when it comes to sustainable beam house and tanning solutions. Our Stahl BeTan® solutions demonstrate Stahl's continuous commitment to Responsible Chemistry, aimed at reducing the environmental impact of leather-making.

If you would like to know more about Stahl BeTan®, and what we can do for your business, visit stahl.com or contact david.sabate@stahl.com

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“DIGITAL” PAST, PRESENT, AND FUTURE: AN IT DIRECTOR’S PERSPECTIVE



When I was asked to write a blog about digitalization, I realized that many people believe, incorrectly, that “Digital” (as we call it in the IT world) is a recent innovation. In reality, today’s digital transformation is just the latest phase of a long-term automation journey that happens to be rapidly accelerating. A quick history lesson will help in understanding the reach of Digital, both today and in the future. Allow me to offer some perspective.

The early days: Analog gives way to digital

The baby boomers reading this will recall a time when internal memos were hammered out on a typewriter and distributed via internal post (those internal postmen had the low-down on all the latest gossip). Many jobs were based on processing a form from the left side of the desk (incoming) to the right side (outgoing), from one department to the other. Those were the good old days when it was easy to keep track of how a task was progressing simply by talking to people (bear in mind that we’re still processing the same documents, only now in a digital way).

This office environment underwent a radical change in the final quarter of the 20th century when the computer became widely affordable (albeit the size of a small refrigerator). Analog workflows were automated across every department and digital storage options replaced file cabinets for holding information. Logic (computer intelligence) was developed. This is exactly when the digital revolution broke through, though it was called Information Technology or automation at the time.

Stage two: From desktop to mobile

Year by year, computer processors continued to develop in terms of size and performance. Meanwhile, costs fell and the scope of use expanded rapidly. Portable devices were next on the scene, with heavy laptops eventually giving way to light tablets. The evolution continued, not only in computers, sizing, and chips, but also in terms of bandwidth as better technology enabled greater and faster data transmission. Global infrastructure improved, fiber-optic technology came along, and our world suddenly became connected. The mobile phone – a phenomenon in itself – developed into a microcomputer with a bottomless array of apps.

Digital in 2021: A hyper-connected world

So here we are in 2021. Today’s technology allows us to connect with customers, suppliers, and other business partners to exchange sales and purchase orders without any human interaction. As consumers, many of us use e-commerce portals to order goods and services via the internet. We’re able to connect from anywhere to anywhere and at any time. A spin-off from the COVID-19 pandemic is that we’ve quickly learned to work from home and meet online.

Of course, for every genuinely helpful digital tool, there's a "gadget" that sounds great (and costs a lot) but adds little value. Naturally, we want to cherry-pick the most promising opportunities. If a new technology isn't delivering value, we may start playing with it in a kind of digital sandbox, but we don't invest too much until it begins to prove its worth.

New opportunities in a digital world

While we're always mindful of cybercrime and other IT-related risks, these don't stop us from exploring the many exciting opportunities out there. Continuing our digital transformation journey will allow us to become more efficient, valuable, and relevant as an organization. It will help us empower our employees, build closer customer relationships, and help us bring new, value-adding solutions to market.

And because technology has become such an important driver for our business, we invest significant time and energy in identifying new opportunities. Day by day, our digital transformation team is scouring the market for fresh ideas and connecting with potential business partners. Meanwhile, our IT department keeps a close eye on new technological developments that could improve our existing IT infrastructure. Importantly, both teams are in constant discussion about how to introduce digital solutions in a consistent and integrated way.

Where next on our journey? □

We've talked a lot about yesterday's digital milestones, but what's next on the horizon? I believe the next big breakthroughs will focus on connecting to customers and suppliers via digital platforms. This goes beyond expanding communication tools such as Microsoft Teams: I'm talking about sophisticated business platforms that allow information sharing and business transactions to take place online. At Stahl, for example, we're building a new Product Information Management portal to provide our customers with greater insight into areas such as product quality and compliance.

This links to the idea of open innovation, which is a key focus here at Stahl. Among other things, new connective technologies will offer a platform to innovate more efficiently, explore new markets, and improve the environmental impact of our solutions. At the same time, we can use these tools to tap into the enormous quantities of valuable information now available in our industries, so we can continue to learn and improve.

That's just a small taster of what lies ahead. I think we can all agree that this is a story with much farther to run

(<https://www.stahl.com/news-14/06/2021>)



Application and Proliferation of IoT



(Concluding Part of last issue)

There are several emerging IoT standards, including the following :

- IPv6 over Low-Power Wireless Personal Area Networks (*6LoWPAN*) is an open standard defined by the Internet Engineering Task Force (IETF). The 6LoWPAN standard enables any low-power radio to communicate to the internet, including 804.15.4, Bluetooth Low Energy (BLE) and Z-Wave (for home automation).
- ZigBee is a low-power, low-data rate wireless network used mainly in industrial settings. ZigBee is based on the Institute of Electrical and Electronics Engineers (IEEE) 802.15.4 standard. The ZigBee Alliance created Dotdot, the universal language for IoT that enables smart objects to work securely on any network and understand each other.
- LiteOS is a Unix-like operating system (OS) for wireless sensor networks. LiteOS supports smartphones, wearables, intelligent manufacturing applications, smart homes and the internet of vehicles (IoV). The OS also serves as a smart device development platform.
- OneM2M is a machine-to-machine service layer that can be embedded in software and hardware to connect devices. The global standardization body, OneM2M, was created to develop reusable standards to enable IoT applications across different verticals to communicate.
- Data Distribution Service (DDS) was developed by the Object Management Group (OMG) and is an IoT standard for real-time, scalable and high-performance M2M communication.

- Advanced Message Queuing Protocol (AMQP) is an open source published standard for asynchronous messaging by wire. AMQP enables encrypted and interoperable messaging between organizations and applications. The protocol is used in client-server messaging and in IoT device management.
- Constrained Application Protocol (CoAP) is a protocol designed by the IETF that specifies how low-power, compute-constrained devices can operate in the internet of things.
- Long Range Wide Area Network (LoRaWAN) is a protocol for WANs designed to support huge networks, such as smart cities, with millions of low-power devices.

IoT frameworks include the following :

- Amazon Web Services (AWS) IoT is a cloud computing platform for IoT released by Amazon. This framework is designed to enable smart devices to easily connect and securely interact with the AWS cloud and other connected devices.
- Arm Mbed IoT is a platform to develop apps for IoT based on Arm microcontrollers. The goal of the Arm Mbed IoT platform is to provide a scalable, connected and secure environment for IoT devices by integrating Mbed tools and services.
- Microsoft's Azure IoT Suite is a platform that consists of a set of services that enables users to interact with and receive data from their IoT devices, as well as perform various operations over data, such as multidimensional analysis, transformation and aggregation, and visualize those operations in a way that's suitable for business.

- Google's Brillo/Weave is a platform for the rapid implementation of IoT applications. The platform consists of two main backbones: Brillo, an Android-based OS for the development of embedded low-power devices, and Weave, an IoT-oriented communication protocol that serves as the communication language between the device and the cloud.
- Calvin is an open source IoT platform released by Ericsson designed for building and managing distributed applications that enable devices to talk to each other. Calvin includes a development framework for application developers, as well as a runtime environment for handling the running application.

There are numerous real-world applications of the internet of things, ranging from consumer IoT and enterprise IoT to manufacturing and industrial IoT (IIoT). IoT applications span numerous verticals, including automotive, telecom and energy. In the consumer segment, for example, smart homes that are equipped with smart thermostats, smart appliances and connected heating, lighting and electronic devices can be controlled remotely via computers and smartphones.

Wearable devices with sensors and software can collect and analyze user data, sending messages to other technologies about the users with the aim of making users' lives easier and more comfortable. Wearable devices are also used for public safety — for example, improving first responders' response times during emergencies by providing optimized routes to a location or by tracking construction workers' or firefighters' vital signs at life-threatening sites.

We can think of leather waist belts / wrist belts / watch belts embedded with similar sensors. In healthcare, IoT offers many benefits, including the ability to monitor patients more closely using an analysis of the data that's generated. Hospitals often use IoT systems to complete tasks such as inventory management for both pharmaceuticals and medical instruments. Smart buildings can, for instance, reduce energy costs using sensors that detect how many occupants are in a room. The temperature can adjust automatically — for example, turning the air conditioner on if sensors detect a conference room is

full or turning the heat down if everyone in the office has gone home. In agriculture, IoT-based smart farming systems can help monitor, for instance, light, temperature, humidity and soil moisture of crop fields using connected sensors. IoT is also instrumental in automating irrigation systems. In a smart city, IoT sensors and deployments, such as smart streetlights and smart meters, can help alleviate traffic, conserve energy, monitor and address environmental concerns, and improve sanitation.

The internet of things connects billions of devices to the internet and involves the use of billions of data points, all of which need to be secured. Due to its expanded attack surface, IoT security and IoT privacy are cited as major concerns. In 2016, one of the most notorious recent IoT attacks was Mirai, a botnet that infiltrated domain name server provider Dyn and took down many websites for an extended period of time in one of the biggest distributed denial-of-service (DDoS) attacks ever seen. Attackers gained access to the network by exploiting poorly secured IoT devices.

As IoT devices are closely connected, all a hacker has to do is exploit one vulnerability to manipulate all the data, rendering it unusable. Manufacturers that don't update their devices regularly — or at all — leave them vulnerable to cybercriminals. Additionally, connected devices often ask users to input their personal information, including names, ages, addresses, phone numbers and even social media accounts — information that's invaluable to hackers.

Hackers are not the only threat to the internet of things; privacy is another major concern for IoT users. For instance, companies that make and distribute consumer IoT devices could use those devices to obtain and sell users' personal data. Beyond leaking personal data, IoT poses a risk to critical infrastructure, including electricity, transportation and financial services.

Kevin Ashton, co-founder of the Auto-ID Center at the Massachusetts Institute of Technology (MIT), first mentioned the internet of things in a presentation he made to Procter & Gamble (P&G) in 1999. Wanting to bring radio frequency ID (RFID) to the attention of P&G's senior management, Ashton called his presentation "Internet of Things" to incorporate the cool new trend of 1999: the internet. MIT professor Neil

Gerstenfeld's book, *When Things Start to Think*, also appeared in 1999. It didn't use the exact term but provided a clear vision of where IoT was headed. IoT has evolved from the convergence of wireless technologies, microelectromechanical systems (MEMSes), microservices and the internet.

The convergence has helped tear down the silos between operational technology (OT) and information technology (IT), enabling unstructured machine-generated data to be analyzed for insights to drive improvements. Although Ashton's was the first mention of the internet of things, the idea of connected devices has been around since the 1970s, under the monikers *embedded internet* and *pervasive computing*.

The first internet appliance, for example, was a Coke machine at Carnegie Mellon University in the early 1980s. Using the web, programmers could check the status of the machine and determine whether there would be a cold drink awaiting them, should they decide to make the trip to the machine. IoT evolved from M2M communication, i.e., machines connecting to each other via a network without human interaction. M2M refers to connecting a device to the cloud, managing it and collecting data. Taking M2M to the next level, IoT is a sensor network of billions of smart devices that connect people, systems and other applications to collect and share data. As its foundation, M2M offers the connectivity that enables IoT.

The internet of things is also a natural extension of supervisory control and data acquisition (SCADA), a category of software application programs for process control, the gathering of data in real time from remote locations to control equipment and conditions. SCADA systems include hardware and software components. The hardware gathers and feeds data into a computer that has SCADA software installed, where it is then processed and presented in a timely manner. The

evolution of SCADA is such that late-generation SCADA systems developed into first-generation IoT systems.

The concept of the IoT ecosystem, however, didn't really come into its own until the middle of 2010 when, in part, the government of China said it would make IoT a strategic priority in its five-year plan.

The Leather & Tanning Industry utilizes various applications & processes for its complete and smooth functioning. Some of the major applications & process which require our gas detection or process automation devices are: Curing agent & mold preventative, Effluent Water Treatments, and so on... The various applications in this industry require specific gases like oxygen / toxic /combustible / inert or other types of gases, either at the input stages of different processes or given out as by-products at the output stages.

These gases can be hazardous to life, human safety or property in terms of their toxicity or explosive nature or environmental pollution creation, and hence require constant monitoring, so that they can be detected in the early stages of any leakage and thereby corrective actions can be taken immediately to prevent any type of damages or hazards caused by those gases. Also, there are many processes which require monitored temperatures & humidity levels, or are affected by varying temperature or humidity conditions within their areas of applications.

The scope of IoT, AI and robotics are enormous for leather industry as like other sectors.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA

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International
Resource
Panel



Green Technology Choices:

The Environmental and
Resource Implications of
Low-Carbon Technologies

INTERNATIONAL RESOURCE PANEL REPORT



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Effective solid waste
management

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From the desk of General Secretary



POSTPONEMENT OF ELECTION FOR CONSTITUTING THE OFFICE BEARERS & EXECUTIVE COMMITTEE OF ILTA FOR THE TERM 2021 – 2023

A long discussion had taken place in the 540th meeting of the Executive Committee on the possibility of conducting the Election for reconstitution of the New Office Bearers & Executive Committee of ILTA for the term 2021–2023.

After thorough discussion, it is concluded that holding Election with our existing constitutional system of casting of votes by physical presence of the Members under Kolkata, Howrah & both 24 Parganas jurisdiction, is not suitable.

It was therefore unanimously resolved that, due to new wave of acute Pandemic COVID, the present situation to conduct Election for constitution of the Executive Committee of ILTA for the term 2021-2023 is not at all suitable for casting votes physically as per our constitution.

Hence, it was decided by the Committee to postpone the Election process till the situation become normal and suitable to conduct the Election. Till then the present Committee both Central & Regional will continue to function as it is. The committee would review the situation on regular interval and try to start the Election process as early as possible depending on the situation.

A letter of intimation regarding postponement of Election was posted to all the Members and the Presidents of the Regional Committees of ILTA and RoC, on **12th May' 2021**.

LEXPO IN KOLKATA AND SILIGURI

- ❖ The Kolkata LEXPO – XXXXI has been proposed to be organized at Kolkata Ice Skating Rink from 18th to 26th September' 2021, 11.00 am to 8.00 pm every day. We have already deposited the booking money for the fair to the KISR authority.
- ❖ The Siliguri LEXPO – XXVI has been proposed to be organized at Kanchanjunga Krirangan adjacent Ground, Siliguri from 26th December'2021 to 10th January' 2022. Provisional allotment of the ground has been obtained and the final ground allotment confirmation is expected to receive after lockdown is over.

However, latest progress and status report regarding organizing both the proposed fairs will be informed in due course.


(**Susanta Mallick**)

YOUTUBE CHANNEL & FACEBOOK PAGE OF ILTA

An official **YouTUBE Channel** of our Association (**ILTA Online**) has been launched from November' 2020.

Also a **FaceBook Page** of our Association (**Indian Leather Technologists' Association**) will be launched within a short while.

You may find all the video recordings of different Seminar & Symposiums on both of these social media along with our website **www.iltaonline.org** time to time.

You are requested to kindly do '**Like**' & '**Subscribe**' the Youtube Channel and '**Follow**' the FaceBook Page to get regular updates on the activities of our Association.

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PUBLISH YOUR TECHNICAL ARTICLE

Faculties, Research Scholars and students of various Leather Institutes may wish to publish their Research / Project papers in an Article form in this monthly technical journal, JILTA.

Interested author may sent their paper (in MS Word format) along with a PP Photograph and Contact details like Email, Mobile etc. to our email IDs : admin@iltaonleather.org / jiltaeditor@gmail.com

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— x —

Read and Let Read :-

JILTA

General Secretary and the Members of the Executive Committee are available to interact with members at 19.30 hrs, over Phone / Conference call on every Thursday

Frontiers of Biology, Environment & Medical Sciences

Dr. Buddhadeb Chattopadhyay

Former Principal, Govt. College of Engineering & Leather Technology, Kolkata
& former Principal, MCKV Institute of Engineering, Liluah, Howrah



From the time immemorial the human has been characterized by his inquisitiveness, innovative and creative mind, these are the very qualities that set us aside from the animal kingdom as incredible animal species of this “blue planet”.

The science has developed and opened up many mysteries of Nature, while in that process, new mysteries; new challenges came on the way, which we are combating quite enthusiastically. Though it might be stated that it seems there lies a natural barrier to completely strip Nature off her mysteries. The more we try to enter in the citadel the more mysteries comes up on the way.

For example, we learnt lately that a thing like path of the quantum particle does not exist at all. We learnt also that the much-celebrated Newton’s Laws of motions are not applicable in all conditions. We learnt to be rational in our thinking process. There is no Golden Law in Science. To whatever extent there lies always an element of uncertainty. Nonetheless, we also learnt how to cope up with the uncertainty in this so called, “chancy, chancy world”.

However, the application of science to the welfare of this planet and its’ habitats is the foremost goal of Engineering and Technology, right from the moment of kick off of ancient civilization from the day we discovered by chance the art of making fire and its preservation to captivate energy and the development of wheels to transfer the motion. These are still relevant to modern days!

This theme is much important to survive and explore the endless promise that it makes as we can see today.

I am not an expert in these fields but an onlooker like millions of others. Sometimes, onlookers see a perspective that helps the

experts to scrutinize. With these assumptions in mind, I would like to stress somethings for the consideration of the participants and the experts.

The frontiers in biological science are much focused in the stem cell research having the remarkable potential to develop into many different cell types in the body during early life and growth. In addition, in many tissues they serve as a sort of internal repair system, dividing essentially without limit to replenish other cells as long as the person or animal is still alive. When a stem cell divides, each new cell has the potential either to remain a stem cell or become another type of cell with a more specialized function, such as a muscle cell, a red blood cell, or a brain cell.

Stem cells are distinguished from other cell types by two important characteristics. First, they are unspecialized cells capable of renewing themselves through cell division, sometimes after long periods of inactivity. Second, under certain physiologic or experimental conditions, they can be induced to become tissue- or organ-specific cells with special functions. In some organs, such as the gut and bone marrow, stem cells regularly divide to repair and replace worn out or damaged tissues. In other organs, however, such as the pancreas and the heart, stem cells only divide under special conditions.

Until recently, scientists primarily worked with two kinds of stem cells from animals and humans: embryonic stem cells and non-embryonic “somatic” or “adult” stem cells. The functions and characteristics of these cells will be explained in this document. Scientists discovered ways to derive embryonic stem cells from early mouse embryos more than 30 years ago, in 1981. The detailed study of the biology of mouse stem cells

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led to the discovery, in 1998, of a method to derive stem cells from human embryos and grow the cells in the laboratory. These cells are called human embryonic stem cells. The embryos used in these studies were created for reproductive purposes through in vitro fertilization procedures. When they were no longer needed for that purpose, they were donated for research with the informed consent of the donor.

In 2006, researchers made another breakthrough by identifying conditions that would allow some specialized adult cells to be “reprogrammed” genetically to assume a stem cell-like state. This new type of stem cell, called induced pluripotent stem cells (iPSCs), will be discussed in a later section of this document.

Stem cells are important for living organisms for many reasons. In the 3- to 5-day-old embryo, called a blastocyst, the inner cells give rise to the entire body of the organism, including all of the many specialized cell types and organs such as the heart, lungs, skin, sperm, eggs and other tissues. In some adult tissues, such as bone marrow, muscle, and brain, discrete populations of adult stem cells generate replacements for cells that are lost through normal wear and tear, injury, or disease.

Given their unique regenerative abilities, stem cells offer new potentials for treating diseases such as diabetes, and heart disease. However, much work remains to be done in the laboratory and the clinic to understand how to use these cells for cell-based therapies to treat disease, which is also referred to as regenerative or reparative medicine.

Laboratory studies of stem cells enable scientists to learn about the cells’ essential properties and what makes them different from specialized cell types. Scientists are already using stem cells in the laboratory to screen new drugs and to develop model systems to study normal growth and identify the causes of birth defects.

Research on stem cells continues to advance knowledge about how an organism develops from a single cell and how healthy cells replace damaged cells in adult organisms. Stem cell research is one of the most fascinating areas of contemporary biology, but, as with many expanding fields of scientific inquiry, research on stem cells raises scientific questions as rapidly as it generates new discoveries.

The much promise and dream in this research has been published when we become successful to develop in situ&in vivo kidney in rat. If, this can be scaled up further there may not be need of any kidney transplantation for retinal failure of human being offering a permanent boon.

Now coming to the frontiers of Environmental Science I would like to draw attention on the exploration and inculcation of knowledge on Environmental Oestrogens, which are more perceived dangers than the mere pollution control. It can affect the human population and gender imbalance without much of our intervention.

We are constantly assaulted by environmental oestrogens, from the food we eat and the chemicals we use. Oestrogen mimickers in the form of chemicals (xenoestrogens), and foods and plants (phytoestrogens), mimic the action of oestrogen produced in cells and can alter hormonal activity.

It is important for all of us to be aware of the effects of oestrogens in our environment. It should be of particular interest for anyone dealing with an o-dominance condition such as uterine fibroid tumors, fibrocystic breasts, glandular dysfunction, hair loss, weight gain, and depression, to name just a few.

Evidence is steadily growing that xenoestrogens and other hormone mimicking substances are implicated in a wide range of human and wildlife health problems. Oestrogen dominance from these environmental hormone disruptors are causing an imbalance of female hormones, creating a host of oestrogen dominance symptoms.

Girls and boys are reaching puberty too early as a result of these disrupters. Additionally, xenoestrogens produce hormonal stimuli that contributes to inappropriate growth of mammary tissue cells, resulting in a problem society is calling “man boobs.” Some theorize that oestrogen dominance in men is contributing to hair loss, atherosclerosis, prostate problems, lowered libido, and impotency.

Xenoestrogens

Xeno literally means foreign, therefore xenoestrogens means foreign oestrogens. Some of the 70,000 registered chemicals



for use in the United States have hormonal effects in addition to toxic effects. The synergistic effects of exposure to many xenoestrogens are well documented, but largely unknown. These substances can increase the oestrogen load in the body over time, and are difficult to detoxify through the liver. These further compounds the problem of oestrogen dominance.

To gain a perspective on how much exposure of chemicals is occurring, the NIH's National Institute of Environmental Health Sciences and the Centres for Disease Control and Prevention have launched a study of blood and urine samples to determine the amount of exposure that Americans have to environmental oestrogens. The CDC will measure approximately 50 environmental estrogens in 200 persons to determine levels of exposure to the population.

Among the more familiar chemicals that will be tested for are: insecticides parathion and DDT and its metabolites; herbicides; fungicides; plant and fungal estrogens; and industrial chemicals such as cadmium, lead, mercury, PCBs and dioxins.

Byproducts of the plastic and pesticide industries—called organochlorines—are one of the largest sources of xenoestrogens. These compounds, also used in dry cleaning, the bleaching of feminine hygiene products and the manufacture of plastics ranging from yogurt containers to baby bottles, have been shown to exert hormone-disrupting effects. What's more, organochlorines are known to accumulate in fatty human tissue and fluid such as breasts and breast milk. Caution dictates that women should try to eliminate these external estrogen sources through diet, supplements and lifestyle changes.

Plastics in our lives also expose us to the chemical bisphenol A, a breakdown product of polycarbonate, widely used in many plastics. Bisphenol A, found in the lining of many food cans and juice containers, escapes when polycarbonate is subjected to high temperatures. The estrogenic effects of bisphenol A became clear when men working in the plastics industry developed breasts after chronically inhaling the chemical in dust.

Other bad news from scientists have suggested that environmental oestrogens might be reducing sperm counts in men and causing breast cancer, fibroids and other reproductive diseases in women.

Xenoestrogens can be found in many of our meats and dairy products in the form of chemicals and growth hormones that are given to the animals. These can be quite powerful, and should be avoided where possible.

The information below makes suggestions to avoid substances that contain xenoestrogens. These substances can increase the estrogen load in the body.

- ➔ Avoid all pesticides, herbicides, and fungicides. Wash your food well to get rid of the pesticides. Bathe the washed food in a produce wash or ozonated water for 20 minutes before cooking.
- ➔ Have a good water filter for your source of water.
- ➔ Use only organic based whole foods when you can. Buy hormone free meats and dairy products where possible.
- ➔ Avoid plastic goods – they leach into the environment.
- ➔ Do not microwave food in plastic containers, and especially avoid the use of plastic wrap to cover food for microwaving.
- ➔ Use glass or ceramics whenever possible to store food.
- ➔ Do not leave plastic containers, especially your drinking water, in the sun.
- ➔ If a plastic water container has heated up significantly, throw it away – do not drink the water either.
- ➔ Don't use fabric softeners as it puts petrochemicals right on your skin.
- ➔ Use a simple laundry and dish detergent with less chemicals.
- ➔ Use organic soaps and toothpastes. Avoid fluoride.
- ➔ Avoid creams and cosmetics that have toxic chemicals and estrogenic ingredients such as parabens and stearalkonium chloride. Switch to more natural products. Cheap brands usually have more toxic ingredients.
- ➔ Avoid nail polish and nail polish removers.
- ➔ Use only naturally based perfumes. Most perfumes are petrochemically based.
- ➔ Avoid surfactants found in many condoms and diaphragm gels.
- ➔ Avoid new carpet – it can give off noxious fumes.
- ➔ Avoid X-rays as much as possible.
- ➔ Be aware of noxious gas such as that from copiers and printers, carpets, fiberboards, etc. Computer monitors can emit a high level of electromagnetic force (EMF). Read about the Aulterra Neutralizer for preventing EMF damage.

Phytoestrogens

Phytoestrogens (phyto meaning plant) are naturally occurring oestrogenic compounds that are found in a variety of plant foods such as beans, seeds, and grains. Their chemical structure resembles oestrogen. Phytoestrogens acting as estrogen mimics may affect the production and/or the breakdown of oestrogen by the body, as well as the levels of oestrogen carried in the bloodstream. These mimics can either have the same effects as oestrogen or block oestrogen's effects. These compounds are generally weak in comparison to real oestrogen, synthetic oestrogen (HRT), and xenoestrogens.

Anyone who is experiencing oestrogen dominance problems will likely want to avoid phytoestrogens where possible as they will only contribute to the problem.

Women who do not have oestrogen dominance issues and desire to supplement with oestrogen due to lowered levels from menopause or hysterectomy may find consuming some phytoestrogens to be beneficial.

Which foods contain phytoestrogens?

More than 300 foods have been shown to contain phytoestrogens. Most food phytoestrogens are from one of three chemical classes:

Isoflavonoids – Isoflavonoid phytoestrogens are found in beans from the legume family; soybeans and soy products are the major dietary source of this type of phytoestrogens. The isoflavonoid extracts from soy are known as genistin, diadzein, and glycitin.

Lignans – Lignan phytoestrogens are found in high fibre foods such as cereal brans and beans; flaxseeds contain large amounts of lignans, but some studies say that it can have a positive effect on estrogen dominance.

Coumestans – Coumestan phytoestrogens are found in various beans such as split peas, pinto beans, and lima beans. Alfalfa and clover sprouts are the foods with the highest amounts of coumestans.

The following are some of the strongest phytoestrogen containing substances:

- ➔ Soy
- ➔ Black Cohosh
- ➔ Chasteberry
- ➔ Dong Quai
- ➔ Red Clover
- ➔ Caffeine

What are the benefits of consuming phytoestrogens?

Women needing oestrogen supplementation may benefit from the many specially designed phytoestrogen supplements available. One popular supplement is a progesterone cream that contains phytoestrogens. The delivery system (transdermal) is reliable, and the combination of phytoestrogens with progesterone is helpful for women with lowered levels of both. We offer Progesta-Care Plus cream.

Is there any harm in taking phytoestrogen supplements or eating large amounts of foods with phytoestrogens?

Foods made from soybeans have some of the highest levels of phytoestrogens and have been studied the most. The consensus that is emerging is that the result of increased phytoestrogen intake is unpredictable, partly due to a poor understanding of their mechanisms of action. There is the possibility of both adverse and beneficial effects in some individuals in different target organs, depending on their age or their maturity.

Over time, high concentrations of isoflavones in the body can have a significant cumulative oestrogenic effect, especially when they are exposed to organs that have sensitive estrogen receptors sites such as the breast, uterus, and thyroid. Exposure to the estrogenic effect from soy, though weak, should be avoided in those who have symptoms of, or are in an estrogen dominance state. It is suggested that those with oestrogen dominance or a history of thyroid imbalance should consume a minimum amount of phytoestrogens.



While phytoestrogen may relieve symptoms, the long term effect is probably undesirable because the oestrogen receptor sites are still occupied, although by the less potent phytoestrogen. It is far more beneficial to rid your body of the oestrogen from the receptor sites and replace them with progesterone. Oestrogen load will therefore reduce significantly, and the risk of estrogenic diseases such as breast cancer will be less. Furthermore, phytoestrogens have been shown to inhibit the conversion of T4 to the active T3 thyroid hormone, and can trigger hypothyroidism.

Many, including the rapidly growing soy agricultural groups, are touting the beneficial effects of soy. Others, particularly alternative health professionals, feel soy should not be consumed. With anything, moderation is the key. Consuming small amounts is likely not harmful, nor is consuming large amounts likely to be as beneficial as current advertising would have us believe. Information gathered from our customers with uterine fibroid tumors indicates that soy encourages fibroid growth significantly.

Epidemiologist Regina G. Ziegler, PhD, says it is understandable that women are confused about soy and other plant-derived foods that have compounds that act similar to estrogen. In an editorial published with a Dutch study, the National Cancer Institute researcher concluded that the research, to date, does not support the need for women in the U.S. to increase their dietary phytoestrogen intake to the level consumed by women in Asia.

“There is a lot of inconsistency in the literature.” “My personal belief is that telling women with a history of breast cancer or who are at high risk to take soy supplements or eat large amounts of soy is imprudent. On the other hand, I don’t think the message should be that they shouldn’t eat soy at all. We just don’t know enough to say.”

Now last but not the least, coming to the frontiers of Medical Science I would like to emphasise on two areas of equal importance a) Insulin Biology and b) Nanomedicine.

a) **Insulin Biology:** Current health care in the area of lifestyle-related diseases does not focus on reversal of the cause of the disease, but rather on controlling disease corollaries by

manipulating biochemical pathways (gluconeogenesis by metformin, hepatic cholesterol synthesis by statins, insulin secretion by sulfonylureas, fatty acid housekeeping by PPAR agonists, etc.). A large repertoire of tools, technologies, and medicinal treatments has been developed for this purpose. Chronic disease care and (cardiovascular) risk management have been vastly improved thanks to these possibilities. However, we are running into the situation that disease care soon becomes too costly, with a number of stakeholders that either financially profit from the status quo or find the effort to change it too complicated. Also, unbeneficial drivers in our healthcare economy maintain this situation, as only reductionist solutions can be patented. In the context of our current healthcare system, citizens become patients in the literal sense of the word: patiently undergoing treatments instead of playing an active role in their own health care. In the end, this is an inefficient approach for treatment of the so-called “lifestyle related diseases,” including metabolic syndrome, obesity, type 2 diabetes, and cardiovascular disease. Moreover, we now know that our lifestyle partakes in the pathogenesis of many other diseases [e.g., inflammatory diseases like rheumatoid arthritis, COPD, gastroesophageal reflux disease, osteoarthritis, neurological diseases like Alzheimer and multiple sclerosis, and specific cancers. Over the past 10 years, an integrated view on health and health care was developed, embracing health as a system (i.e., including systems biology concepts and technologies), the development of disease from health as a continuum and exploiting these assets toward “P4-medicine” (Predictive, Personalized, Preventive, and Participatory). The personalized aspect emerged from the possibilities to quantify the causal mechanisms involved disease predisposition (genetics) and development (environment), while the participatory aspect related both to the health and medical data ownership and the need for patient citizens to take optimal control of all aspects of their own health, spanning all biopsychosocial aspects. In this article, we will focus and elaborate on type 2 diabetes as an exemplary prototype of a lifestyle-related disease, but very similar concepts and approaches are valid for many other diseases. The theoretical framework of P4 medicine and P4 health is now solid, but yet difficult to translate into daily practice of health care for a number of reasons, mostly related to conflicting stakeholder interest and cost of implementation. Some examples are emerging, but mostly in an experimental and costly setting. Type 2 diabetes is also interesting as the

disease is not only part of a continuum from health to comorbidities and preventable but also to a large extent reversible and curable with relatively simple means, once P4 or P6 health is implemented, as will be demonstrated below.

Type 2 diabetes is a “genotype–environment interaction disease,” where the diabetic phenotype is expressed as a result of accumulated environmental pressures (wrong diet, too little physical exercise, disrupted sleep, and too much stress) in concert with genes that render individuals susceptible to the disease. Over the past 50 years or so, our environment has changed in a way that has increased the burden of all four components mentioned. Reversal and cure of type 2 diabetes thus needs to focus on (1) biological reversal (i.e., using lifestyle as medicine), (2) on coping with the environmental pressures (i.e., behavioral change), and (3) on reduction of the environmental pressures (i.e., socioeconomic changes). All of these three areas will be discussed.

Thus, the healthcare approach toward lifestyle-related diseases needs to change. Huge health and economic profits can be achieved if everyone would adopt an “optimal” lifestyle. This article presents abundant scientific evidence that major reductions in obesity, type 2 diabetes, and cardiovascular disease can be achieved through lifestyle interventions. In fact, the (economic) benefits of a lifestyle-based therapy for type 2 diabetes have been demonstrated in a 10-year study. Yet, the introduction of a new healthcare system for lifestyle-related diseases (both therapy and prevention) does not materialize for a number of reasons, as discussed in this article. One of the major motives for not using lifestyle measures in clinical practice is the difficulty to sustain the changes. In the short term, or in a rigidly imposed, lifestyle change can be achieved, but in long-term daily life changes easily fade away due to the lack of support and the many counteracting stimuli from environmental pressure. Other major reasons for failure of lifestyle as medicine are the lack of economic benefits in the context of the current healthcare model; and the failure to use a system approach instead of reductionist changes. Thus, theory and practice differ and we face a multifactorial challenge, requiring the removal of economic, social, psychological, and biological barriers.

A reorientation of health research and care is needed, starting with (re)defining health and its underlying mechanisms, realizing

that integrated participatory and personalized health optimization strategies are needed, redesigning the methods to quantify health toward the development of a new generation of health biomarkers, lifestyle interventions, supporting tools and economical values, all aiming at self-empowerment, as listed below.

1. Refocusing on flexibility as core characteristic of physiology, allowing reversibility of disease.
2. Diagnosis has to quantify much more than the medical condition. A 360° diagnosis is needed that determines all relevant biological, sociological, psychological, and contextual conditions of the patient and the trajectory toward disease need to be identified and quantified, to empower the individual to achieve a sustainable and perceivable lifestyle change.
3. Interventions will need to span all relevant bio-socio-psycho-economic factors and thus change from reductionist to systemic and from generic to fine-tuning toward personal goals.
4. Motivational tools are required in the form of personal coaching as well as ICT support.
5. Health literacy needs to be improved as part of personal health empowerment.
6. Personal health data handling needs to completely refocus by empowering the citizen/patient valorize their health data for personal health and research.
7. Together, this needs to lay the foundations of both a new approach in lifestyle-related health science and health economy.

Each of these aspects is further detailed in the paragraphs below.

The Biology

Type 2 Diabetes Can Be Cured

Although the definition of “cure,” “reversal,” or “remission” of type 2 diabetes has been a matter of debate, various lines of evidence have demonstrated that T2D is a reversible disease. Bariatric surgery generally leads to remission of type 2 diabetes in obese people, although with large heterogeneity among patients. The mechanisms are not completely understood, but beta-cell function recovery seems to be limited. Lifestyle

intervention can bring about significant improvements in risk factors for cardiovascular disease in T2D patients, as indicated by a meta-analysis of studies. Most of these studies evaluated relatively “mild” monodisciplinary interventions (i.e., only dietary advice, or education, physical activity, general advice, etc.). These are discussed in detail below. Intensive lifestyle intervention studies have shown very promising results. Reversal of type 2 diabetes by omitting sugars and starches from the diet may reduce or even abolish the need for glucose control medication. Yet, from a mechanistic point of view, cure would only be achieved if low-grade inflammation and oxidative damage are reversed, insulin sensitivity has been restored in all relevant organs, and insulin production by the beta-cell is sufficient. Organ insulin sensitivity can be restored by various lifestyle interventions, primarily through weight loss and reduction of intra-organ adipose deposits. This is discussed in the succeeding paragraphs. Improvement of beta-cell function by lifestyle intervention was described by Taylor. Recent mechanistic evidence documenting diet-induced beta-cell regeneration adds to the story. Finally, various “atypical” forms of diabetes, mostly with a monogenetic origin, cannot be cured by lifestyle change alone (although lifestyle change has a major impact on metabolic control even in those patients) due to their underlying cause. In conclusion, lifestyle change can restore the pathobiology of “typical” T2D to normal in patients who still have sufficient insulin secretory capacity.

b) **Nanomedicine:** Now coming to Medicine, most of the medicine so far Natural or Synthetic we have been consuming orally or through injections. There were later developments of controlled drug release that is a kind of switch on switch off mechanism. But all of them were not targeted to hit on the typical cell and therefore, there were some interferences on the friendly cells too. Now with the frontiers of Nanomedicines hitting the target promised to be more accurate than ever.

Targeted drug delivery has been the major topic in drug formulation and delivery. As nanomedicine emerges to create nano scale therapeutics and diagnostics, it is still essential to embed targeting capability to these novel systems to make them useful. Here we discuss various targeting approaches for delivery of therapeutic and diagnostic nano materials in view of search for more universal methods to target diseased tissues. Many diseases are accompanied with hypoxia and acidosis.

Coating nanoparticles with pH Low Insertion Peptides (pHLIPs) increases efficiency of targeting acidic diseased tissues. It has been showing promising results to create future nanotheranostics for cancer and other diseases which are dominating in the present world.

For a long time people have been working on developing therapeutic agents so that they can tune pharmacological and pharmacokinetic properties to treat diseases and get desired results. In their continuous quest for food and survival, our ancestors must have experienced the effects of natural sources of pharmacologically active chemical substances produced by organic and inorganic materials such as plants, fungi, insects, animal excreta, reptiles and mineral ores for better or for worse. They must have learnt to extract active ingredients from natural resources using crude methods and enhanced to use as pain killers or to heal wounds or to treat all types of diseases known to them. Ebers papyrus, dated back to ~ 1500 BC provides a detailed description of medical treatments used by ancient Egyptians (Jones, 2011; Shadlen, 2011). In early as 7 century AD, metal, mineral and herbal based particles called Bhashma has been used in Ayurvedic medicine in Indian sub-continent. Modern analysis showed that these formulations contained Fe_2O_3 , FeS_2 , CuS and SiO_2 and also particle sizes were regulated in the range of 1-2 μm (Mohaptra and Jha, 2010; Pal et al., 2014). Undoubtedly, these ancient knowledge had laid the foundation for modern drug formulation and delivery and made a huge breakthrough in this field as the chemical analysis became first available to us in 19th century (Ansari and Farha Islam, 2012).

While the conventional drugs are still being widely used, the innovation of therapeutic nanoparticles has been radically changing the future of drug formulation and delivery (Cai and Chen, 2007; Davis, 2008; Gao et al., 2005; Heath et al., 1980; Shi et al., 2010; Zhang et al., 2007). Nanoparticles are becoming more popular due to their unique tunable physicochemical properties. They have shown promising results in delivery of variety of molecules improving the therapeutic index of drugs by enhancing their efficacy and/or increasing their tolerability in the body. Nano-carriers could also improve the bioavailability of water-insoluble drugs, carry large payloads, protect the therapeutic agents from physiological barriers, as well as enable the development of novel classes of bioactive macromolecules (Swami et al., 2012).

Almost a century ago, Paul Ehrlich introduced the concept of targeted drug delivery. It was considered as a hypothetical 'magic bullet' as an entity consisting of two components — the first one should recognize and bind the target, while the second should provide a therapeutic action in this target. Currently, the concept of 'magic bullet' includes a coordinated behavior of three components – drug, targeting moiety and pharmaceutical carrier (Torchilin, 2000). Nanoparticles can be designed to have all three properties of the revised version of Ehrlich's "magic bullet", and they could be used as therapeutics and/or diagnostics.

When designing the nano-drugs it is essential to understand the target region. Target regions could be whole organs (heart, lung, brain, liver and etc), tissues (muscle), cells (nerve, dendrite and etc), disease specific structures (tumor cells) or cellular components. The efficacy of the therapeutics, effectiveness of the diagnostics, safety, affordability and access will measure the final success of nanoparticles in medicine in regard to its applied value to the patients.

Nanoparticle drug delivery systems use the characteristics of disease tissues to selectively target their payloads, either by passive, active or physical targeting (Egusquiguirre et al., 2012; Petros and DeSimone, 2010).

1. Passive targeting

When nanoparticles localize into specific organs or site of disease via biological mechanisms, such as RES (reticuloendothelial system) or EPR (enhanced permeability and retention) effects, they are known as 'passive targeting agents' (Shilo et al., 2012).

RES also called macrophage system or mononuclear phagocyte system, is a class of cells which are part of the body's defense mechanisms. If nanoparticles are not protected against RES, they will end up in liver, spleen or lymph nodes very soon. Even though this seems to be a disadvantage, RES mechanism can be successfully used for mapping liver (Aviv et al., 2009; Hainfeld et al., 2014; Kim et al., 2007; Kojima et al., 2010; Rabin et al., 2006; Shilo et al., 2012), spleen (Boote et al., 2010; Hainfeld et al., 2014; Oh et al., 2011; Rabin et al., 2006; Sun et al., 2009; Xiao et al., 2010) and lymph nodes (Aviv et al., 2009; Oh et al.,

2011; Rabin et al., 2006). The information gain from mapping of lymph nodes gives vital indications for cancer staging and metastatic potential of tumor, which could prevent unnecessary dissection surgery. The EPR effect is very common for most of the solid tumors and has been exploiting as a passive mechanism to deliver therapeutic agents.

As tumor grows its architecture of vasculature become quite abnormal, showing lack of lymphatic drainage and leaky blood vessels. This allows the long circulating nanoparticles to accumulate in tumor site overtime at higher levels compared to other organs (Acharya and Sahoo, 2011; Greish, 2007; Huang et al., 2012; Khalid et al., 2006; Li and Szoka, 2007; Maruyama, 2011; Rasmussen et al., 2010; Torchilin, 2010; Wang et al., 2012a).

2. Active Targeting

Active targeting uses peripherally conjugated specific targeting moieties for enhanced delivery of nanoparticles. The targeting moieties are various ligands including antibodies, peptides, aptamers or small molecules that possess high affinity toward unique molecular signatures found in diseased tissue to achieve active targeting (Byrne et al., 2008). Three general categories of active targeting methods are i) angiogenesis-associated targeting, ii) uncontrolled cell proliferation targeting and iii) tumor cell targeting.

Chemical stimulation for angiogenesis is caused by variety of proangiogenic factors such as vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF). They are the key ingredients of this very complex biological mechanism which is essential for life. Pathological angiogenesis or abnormally rapid proliferation of blood vessels is common for growth of solid tumors. Therefore, the targeting of angiogenesis has become a focus for cancer therapeutics (Chung and Ferrara, 2011; Folkman, 2002; Goth et al., 2003; Hicklin and Ellis, 2005; Jain, 2002; John and Tuszynski, 2001; Khalid et al., 2006; Seaman et al., 2007). Thus, the growth factors are attacked by inhibitors of angiogenesis to regulate the tumor progression (Folkman, 1996; Mousa, 2000).

Another significant target for cancer cells are the cell proliferation markers. These markers are not unique to cancer cells but they

are overexpressed in certain cancer cells. The human epidermal receptors (HER), transferrin receptors and folate receptors are widely being employed. Actively targeting nanoparticles have been using the monoclonal antibodies to target overexpressed cell proliferation receptors (Byrne et al., 2008; Gullotti and Yeo, 2009; Mamot et al., 2003; Qian et al., 2002; Sudimack and Lee, 2000).

According to the American Cancer Society statistics, in US, it is estimated that more than 1.6 million new cases of cancer will be diagnosed and more than 0.5 million cancer deaths will occur in 2014. The four most common types of cancers that will be diagnosed in 2014 in the United States are breast in women and prostate in men, lung, and colorectal. Therefore targeting of specific tumor cells is becoming another popular area. FDA has already approved several monoclonal antibodies for the treatment of specific types of cancers.

Trastuzumab, a humanized monoclonal antibody against HER-2 which is overexpressed in human breast cancer, for the treatment of HER-2-positive metastatic breast cancer was introduced in 1998. Panitumumab, a human antibody against EGFR produced in transgenic mice (XenoMouse), for the treatment of EGFR-positive colorectal cancer was approved in 2006.

Avastin, a humanized antibody against VEGF, for the treatment of metastatic colorectal cancer was introduced in 2004. Cetuximab, a chimeric antibody directed to EGFR (HER-1) for the treatment of advanced colorectal cancer appeared in 2004. Avastin® (Genentech, South San Francisco, CA) is a recombinant humanized anti-VEGF monoclonal antibody for the treatment of non-small cell lung cancer, metastatic colorectal cancer and metastatic breast cancer were approved (Byrne et al., 2008).

The major advantage of the active targeting over the passive targeting is a selective delivery of nanoparticles to the specific

tumors/pathogenic tissues, which remain in the site of disease for an extended period of time, thereby increasing the local accumulation of the nanoparticles in the sites of interest.

(Baldini et al., 1997; Gonzalez-Angulo et al., 2007; Kaufman, 2006; Meacham and Morrison, 2013). However, the heterogeneity and adaptability of cancers are difficult to overcome, which makes it problematic to create a common cure based on active targeting. Therefore, it is important to identify a universal hallmark for majority of cancers or consider use of external physical stimuli as a targeting strategy.

3. Physical Targeting

In many cases, pathological area differs from normal tissues in certain physical properties, such as temperature, lack of oxygen and pH. These natural properties are common for majority of cancers independent of origin, and could be exploited as targeting approaches.

The principle behind use of nanoparticles for physical targeting is that a stimulus, which may be applied externally or originate within the pathological site, induces either a physical change in the structure of the nanoparticle itself, thereby causing the eradication of the target or modulating the rate at which an embedded drug is released. pH, lack of oxygen, temperature, ultrasound, electromagnetic radiation and mechanical forces serve as stimuli for physical targeting.

Thus, we can see the prospect and promise of development and opening a new frontier and foundation of research is enormous for the benefit of the society; so is the promise and possibilities. It now depends on us how quickly to catch up the trend and develop our knowledge of application in these areas indigenously. There are many predicaments too. The challenges need to combat without any pride or prejudice.

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News Release from the IULTCS

XXXVI IULTCS CONGRESS 2021 – HEIDEMANN LECTURE ANNOUNCEMENT



The XXXVI IULTCS Congress Organizing Committee is extremely pleased to announce that Professor Anthony Dale Covington will deliver the prestigious Heidemann Lecture at the XXXVI IULTCS Congress, that will be held from 03 – 05 November 2021 at Skylight Hotel, Addis Ababa, Ethiopia.

The Heidemann Lecture is a keynote lecture that is held in memory of Professor Dr Eckhardt Heidemann (1925-1999). Heidemann made significant practical contributions to the science of leather manufacture and he held a lifelong interest in the structure and properties of the collagen molecule. It is typical for the Host Society to invite a high-profile guest lecturer to make this keynote presentation of 30– 45 minutes, as the opening lecture of the Scientific Programme.

Professor Covington has a doctorate in physical organic chemistry at Stirling University in Scotland and postdoctoral research in physical chemistry at the University of Newcastle. He was also awarded the world's very first Doctor of Science (DSc) degree in Leather Technology in 2010, by the University of Northampton.

Professor Covington has authored over 300 technical publications, receiving over 2600 citations in scientific literature. Together with

co-author Dr Will Wise he published a second edition of his book 'Tanning Chemistry – The Science of Leather' in 2019.

Professor Covington is a former President of the International Union of Leather Technologists and Chemists Societies, who presented him with their Merit Award for Excellence in the Leather Industry in 2009. He received the Alsop Award for Outstanding Scientific Contribution to the Leather Industry from the American Leather Chemists Association in 2011. In alleged retirement, he is currently Chair of Trustees of the Silhouette Youth Theatre of Northampton.

The Organizing Committee is extremely pleased that Professor Covington accepted the invitation to deliver the Heidemann Lecture and share his more than 45 years extensive experience and knowledge in undertaking research and development in leather science.

For further details kindly click on the link : <https://iultcs.org/press-release-xxxvi-iultcs-congress-2021-heidemann-lecture-announcement/>

(Source : IULTCS Website)

AFRICA'S LARGEST EVENT FOR THE WORLD'S LEATHER INDUSTRY



All-African Leather Fair (AALF) is Africa's biggest and most important international exhibition & conference dedicated to



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Since 1950

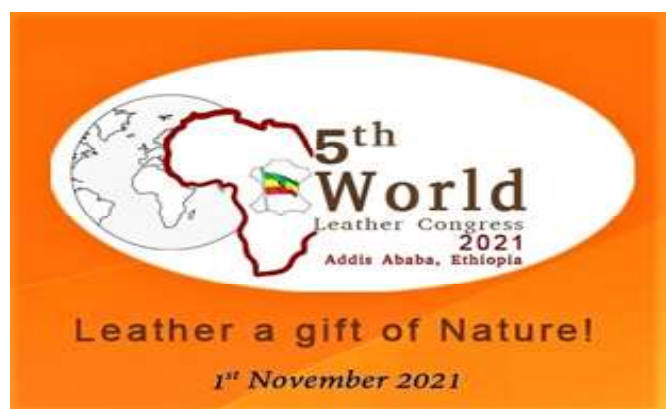
leather, accessories, components, synthetics and models for footwear, leather goods, automotive and furniture. Launched in 2008, it has become the most qualified international exhibition in Africa.

AALF has been characterised by its high leadership in quality and style innovation, which makes it indispensable to the leather demand worldwide.

For further details you may please visit the website : <https://aalf-online.com>

(Source : IULTCS Website)

XXXVI IULTCS CONGRESS AND 5TH WORLD LEATHER CONGRESS BECOMING HYBRID EVENTS



Africa Leather and Leather Products Institute (ALLPI), in conjunction with the Government of Ethiopia, is excited to announce that the 36th International Union of Leather Technologists and Chemists Societies (IULTCS) Congress, and the 5th World Leather Congress (WLC) are becoming HYBRID events, to offer participants the choice of how they prefer to attend these important international congresses. Both events will be held in Addis Ababa, Ethiopia from 01- 05 November 2021.



With the backdrop of mounting COVID-19 pandemic-related restrictions, the hybrid mode will allow all those who are not able to attend in person, to be able to participate from the comfort of their own workplace or home, from anywhere in the world.

The video recordings from the congresses will also be made available on an online platform for 30 days, to ensure that all the conference registrants can access the presentation materials of speakers, researchers and sponsors without being constrained by time zones and/or internet connectivity problems at the time of the events.

The two Congresses (XXXVI IULTCS and 5th WLC) are expected to leave delegates with great insights and informative actions that delegates could use in their respective institutions and/or enterprises.

Registration for the congresses has commenced and a new registration fee structure for remote registrations is in place – with the ability to ‘upgrade’ to in person attendance if travel restrictions allow. Abstract submission is open until 31 August 2021 – with the option to submit to present a remote paper, allowing current global research to be shared, even if the presenter cannot be in attendance.

The link : <https://www.iultcs2021africa.org/home> will provide more information on registration and guidelines for submission of Abstracts.

There are also opportunities to support these high-profile, globally attended events by becoming sponsors, as it is critical to our industry that we continue to share our knowledge, research and best practice – various packages are available to suit all budgets.

Summary Information:

5th World Leather Congress: 01 November 2021

XXXVI IULTCS Congress: 03 – 05 November 2021

Venue: Ethiopian Skylight Hotel, Addis Ababa, Ethiopia

Working Language: English

ALLPI Website: <https://www.allpi.int>

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(Source : IULTCS Website)

2021 YOUNG LEATHER SCIENTIST GRANT WINNERS ANNOUNCED FEB 2021

Winners of Two 2021 IUR Research Grants Announced

The Executive Committee of the IULTCS is pleased to announce the winners of the 2021 IUR research grants to be awarded to two young scientists, under the age of 35. The monetary awards help support the work of young talent in the leather sector.

This is the seventh year of the grants which have been generously supported by industry and IULTCS alike. The Selection Committee of the IULTCS Research Commission (IUR), chaired by Dr Michael Meyer, is pleased to announce the following recipients:

Young Leather Scientist Grant 2021 Basic Research



Hon Wei Ng, Research Assistant from New Zealand Leather and Shoe Research Association (LASRA), Palmerston North, New Zealand. IULTCS has provided the monetary sponsorship for a single sum of € 1,500 grant to Basic Research. The title of his project is : "Study on

Molecular Level Collagen Structure Changes of Enzymatic Depilation Using X-Ray Scattering".

Hon Wei Ng's project's main objective is to evaluate the performance of a novel environmental isolate for enzymatic depilation of skin/hide for leather manufacturing. The study

also aims to use small-angle X-ray scattering to elucidate molecular level structural features changes of collagen caused enzymatic depilation compared to a conventional unhairing process.

Professor Mike Redwood Young Leather Scientist Grant 2021 Sustainability / Environmental Award

Caroline Borges Agustini from the Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil, will be the beneficiary of the generosity of Leather Naturally who have sponsored the €1,000 grant for the project entitled : "Hydrocarbon Release During the Biodegradation of Solid Waste from Tanneries for BIOGAS Production".

The objective of this project is to investigate the evolution of the hydrocarbon release, the energy efficiency and the efficiency of the treatment of the waste of the anaerobic digestion of the solid waste of tanneries. The originality of this study is gaining the innovation of how chemical, physical and environmental parameters work



is an important step in improving the efficiency and process stability of anaerobic digesters to be able to adjust in which step of the batch process the continuous process must be designed and which pre-treatments are most suitable to increase the carbon depletion of the waste.

Read and Let Read :-

JILTA

ANALYSIS – EXPORT PERFORMANCE OF LEATHER AND LEATHER PRODUCTS DURING APRIL – MARCH 2021 VIS-À-VIS APRIL – MARCH 2020.

ANNEXURE – I

Introduction :

As per officially notified DGCI&S monthly export data, the export of Leather and Leather products for the period April 2020 – March 2021 touched US \$ 3681.58 Mn as against the performance of US \$ 5070.55 Mn in April 2019 – March 2020, recording a decline of 27.39%. In rupee terms, the export touched INR 272099.11 Mn in April 2020 – March 2021 as against INR 359503.25 Mn in April 2019 – March 2020, registering a decline of 24.31%.

Product Wise Analysis :

Export of Leather and Leather Products from India during April'2020 – March'2021 Vis-à-vis April'2019 – March'2020

CATEGORY	APR - MAR	APR - MAR	% VARIATION
	2019-2020	2020-2021	
FINISHED LEATHER	37162.18	27965.34	-24.75%
LEATHER FOOTWEAR	147588.94	109820.20	-25.59%
FOOTWEAR COMPONENTS	18552.74	14627.33	-21.16%
LEATHER GARMENTS	30424.03	21858.90	-28.15%
LEATHER GOODS	95046.31	69752.42	-26.61%
SADDLERY AND HARNESS	10737.10	13744.80	28.01%
NON-LEATHER FOOTWEAR	19991.95	14330.12	-28.32%
TOTAL	359503.25	272099.11	-24.31%

Source : DGCI & S

CATEGORY	Value in Million US \$		% VARIATION
	APR - MAR	APR - MAR	
	2019-2020	2020-2021	
FINISHED LEATHER	524.15	378.23	-27.84%
LEATHER FOOTWEAR	2081.64	1485.55	-28.64%
FOOTWEAR COMPONENTS	261.67	197.59	-24.49%
LEATHER GARMENTS	429.11	295.56	-31.12%
LEATHER GOODS	1340.56	944.31	-29.56%
SADDLERY AND HARNESS	151.44	186.18	22.94%
NON-LEATHER FOOTWEAR	281.97	194.16	-31.14%
TOTAL	5070.54	3681.58	-27.39%

Source : DGCI & S

Conclusion :

Footwear (Leather Footwear, Footwear Components & Non-Leather Footwear) holds the major share of 50.99% in the total export of leather and leather products with an export value of US \$ 1877.30 Mn. This is followed by Leather Goods & Accessories with a share of 25.65%, Finished Leather 10.27%, Leather Garments 8.03% and Saddlery & Harness 5.06%.

ANALYSIS – IMPORT PERFORMANCE OF LEATHER AND LEATHER PRODUCTS DURING APRIL 2020 – MARCH 2021 VIS-À-VIS APRIL 2019 – MARCH 2020

ANNEXURE – II

Introduction :

As per officially notified DGCI&S monthly Import Data, the Import of Raw Hides & Skins, Leather and Leather products for the period April 2020-March 2021 touched US \$ 779.91 Million as against the performance of US \$ 1376.94 Million in April 2019-March 2020, recording a negative growth of 43.36%.

Product Wise Analysis :

Import of Leather and Leather Products from India during April 2020 – March 2021 Vis-à-vis April 2019 – March 2020

CATEGORY	Value in Million US \$		% VARIATION
	APR - MAR	APR - MAR	
	2019-2020	2020-2021	
RAW HIDES AND SKINS	29.81	15.70	-47.33%
FINISHED LEATHER	520.28	305.23	-41.33%
LEATHER FOOTWEAR	395.27	218.23	-44.79%
FOOTWEAR COMPONENTS	24.14	18.35	-23.99%
LEATHER GARMENTS	2.41	2.00	-17.01%
LEATHER GOODS	71.91	35.98	-49.97%
SADDLERY AND HARNESS	1.37	1.51	10.22%
NON-LEATHER FOOTWEAR	331.75	182.91	-44.87%
TOTAL	1376.94	779.91	-43.36%

Source : DGCI & S

Conclusion :

Import of different categories of Footwear holds a major share of about 53.79% in India's total leather & leather product with an Import value of US \$ 419.49 Mn. This is followed by Finished

Leather 39.14%, Leather Goods & Accessories with a share of 4.61%, Raw Hides & Skins 2.01%, Leather Garments 0.26% and Saddlery & Harness 0.19%.

(Source : Official Website of Council for Leather Exports i.e. <http://leatherindia.org/>)

NEW CHAIRMAN FOR THE COUNCIL FOR LEATHER EXPORTS



The Council for Leather Exports (CLE) has elected Sanjay Leekha, the Founder and Chairman of the Alpine Group, as its new Chairman. Rajendra Kumar Jalan has been elected as Vice-Chairman.

The CLE is a trade promotion organisation for the leather and leather products industries. It works under the aegis of the Ministry of Commerce and Industry.

Over one million people are employed in India's leather industry. India's share in global leather exports and imports is about 3%. India leather and leather product exports dipped 26% to US\$2.44 billion in fiscal 2020-21.

However, the sector has started recording growth in 2021 as export economies emerge post pandemic. Europe remains the largest export market for Indian leather businesses.

(Source : CLE News Release – 17/06/21)

NEW KANPUR LEATHER PARK



The Uttar Pradesh government is seeking to restore the industrial charm of Kanpur, also known as the 'Manchester of the East'. Chief Minister Yogi Adityanath-led state government is developing a Mega Leather Park, the first leather park in the country, as part of the Mega Leather Cluster Project in Kanpur spread over an area of 235 acres. The park project is aimed at re-establishing Kanpur as the textile hub and leather city.

Kanpur was called 'Manchester of the East' because of its textile industry and was also referred to as 'Leather City' due to the presence of a large number of leather factories.

However, the state government claimed that the rise in pollution, technological changes in the textile industry and neglect of the previous governments made the city lose its sheen, turning into one of the most polluted cities of the country.

The mega leather park project, which will be built in Ramaipur village in Kanpur, will help improve Kanpur's position among the ten largest leather-producing states of the country. Under the Mega Leather Cluster Project, 50,000 people will get direct employment at the park while 150,000 people will get indirect employment, the state government said.

(Source : Leather International – 21/06/2021)

Read and Let Read :-

JILTA



This article was originally published in Vol.-10, No.- 7 & 8, July & August' 1968 issue of JILTA.

A STUDY OF THE SOLUBLE AND INSOLUBLE SALTS IN SOME VEGETABLE TANNING MATERIALS.

PART—VIII

N. N. Guha

(Continued from June issue)

Determination of Specific Cations:

(A) Calcium and magnesium by E D T A method.

(i) Calcium determination :

It is possible to distinguish between Calcium and magnesium by employing a Calcium hardness indicator tablet (B. D. H). This indicator gives a red colour in the presence of Calcium ions but not magnesium. The end point however is sharper if the titration is carried out in strong alkaline solution in which the magnesium is precipitated.

Method :

A Suitable quantity of tanning material or extract or residual material was ashed, sulphated and dissolved as usual and made up to a certain volume. An aliquot of the sample was pipetted into a white porcelain dish and 1 ml. of 4N NaOH was added. One Calcium hardness indicator tablet was added, broken up and dissolved. The solution was titrated with $\frac{N}{50}$ E D T A Solution until a violet colour was obtained. The calcium content was then calculated from the hardness equivalent of the E D T A solution and was expressed as mgm. equiv. per 100 gm. material.

(ii) Calcium plus magnesium determination :

The indicator Eriochrome Black T gives a red colour in the presence of calcium or magnesium ions. Total hardness indicator tablet (B. D. H) may also be used for the purpose but the former generally gives a sharper endpoint.

An aliquot of the solution (Containing Ca and Mg) is titrated in the presence of the indicator with a standard E D T A solution. This substance forms a complex ion with the Ca or Mg, sequestering these ions. The indicator returns to its original blue Colour at the endpoint when all the Ca and Mg has been sequestered. It is necessary to carry out the titration in alkaline solution, hence a buffer solution is employed. The colour change requires some experience to detect and is sharper if Mg is present.

Method :

Unless Mg was known to be present, 10 ml. of distilled water, 1 ml. of buffer

solution and 5 drops of 1% MgCl_2 solution were taken in a porcelain dish. 5 drops of Eriochrome Black T indicator solution was then added and the solution was titrated with $\frac{N}{50}$ EDTA solution until the pink colour disappeared and clear blue solution remained. The burette reading was noted and the actual titration commenced after the addition of an aliquot of the sample. The solution was stirred frequently and a time lag of about 10 seconds allowed near the endpoint before the next drop of $\frac{N}{50}$ EDTA was added. Ca plus Mg content was calculated from the hardness equivalent of the EDTA Solution.

The Mg content was obtained by subtracting the Ca figure from Ca plus Mg figure of the sample. Mg content was then calculated as mgm. equiv. per 100 gm. material.

Reagents :

(a) Indicator

1 gm. of Eriochrome Black T is added to a solution containing 1 ml. of $\frac{N}{2}$ Na_2CO_3 and 30 ml. of distilled water. The solution is made up to 100 ml. with isopropyl alcohol. The indicator solution should not be more than a few weeks old. The Ca, Mg, Na, & K figures for some tanning materials, extracts and spent materials will be given later on.

Determination of Iron Copper and Aluminium

Preparation of solution

(5-10) gm of tanning materials were reduced to ash in a platinum dish at a low temperature against fusion of the ash where excessive alkali salts were present, and avoided any loss of Copper. A very dull red heat (below 500°C) was the maximum temp. necessary.

It was desirable to obtain an ash free from any carbonaceous particles, and where this was at all difficult, without recourse to excessive heating, the ash was cooled, moistened with a few drops of distilled water, dried and then reheated. The remaining carbon particles were thus readily oxidised. This treatment also reduced the bulk or volume of the ash.

In some difficult cases, e.g. mangrove or myrabolam, the ash containing residual carbon particles was washed with about 10 ml. distilled water, the aqueous solution filtered through a small filter paper and the residue were returned to the dish and the ignition contained at a low temperature until a "pure" ash was obtained. (The filtrate was subsequently added to the main solution of the ash.)

The ash was treated with about 1 ml. 1:1 iron free HCl and evaporated to dryness on a waterbath. The residue was redissolved in 2-3 ml. 1:1 HCl, warming

if necessary to obtain complete solution, transferred to a small beaker, using 25-30 ml. distilled water. The previously obtained aqueous filtrate was now added.

The solution was heated first to boiling point and the iron (and any alumina) precipitated by the addition of a slight excess of ammonia (1:1). Precipitation was completed by warming on a steam bath for 1— $\frac{1}{2}$ hrs. The ppt. of iron and aluminium hydroxides was filtered and washed with warm distilled water containing a little ammonia. The filtrate was used for the determination of copper while the ppt. could be redissolved in HCl and used for iron and aluminium determination.

Iron determination :

The ppt. was redissolved with 5 ml. 1:1 HCl and made up to 100 ml. in a graduated flask.

In one of a pair of Nessler glasses, an amount of test solution was pipetted sufficient to give a colour within the limits of 2-4 ml. of standard iron solution. 5 ml. of 1:1 HCl was added and diluted to 40-50 ml. with distilled water. Then 5 ml. of 40% KCNS solution was added and the level of the liquid was adjusted to the 50 ml. mark.

To the other Nessler glass, 5 ml. of 40% KCNS solution was added and diluted to 40 ml. with distilled water. Then 5 ml. 1:1 HCl was added and the solution was titrated with standard iron solution until a colour match was obtained, the final volume being approximately 50 ml.

Standard iron solution :

The solution was prepared by dissolving 0.8634 gm. of Ferrous ammonium Sulphate (A.R) in a little distilled water and oxidising by evaporation to dryness after adding 1-2 ml. conc. iron free nitric acid. The residue was dissolved in 10 ml. 1:1 HCl and made up to 1 litre. This stock solution was diluted ten times just before use as required, being kept in the more concentrated form.

For the diluted solution ready for use,
1 ml. \equiv 0.00001 gm. Fe.

The following precautions were taken in the determination :-

- 1) Platinum dishes were used as Porcelain or silica are much inferior.
- 2) Temp. Control during ashing was very important indeed. High temp. would not allow for the easy solution of the iron in the ash.
- 3) In the Nessler glass, the HCl was added to the test solution to prevent hydrolysis on further dilution.
- 4) The final strength of the acid in the Nessler glasses did not exceed 1 N HCl.
- 5) The KCNS was not less than the equivalent of 5 ml. of 40% solution per ml. Nessler glasses.

- 6) If after preliminary titration, the amount of standard iron solution required was outside the limits of 2-4 ml., another estimation was made (using a sufficient amount of test solution) to bring the titration within the limit.

Copper determination :-

Reagents required

- (i) 4% solution of tetra sodium pyrophosphate.
- (ii) 1% solution of gum arabic.
- (iii) 0.2% solution of sodium diethyl dithio carbamate.
- (iv) Standard solution of copper prepared by dissolving 0.3928 gm. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (A.R) in 1,000 ml. distilled water containing a few drops of H_2SO_4 .

This is diluted ten times as required.

(1 ml. \equiv 0.00001 gm. Cu.)

The filtrate containing the copper was heated until the free ammonia was expelled, cooled and made up to 100 ml. An aliquot part, usually 10 ml. was put in to a 50 ml. Nessler tube, together with 10 ml. of 4% tetra sodium Pyrophosphate solution (to sequester Mn, Ca and Mg salts) and 5 ml. of gum arabic solution (to prevent any separation of the coloured copper complex). After carefully shaking, 5 ml. of 0.2% solution of Sodium diethyl dithio Carbamate was added and the volume made up to 50 ml. with distilled water.

The yellow colour was now matched with another Nessler tube containing 10 ml. of tetra Sodium pyrophosphate, 5 ml. of gum arabic 5 ml. Sodium diethyl dithio carbamate and water almost up to the 50 ml. mark, and the addition of the standard copper solution from a burette until the tints were the same when viewed vertically down the depths of the solutions, the tubes being held over a white surface. The volume of standard copper solution required should not exceed 5 ml., obviously too small a titration figure should be avoided also if possible. In the present work, the copper contents were all small and very low titration figures of 1 ml. or less were obtained even with the maximum aliquot possible in this procedure. It was thought however that the results would be accurate enough for the present purpose.

Determination of Aluminium :-

The precipitates which were obtained by adding ammonia to the acid solution of the ashes of the various materials also contained aluminium. A colorimetric method was used to determine the aluminium content of the raw tanning materials and spent products. Results were obtained for the extracts by difference.

The method was that recommended in the Unicam method sheet no. 20 which is based on the procedure given by Chenery (¹). It depends on the formation of a red aluminium—aluminum lake and interference by iron is inhibited by this glycollic acid.

Reagents:—

1. Aluminom reagent:—

0.75 gm. ammonium tricarboxylate, 15 gm. gum acacia and 200 gm. ammonium acetate (A.R) were dissolved separately in glass distilled water. After mixing, 189 ml. of conc. HCl (A.R) were added and the solution made upto 1500 ml.

After a few days, a small amount of insoluble material was found in the reagent but this did not appear to interfere with the determination.

2. Thio glycollic acid :—

1 ml. made upto 100 ml. with glass distilled water. Standard aluminium sulphate solutions were prepared by suitable dilutions of a stock solution (B. D. H) which contained 50r Al per ml. This stock solution contained an unknown amount of free acid.

Three standards were prepared containing 2.5, 5 and 10r Al per ml.

In the preliminary experiments, difficulty was experienced due to high and erratic blanks and erratic readings for the unknown solutions. The blanks were not lowered when triple distilled water was used in the reagents and there was no appreciable difference when glass distilled 6 N hydrochloric acid was substituted for the A. R. HCl. In later runs, the blanks were still rather high, but more reproducible. The optical densities of the sample solutions also were satisfactorily reproducible in the procedure finally adopted.

In order to obtain as reliable and comparative results as possible, all the samples were analysed simultaneously. In addition it was thought that the pH of the sample might affect the results. Hence all the sample solutions were neutralised with sodium hydroxide solution until a permanent precipitate was obtained. Dilute HCl was then added until the ppt. just dissolved. The solutions were finally made upto known volumes. One ml. of the final solutions when mixed with one ml. of the aluminom reagent gave a pH value of 3.4 to 3.5 whereas aluminium standard solution/aluminom mixture had a pH of 3.5.

Sandell (²) states that the pH must be the same in the sample solution as in the standards.

The sample solutions were the same as those which had been used for the colorimetric titration of iron.

The final procedure was as follows :-

1 ml. of the "neutralised" sample solution was placed in a test tube graduated to 10 ml. 0.2 ml. of the thioglycollic acid solution was added followed by 1 ml. of the aluminom reagent. The solution was made upto 5 ml. with distilled water. Each sample was analysed in triplicate (single ashing) and three aluminium standards and three reagent blanks (distilled water) were carried through simultaneously. Two racks containing 42 tubes were placed in a boiling water bath, for 4 minutes. After removal from the water bath, the tubes were allowed to cool slowly. After $1\frac{1}{2}$ hours, the solutions were made upto 10 ml. and after mixing the optical densities were read in the Unicam SP 500 spectrophotometer at 520 m/μ. The solutions were read against distilled water using 1 cm. Cells.

The effect of Sulphating on iron and aluminium Oxides :-

The purpose of the experiments was to examine whether iron and aluminium could be determined quantitatively by the sulphated ash procedure.

Small weighed quantities of ferric ammonium sulphate (A. R) and aluminium sulphate (A.R. oven-dried) were taken in platinum dishes, ignited, sulphated twice and extracted with hot distilled water. Any insoluble residue was filtered off and the resulting filtrate and washings were acidified with HCl and treated with BaCl₂ solution. The weight of BaSO₄ was obtained in the usual way and the residue was ignited and weighed as Fe₂O₃ or Al₂O₃. The results are given below :-

TABLE—I

Weight of Fe & Al taken	215.8 mgm. Ferric ammonium & sulphate	1.34 mgm. equiv Fe	158.5 mgm. Aluminium sulphate	2.78 mgm. equiv, Al.
Fe and Al recovered as BaSO ₄	35.0 mgm. BaSO ₄	0.3 mgm. equiv. Fe	222.0 mgm. BaSO ₄	1.90 mgm. equiv. Al
Fe and Al recovered as insoluble residue after sulphating	28.0 mgm. Fe ₂ O ₃	1.03 mgm. equiv. Fe	13.0 mgm. Al ₂ O ₃	0.75 mgm. equiv. Al

It is obvious from this experiment that a large portion of iron and aluminium is left insoluble after sulphating by reconversion to the oxide when the ignition following treatment with H₂SO₄ is carried out. In this particular experiment, more than three quarters of the iron was not recovered as BaSO₄ whereas about a quarter of the aluminium was lost. Obviously one would expect these proportions to vary from experiment to experiment with small variations in the ignition conditions, particularly the temperature.

SOLUBLE & INSOLUBLE SALTS OF VEGETABLE TANNING MATERIALS

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Possibly one could reduce the ignition temperature considerably for the removal of H_2SO_4 but there might then be some risk of excess acid remaining which would give high results for the final salt figure.

TABLE—2
Iron content in tanning materials and spent products.
mgm. equiv./100 gm. Original material (air dry).

Material	In original material	In spent material	In extract (By difference)
Mimosa	1.2	1.1	0.1
Sumac	5.7	4.5	0.83*
Chestnut	0.56	0.34	0.22
Myrabolam	3.3	2.6	0.7
Valonia	2.0	2.2	nil

TABLE—3
Iron Content

Material	% on original material (air dry)	Spent material		Extract/by difference	
		% on dry spent material	mgm. equiv./100 gm. dry spent material	% on extractable solids	mgm. eq. 100 gm. extractable solids.
Mimosa	0.021	0.045	2.4	0.004	0.23
Sumac	0.108	0.165	8.9	0.04*	2.2*
Chestnut	0.010	0.008	0.46	0.02	1.1
Myrabolam	0.063	0.191	10.3	0.032	1.07
Valonia	0.039	0.085	4.6	Nil	Nil

TABLE—4
Copper content in tanning materials.

Material	gm./100 gm. tanning Material (air dry)
Mimosa	0.002
Sumac	0.0002
Chestnut	0.001
Myrabolam	0.0008
Valonia	0.0004

*The result was found by direct determination on extract.

From tables 2 and 3, it is seen that most of the iron was found in the spent products thus showing that they are not easily extractable.

Table 4 shows the copper content of different tanning materials and as these were so low, the extract and spent products were not analysed for this metal.

The figures however seem to confirm at the appreciable amounts of copper in extracts, which has been mentioned in the literature has probably arisen during the extraction process.

TABLE—5
Percentage of Aluminium in the samples.

Raw Material	Spent products		Extracts (By difference)	
	% on raw material	% on spent product (air dry)	% on raw material	% on extract (air dry)
Mimosa 0.017	0.015	0.030	0.002	0.004
Sumac 0.049*	0.076*	0.143	?	?
Chestnut 0.008	0.008	0.010	nil	nil
Myrabolan 0.060	0.028	0.084	0.032	0.047
Valonia 0.066	0.039	0.073	0.027	0.065

*[Obviously some error has occurred in one of the determinations on sumac. It is possible that the error occurred during the ashing of the raw material and the aluminium content of the latter is probably appreciably higher than the result given above.]

It seems likely that the figures given in the present work for iron, aluminium and possibly copper are all too low. There is a strong possibility that the acid-insoluble residue in the ash retained part of the heavy metals. Sandell (2) gives a table showing that 20—60% of the total iron and aluminium present in hay or straw containing 0.4—4% SiO_2 may be retained by the insoluble residue even after treatment with dilute hydrochloric acid.

There seems little doubt that the main errors in these determinations are due for one reason or other to the dry ashing procedure. There is some difficulty in ensuring that all the salts in the original organic material are recovered quantitatively in the final solution. Many of these errors, and certainly those due to the presence of silica, may be avoided by using a wet oxidation procedure. The SiO_2 for instance can be more completely dehydrated by this method and at the same time difficulties due to partially volatile metals may be overcome.

Colorimetric method for the determination of sodium :

In the present study, sodium in tanning materials was determined by flame photometer method. An alternate procedure for its determination was attempted to check up some results. The method was not found to be much accurate but with some modifications, may be used for analysis of tanning materials.

The method used was that recommended in the Unicam method sheet no. 3 for sodium in waters and biological fluids, based on the procedure of Albanese and Lein⁽³⁾. The method requires a fairly concentrated solution of sodium. This was obtained by ashing (followed by sulphation) 2 gms. of tanning material, and making upto 250 ml. A 50 ml. aliquot was evaporated and the residue redissolved in 2 ml. of glass distilled water. 0.2 ml. aliquots were taken in triplicate for the determination. 1 ml. of Uranyl zinc acetate reagent (made up as described in the above method sheet) was added to the sodium solution in a 10 ml. centrifuge tube. After standing 1 hour at 4°C and centrifuging 10 minutes, the tubes were drained by inversion and the residue of uranyl zinc sodium acetate was washed with 2 ml. 64 O. P. alcohol, centrifuged and drained and finally dissolved in 5 ml. of glass distilled water. The optical density of the yellow solution was measured at 429 m/μ. A standard containing 0.3389 gm. sodium chloride in 100 ml. water was run in triplicate at the same time as the unknown together with two reagent blanks.

Rather variable results were obtained for triplicates but the average results for both standard and unknown determined on two separate occasions agreed very well. A standard curve was not prepared but the amount of unknown solution which was taken was such that the optical density was very close to that of the standard.

(To be continued)

REFERENCES

1. Chenery. *Analyst*. 1958. **73**. 501.
2. Sandell. "Colorimetric determination of traces of metals" (1959). p. 22 & 230.
3. Albanese and Lein. *Journ. Lab. Clinical. Med.* 1948. **33**. 246.

"A STUDY OF THE SOLUBLE AND INSOLUBLE SALTS IN SOME VEGETABLE TANNING MATERIALS".

PART—IX

N. N. Guha

Possible practical aspects of extraction conditions

It has already been pointed out that several aspects concerned with the occurrence of acids and salts in vegetable tanning materials have been rather overlooked. No work however seems to have been reported on the possible variations of acid and salt contents and salt/acid ratio brought about by different commercial extraction procedures. If such variations occur, they might help to explain differences in tanning properties of the different extracts. In the present study, extraction of tanning materials were done by three different ways (on laboratory scale).

TABLE—I

Acids extracted by Procter, small scale soxhlet and large scale soxhlet extractions :-
Mgm. equiv. /100 gm. original material (air dry)

Material	Procter method		Small scale soxhlet extraction		Large Scale soxhlet extraction	
	To pH 5.8	To pH 6.5	To pH 5.8 (1st ex-tract only)	To pH 6.5 (1st & 2nd extract)	To pH 5.8	To pH 6.5
Mimosa	3.7	6.0	4.0	7.1	12	14
Sumac	34	42	35	45	59	65
Chestnut	11	15	16	19	23	28
Myrabolam	74	86	79	92	136	154
Valonia	31	44	34	49	28	38

TABLE—2

Acids extracted by Procter, small scale soxhlet and large scale soxhlet extractions
Mgm. equiv. /100 gm. extractable solids

Material	Procter method		Small scale soxhlet extraction		Large scale soxhlet extraction	
	To pH 5.8	To pH 6.5	To pH 5.8 (1st ex-tract only)	To pH 6.5 (1st & 2nd extract,	To pH 5.8	To pH 6.5
Mimosa	8.6	13	8.7	14	27	33
Sumac	76	95	65	84	156	172
Chestnut	86	112	70	84	118	143
Myrabolam	116	136	110	129	210	238
Valonia	68	97	70	101	71	97

Table 1 and 2 show the extent of acid extraction by the three methods adopted in the present study.

The general reproducibility of the determination of acidity in the Procter extracts was found to be rather better than for the salts. This is probably due to the fact that the salt contents were calculated from difference figures and also the latter were much smaller than the titration values for the acidity.

In the small scale soxhlet extract, only one sample of material was extracted in each case. From 100 ml. of the first extract collected, 10 or 20 ml. were taken in duplicate and diluted conveniently so as to give roughly the same dilution as in the procter extract.

The figures given in the tables for acid to pH 6.5 are the sum of the results for first and second extracts. The highest amount of acid removed in the second extract was only equivalent to about 0.5 mgm. equiv. per 100 gm. material and therefore none of the materials were extracted for a third time for acid.

The acids extracted by the Procter and small scale soxhlet extraction methods were nearly equal. The small scale soxhlet extraction gave slightly higher results for the absolute amount of acid (given in table 1) than the procter method.

The greatest difference was found for chestnut, repeating the experience of the soluble salts, although it was rather less marked. Again, as for the salts the method of expression of results affects the comparison of the extraction procedures to a large extent. Because of the greater amount of extractable solids removed from chestnut in the small scale soxhlet experiments, the corresponding figures expressed on this basis in table - 2 are lower than the Procter figures.

The amount of acids extracted by the large scale soxhlet method were much larger compared with the other two methods of extraction except for valonia. It may be mentioned here that in the large scale soxhlet experiments, the materials were extracted for 30-40 hours' period.

Only small variations, except for chestnut, were found for removal of salts by the three procedures. Therefore, it is rather unlikely that very large differences in the acid figures would be found, if the only factor were the removal of substances containing free acid groups in the original material. It is far more likely that hydrolysis of combined carboxyl groups has occurred during the long period in which the extract was heated in the large scale soxhlet extractions.

Valonia is the only exceptional material as regards extraction of acidity as there are only small differences between the different extracts. Apparently therefore, hydrolytic changes do not occur in the extracts of valonia under the conditions used here.

SOLUBLE & INSOLUBLE SALTS OF VEGETABLE TANNING MATERIALS

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As the salt figures are generally close for the three extraction methods (as reported in part VII of the series), it follows that the salt/acid ratio will show a great variation in several cases. These ratios were calculated using figures for salts obtained by the resin column method for the Procter and large scale soxhlet extracts. For the small scale soxhlet extracts, the results obtained by the BaCl₂ method were used. In every case, the acidity figures employed were those to pH 6.5 given in table I.

The ratios are given below :-

TABLE—3

Salt/Acid ratio

Material	Procter extract	Small scale soxhlet extract.	Large scale soxhlet extract
Mimosa	3.1	2.5	1.6
Sumac	0.97	0.88	0.61
Chestnut	0.22	0.31	0.26
Myrabolam	0.45	0.47	0.29
Valonia	0.79	0.76	0.94

The variations in the ratios are quite large and one would rather expect that significant differences in tanning properties among the extracts might be found. The large scale soxhlet extract of sumac for instance would probably be less mellow in its action than a sumac extract of a higher salt/acid ratio as was obtained by the Procter procedure. The mimosa large scale soxhlet extract has an unusually low salt/acid ratio for a catechol material and this could increase its astringency.

Probably there are several other ways in which extracts of a given tanning material might be obtained showing unusual salt/acid ratios for that material. A preliminary investigation was carried out by the author using successive extractions of the tanning materials with a small ratio of water to tanning material. This type of leaching was found to give extracts of different salt/acid ratio as was found in the more exhaustive extractions which have already been discussed. Further work along these lines and perhaps paying particular attention to the temperature of extraction, in view of the hydrolysis effect discussed previously, might be worthwhile. Extracts obtained in such an investigation could be used in tanning experiments, after concentrating where necessary, to test the effects of this "natural" variation in salt/acid ratio. It is worth noting that the effects on the salt/acid ratio obtained by controlled extraction conditions, would probably be quite different from those obtained by the adjustment of the ratio after extraction by adding

commercial acids or salts. Thus it is at least feasible that the extraction or leaching procedure offers an additional way of modifying the tanning properties of any given material.

This kind of approach was available to most tanners when leaching in the tannery was extensively employed, before the development of extract manufacture. It might now be worth reconsidering the older type of leaching process in relation to our increased knowledge of the factors governing vegetable tanning.

Roux ⁽¹⁾ has studied the differential extraction of mimosa with successive hot and cold water treatments but the effects on the salt/acid ratio were not determined. This worker considers that a differential extraction at least with mimosa, is worthy of commercial investigation. He quotes some earlier studies due to Woodhead ⁽²⁾ who obtained pronounced differences in tanning quality for hot and cold extracts of mimosa. Woodhead found that the cold leaching gave more mellow extracts than hot leaching and commercial extracts exhibited properties intermediate between the two.

From the present work it would appear quite definite that the various extracts obtained by Woodhead would have quite different acid and salt contents, and salt/acid ratios. This probably was an important factor behind Woodhead's findings.

Originally it was hoped to follow up this question more thoroughly in the present study but this did not prove to be possible.

(To be continued)

References

- 1) Roux. "Wattle tannin and Mimosa extract". L. I. R. I. (South Africa) 1955, p.82.
- 2) Woodhead, L. I. R. I. (South Africa). Annual report. 1948-1949. p. 21.
J. I. S. L. T. C. 1946. 30. 228.

74% COMPANIES PLAN TO DIVEST NON-CORE ASSETS IN 24 MONTHS



80% companies are using the divestment proceeds to invest in technology to support their core operations.

The continuing effects of the Covid-19 pandemic are providing an impetus to companies to focus on divesting non-core assets, with 74 per cent of the surveyed companies planning to divest in the next 24-months, says the EY India Corporate Divestment Study 2021.

The survey highlights that one of the biggest challenges faced by CEOs today is identifying the right time to divest assets as 70 per cent of surveyed companies said that they held on to assets for too long. Companies acknowledge the importance of divestments as it allows them to focus on long term value opportunities in the core business.

In line with this agenda, majority of the companies (80 per cent) are using the divestment proceeds to invest in technology to support their core operations. In addition, CEOs are also looking to prioritise operational performance of the RemainCo, while developing the divestment strategy.

After effectuating a divestment, 53 per cent CFOs agreed that divesting assets allowed them to streamline their operations and pay attention to higher growth opportunities across the core business.

A successful divestment requires that the process be viewed as a part of the corporate strategy rather than a one-off decision.

A clear view on strategic alignment of each business, supported by rigorous portfolio reviews can help CFOs identify the right divestment candidates and sharpen the focus on core businesses.

It is also important for companies not to lose sight of the transformational opportunities for the RemainCo, while planning for a divestment, the EY survey observed.

Naveen Tiwari, Partner and Head, Carve-Out and Separations, Strategy & Transactions, EY India, said, “Divestments can not only help companies have a clear focus on core business, it can also provide much required impetus to build resilience during the current crisis.

“Companies need to place particular emphasis on structured portfolio reviews and a comprehensive divestment strategy to drive maximum value.”

(Business Standard – 07/07/2021)

OPENINGS FOR PERMANENT JOBS TO BE HIT BADLY



Job openings for permanent staffers at fresher level will be adversely affected due to the overall hiring freeze amid the second wave of COVID-19, while temporary or gig workers seem to be better placed, says a survey.

According to a survey by staffing and HR services company Genius Consultants, over 57 per cent respondents believe that new job positions for permanent employees will suffer a major impact of the overall hiring freeze.

However, just 43 per cent of respondents believe the same for temporary or gig workers, it noted. The survey was conducted online with more than 1,000 company leaders and executives across sectors during May 28 till June 30, 2021. “In the beginning of the year, India was witnessing a steady economic recovery and an upward curve in hiring.

"But the overwhelming situation due to the second wave of COVID-19 had a huge impact on the employment rate and hiring process in the country. "Restrictions in mobility also resulted in job losses in many sectors," Genius Consultants CMD R P Yadav said. Temporary or gig workers seem to be better placed than their permanent counterparts simply because of an array of opportunities available especially in the e-commerce sector, Yadav said.

According to the survey, around 69 per cent respondents felt that the travel and hospitality sector is the most vulnerable, followed by the manufacturing sector and the media and entertainment industry. The majority of respondents believe that the overall hiring scenario is on hold as the country is in the grip of the second wave of COVID-19.

Further, the lockdowns and strict restrictions imposed by states due to the second wave of the pandemic impacted several sectors.

Yadav, however, noted that this is a temporary halt and India Inc is optimistic about the market recovery at the end of the year. Around 51 per cent respondents were optimistic about it and around 61 per cent expect to see a robust growth of hiring in the private sector, the survey said.

(PTI – 06/07/2021)

GST REVENUE SLIPS BELOW RS 1 LAKH CR IN JUNE; HITS 10-MTH LOW



GST collection slipped below Rs 1 lakh crore in June for the first time in eight months as the second wave of the Covid pandemic and the resultant lockdowns hit businesses and the economy.

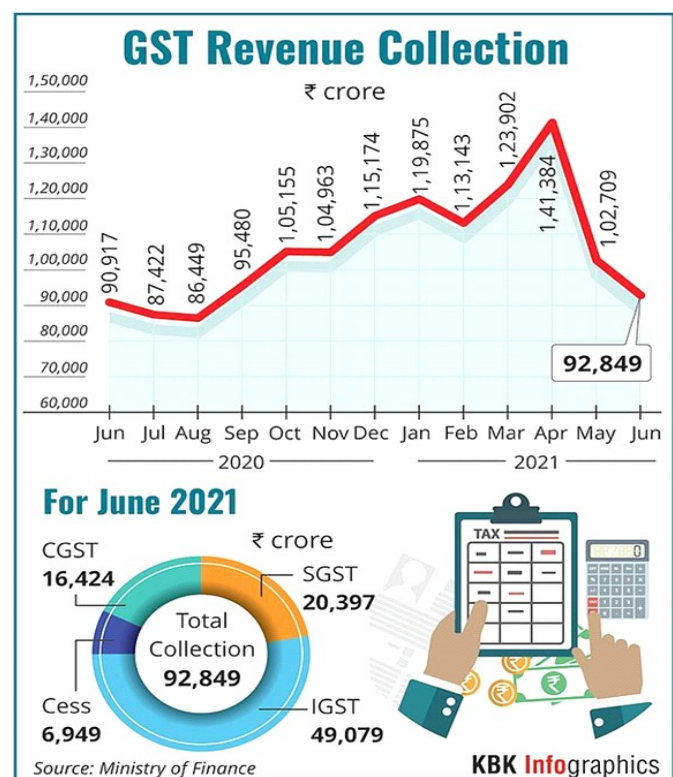
At Rs 92,849 crore, the Goods and Services Tax (GST) collection is the lowest in 10 months since August 2020, when it was Rs 86,449 crore, official numbers released Tuesday showed. The GST collections in June 2021 are primarily for supplies made in May — a month when most states were under different levels of lockdown, reducing business activity.

With significant relaxations in lockdown and business supplies picking up, the collections should see a definite uptick in the coming months, experts said.

The gross GST revenue collected in the month of June 2021 is Rs 92,849 crore, of which Central GST is Rs 16,424 crore, State GST is Rs 20,397, integrated GST is Rs 49,079 crore (including Rs 25,762 crore collected on import of goods) and cess is Rs 6,949 crore (including Rs 809 crore collected on import of goods), the finance ministry said.

The mop-up in June 2021 is 2 per cent higher than Rs 90,917 crore collected in June 2020. GST collection had remained above the Rs 1 lakh crore mark for eight months in a row and was Rs 1.02 lakh crore in May.

However, the collection in June 2021 dropped below Rs 1 lakh crore. "The GST collection for June 2021 is related to the business transactions made during May 2021.



“During May 2021, most of the states/UTs were under either complete or partial lockdown due to COVID,” the ministry added. It said that e-way bill generation data for the month of June suggests that uptick in revenue is expected in the coming months.

The e-way bills generated during June 2021 has gone up to 5.5 crore, indicating recovery of trade and business, up from 3.99 crore in May. As many as 5.88 crore e-way bill were generated in April.

“With reduction in caseload and easing of lockdowns, the e-way bills generated during June 2021 are 5.5 crore which indicates recovery of trade and business...it is expected that while the GST revenues have dipped during the month of June, the revenues will see an increase again from July 2021 onwards,” the ministry added.

ICRA chief economist Aditi Nayar said despite declining to a 10-month low, the June 2021 GST collections provided a positive surprise. “Overall, the GST collections in Q1 FY2022 are nearly twice as high as Q1 FY2021, highlighting the narrower impact of the state-wise restrictions necessitated by the second wave of Covid-19 in India, as compared to the stringent nationwide lockdown last year.

“This will buffer the revenue situation of the Centre and the states, which should support a ramping up of expenditure going ahead,” Nayar added. Deloitte India senior director M S Mani said while the collections are lower than Rs 1 lakh crore which had become the norm for the past few months, considering the fact that it relates to transactions in May 2021 which was badly impacted by the pandemic, it would be considered as a very satisfactory collection.

EY tax partner Abhishek Jain said the collections are for the supplies made in the month of May, where several parts of the country were under the lockdown, so this dip is on the expected lines. With significant relaxations in lockdown and business supplies picking up, the collections should see a definite uptick in the coming months.

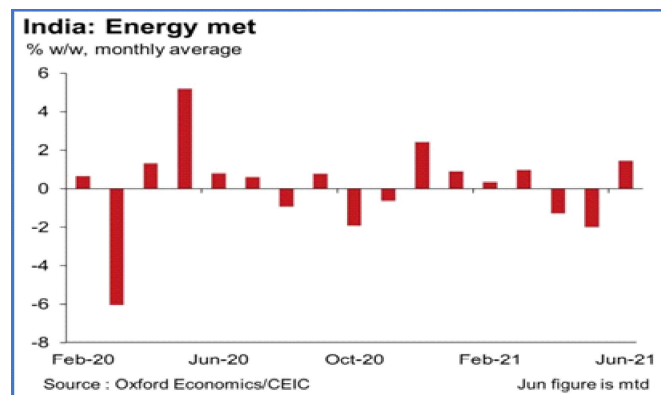
(PTI – 06/07/2021)

RBI SHOULD BE MORE CONCERNED ABOUT INFLATION



We have lived through 10% plus inflation in India and we are aware of the economic pitfall.

With the RBI now having formally adopted an inflation target range, they cannot turn a blind eye to the impending risks. 2020 was a terrible year for the Indian economy with the country shutting down completely for around more than one-and-a-half months.



GDP contracted almost 25% in 2020. Perhaps learning a lesson from the first wave of the pandemic in 2020, during the second wave, the country was not shut down completely.

Because of the localised lockdowns in states, the economy did not get paralysed like it had the previous year. After being one of the worst performing economies in 2020, what awaits the Indian economy in the second half of 2021 and early 2022?

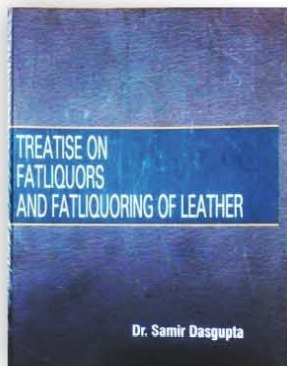
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ILTA PUBLICATION

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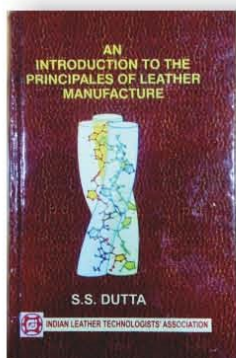
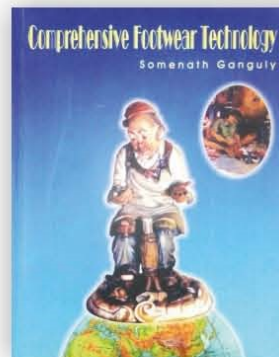
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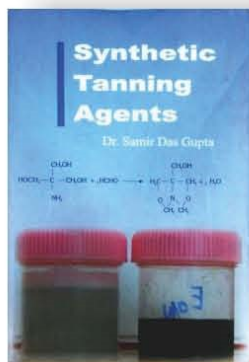
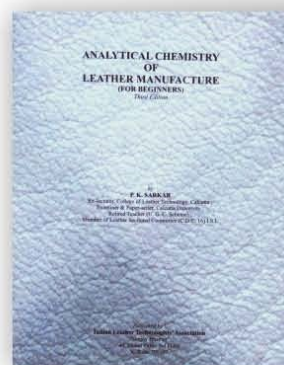
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History and Activities of Indian Leather Technologists' Association

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Stearney theory and father of Indian Leather Science on 14th August 1950.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in the 2010, are :

- ◆ To bring all concerned with the broad spectrum of the leather industry under one umbrella.
- ◆ To organize seminar, symposium, workshop in order to create information, knowledge and latest development for the benefit of all concerned. To offer a common platform for all to interact with each other in order to understand each other's problems and prospects.
- ◆ To publish monthly journal as a supplement to those above objectives. The monthly journal of ILTA is known as journal of Indian Leather Technologists' Association and is the most widely circulated technical journal concerning leather technology.
- ◆ To publish text books for the benefit of students at various levels of study, for the researchers and industry.
- ◆ To have interface between urban and rural sector.
- ◆ To assist Planning Commission, various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies acceptable and adoptable to the industry.
- ◆ To organize practical training and to provide skilled manpower and to motivate good students for study.
- ◆ To conduct activities related to the growth of the export of leather and leather goods from India.
- ◆ As the part of many social activities ILTA has donated Rs. 1 lac to Consul General of Nepal towards relief of earthquake effected of Nepal on 15th Sept, 2015.

INTERNATIONAL & NATIONAL SEMINAR

- ◆ ILTA is the Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS), a 115 years old organization and for the first time the IULTCS Congress was organized in January 1999 outside the developed countries in India jointly by ILTA and CLRI.
- ◆ 2017 IULTCS Congress is scheduled to be held in India again.
- ◆ 8th Asian International Conference on Leather Science & Technology (AICLST) was organized by ILTA in 2010 during its Diamond Jubilee Celebration year.

SEMINAR & SYMPOSIUM

ILTA organizes Seminar & Symposia on regular basis to share information, knowledge & latest development and interactions for the benefit of all concerned. Few are as under:

- ◆ Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August every year.
- ◆ Sanjoy Sen Memorial Lecture on 14th January every year, the birthday of our late President for several decades.
- ◆ Prof. Moni Banerjee Memorial Lecture on 15th March every year, the birthday of this iconic personality.
- ◆ Seminar on the occasion of India International Leather Fair (IILF) at Chennai in February every year.

It has also organized :

- ◆ Prof. V. Nayudumma Memorial Lecture.
- ◆ Series of Lectures during "Programme on implementing Emerging & Sustainable Technologies (PriEST)".
- ◆ Seminars in occasion of India International Leather Fair, 2014 and 2015 at Chennai etc. Many reputed scientists, industrialists and educationists have delivered these prestigious lectures. Foreign dignitaries during their visits to India have addressed the members of ILTA at various times.

PUBLICATION

ILTA have published the following books :

- ◆ An Introduction to the Principles of Physical Testing of Leather by Prof. S. S. Dutta
- ◆ Practical Aspects of Manufacture of Upper Leather by J. M. Day
- ◆ An Introduction to the Principles of Leather Manufacture by Prof. S. S. Dutta
- ◆ Analytical Chemistry of Leather Manufacture by R. K. Sarker
- ◆ Comprehensive Footwear Technology by Mr. Somnath Ganguly
- ◆ Treatise on Fatliquors and Fatliquoring of Leather by Dr. Samir Dasgupta
- ◆ Synthetic Tanning Agents by Dr. Samir Dasgupta
- ◆ Hand Book of Tanning by Prof. B. M. Das

ILTA has a good Library & Archive enriched with a few important Books, Periodicals, Journals etc.

AWARDS OF EXCELLENCE

- ◆ ILTA awards Prof. B. M. Das Memorial, Sanjoy Sen Memorial, J. M. Day Memorial and Moni Banerjee Memorial Medals to the top rankers at the University / Technical Institute graduates and post graduate levels to encourage the brilliant to evolve with the Industry.
- ◆ J. Sinha Roy Memorial Award for the author of the best contribution for the entire year published in the monthly journal of the Indian Leather Technologists' Association (JILTA).

LEXPOs

To promote and provide marketing facilities, to keep pace with the latest design and technology, to have better interaction with the domestic buyers, ILTA has been organizing LEXPO fairs at Kolkata from 1977, Siliguri from 1992 and Durgapur from 2010. To help the tiny, cottage and small-scale sectors industries in marketing, LEXPO fairs give the exposure for their products. Apart from Kolkata, Siliguri & Durgapur, ILTA has organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jarnhedpur and Ranchi.

MEMBERS

The Association's present (as on 31.03.2018) strength of members is more than 600 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Anna University, Chennai, Harcourt Butler Technological Institute, Kanpur, B. R. Ambedkar National Institute of Technology, Jalandhar and Scientists from Central Leather Research Institute.

ESTABLISHMENTS

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata - 700 107 and have named it "Sanjoy Bhavan".

This Association is managed by an Executive Committee duly elected by the members of the Association. It is absolutely a voluntary organization working for the betterment of the Leather Industry. None of the Executive Committee members gets any remuneration for the services rendered but they get the satisfaction of being a part of this esteemed organization.



ILTA
Since 1950

Indian Leather Technologists' Association

[A Member Society of International Union of Leather Technologists' and Chemists Societies]

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