Indian Leather Technologists' Association

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

'SANJOY BHAVAN', 3rd Floor, 44, Shanti Pally, Kasba, Kolkata – 700 107
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Website: www.iltaonleather.org

Mission & Vision

- An Association with over 600 members from India and abroad working since last 64 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.

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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INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION

(Member Society of International Union of Leather Technologists and Chemists Societies)

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Demonetisation – A sense of Dignity for Commoners

Prime Minister Sri Narendra Modi Government's shock move on demonetisation of Rs. 500 and Rs 1000 notes has put everyone in a tizzy. Two reasons were advanced for this move – to hit at black money and to check counterfeits. The opposition parties were quick to cry foul and question the first reason. The inconvenienced public has been confused both about the purpose and the processes that have to be followed now.

Let us see how does it demonetisation mean and enact.

Principles of Demonetisation

A currency is a promissory note issued by the government of a nation. It promises to exchange goods or services against the note when anybody (usually a resident of the country) produces it. Demonetisation at any moment is then a breakdown of that promise, to the extent of the notes which are put out of circulation during tenure of enactment of circular from the government. It is thus a very risky proposition and can be/ should be taken only in very exceptional circumstances. It is akin to a sledgehammer attack (murder with blunt attack of hammer) on the currency system and thus few countries have enacted it. Till November 8, only six nations have used it, including India in 1978. No European or American nation (North or South) has deployed it. Of those who have, only India has gone for partial demonetisation.

What doesn't it do?

Demonetisation does not cut corruption as has been touted. What it does is to make the (then present) stock of unaccounted money illegitimate. That stock could have been built up by anybody or any institution through money laundering, tax evasion or any other means. All the currency notes they hold which has been demonetised become useless piece of paper, since their value as promissory note is stripped away. So demonetisation does not promise there will be no future corruption or other illegality.

But that is not the whole story. By inflicting a cost on those who have committed illegality so far, demonetisation cripples their ability to engage in future corruption or undertake generation of black money. (It is fairly probable that the greatest incentive for doing crime with currency is with those who were engaged in it at present). The costs for these people or organisations become much higher.

So, demonetisation has an indirect but powerful impact on future corrupt practices with respect to currency.

What are the things it does?

Usage of currency is a legacy behaviour from the past centuries when humans evolved from barter systems to the use of money. A currency does four major functions:

- It acts as a store of value.
- It allows for exchange.
- It allows for deferred payment.
- It is a unit of measurement of value.

A demonetisation exercise, as in this case of the Rs 500 and Rs 1000 notes, blocks the first three functions. It does not stop anyone from indicating the value of her goods or services in Rs 500 or Rs 1000 or in their multiples—unit of account. For other units of currency, say Rs 100 or Rs 10, all the functions are in operation.

When demonetisation takes away the three functions described above, a person with black money is crippled. The only way for him to get back in the currency loop is to exchange the demonetised currency with valid notes. Since the only place in an economy where notes are exchanged are banks and they will ask for trail of the money, life indeed becomes difficult for the tax evader, criminals et al.

What are the options for them?

They can try to buy items of high value to beat the deadline. This is what explains the rush for gold. Real estate deals or buying of petrol\diesel is another option.

If banks diligently monitor exchange of rupee notes, if others like jewellers are blocked effectively from dealing in contraband notes (old Rs 500 and Rs 1000 notes) then there is scarce opportunity for anyone to rid himself of the stock of such currency.

What is the impact of demonetisation on the economy?

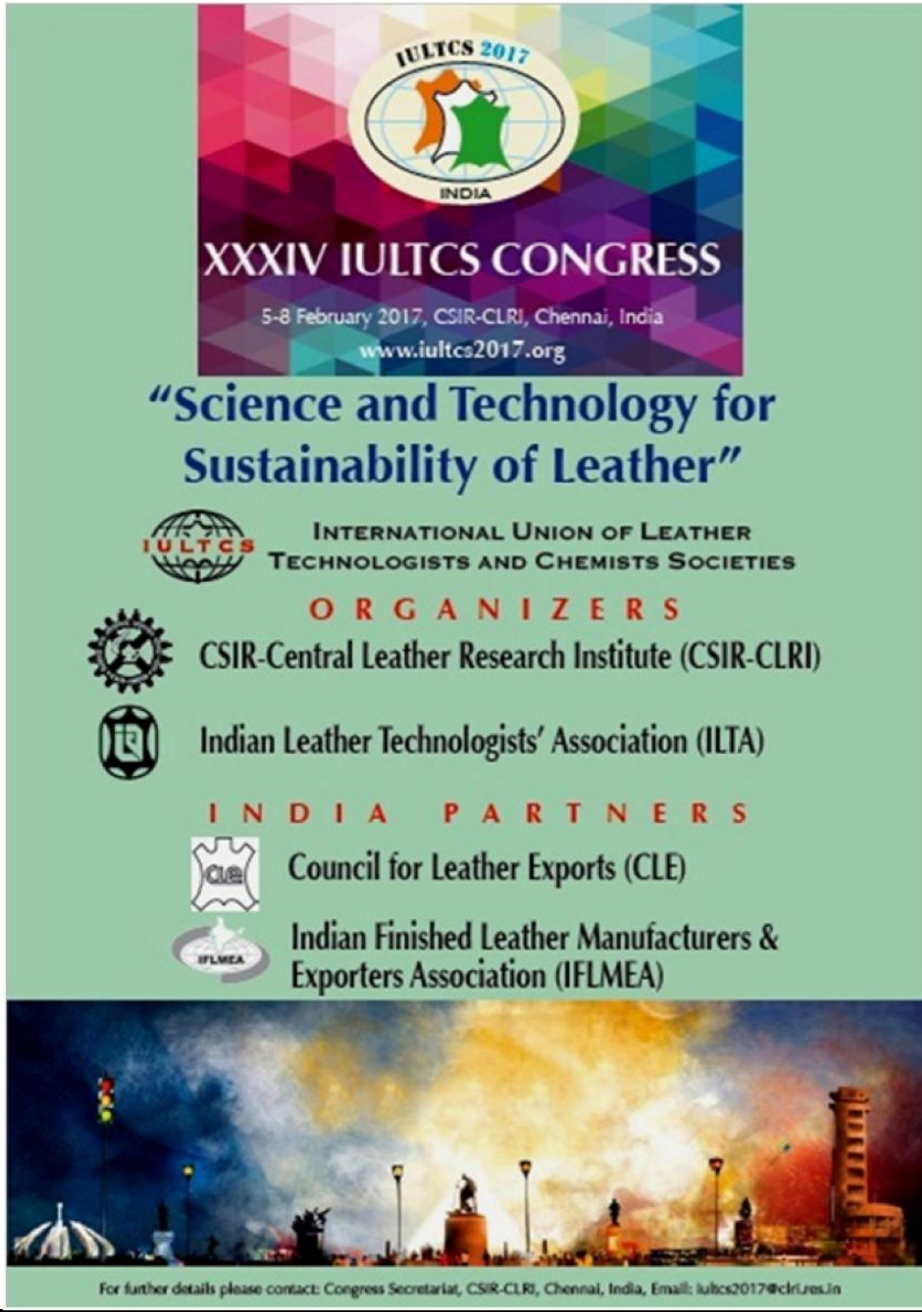
Prevalence of black money spawns in an economy in those sectors where the checks and balances are low. In India, these are sectors like commodity trading, especially of perishable commodities like potato, brinjal, onion and tomatoes for which there is large demand but there are few suppliers. Similarly, there is high usage of cash in sectors like illegal trade in shares or of commodity scrips (*dabba* trading). In both of these markets, since liquidity has dried up, it becomes impossible for the traders to either speculate about a spike in inflation to release stocks or even to do circular trading to keep the loop from breaking. For instance, if a merchant hoards onions, he needs to have cash to pay for those. When he doesn't, his staying power collapses. Similarly, a circular trade in steel or guar gum needs buyers and sellers to keep on the cycle. Once the currency stock of these buyers and sellers get invalid, prices of commodities (especially perishable) collapse. Thus volumes in these markets will be the first to fall and indeed they have. For retail consumers this should mean lower prices of several vegetable items this winter. Remember, winter is also traditionally the time when prices of vegetables soar, as the consumer price index (CPI) shows. If this does not happen this winter, it will be an obvious victory ensured through demonetisation.

A lot has been written on real estate sector. But a salient sector where demonetisation will help is in education and health services provided by the private sector. CPI data shows the price of these has risen phenomenally and has eaten up large percentage of income of the lower income groups. Medical philosophy is no longer a serving science towards mankind but to the degree of his/her kinds. To the extent that these transactions were paid for in cash or bearer cheques, it should be great news for everyone.

With demonetisation, Prime Minister Narendra Modi has taken the boldest economic and political decision of his term so far. He has pressed the button to reboot India and come up with a version 2.0 which, hopefully, will weed out corruption to a great extent and sow the seeds of hope for a "clean" India. In this endeavour, the ministry of finance and key personnel of RBI also deserve compliments for maintaining secrecy. While there is no doubt that it has disrupted the smooth functioning of the economy in the immediate run, especially the informal one, there seems a majority view emerging that it is good for the country in the medium- to long-term. Perhaps for the first time, an honest person feels happy that the government has given him/her some dignity, a sort of premium to honesty, by targeting those who have hordes of cash stashed from their unaccounted transactions.

Goutam Mukherjee

Dr. Goutam Mukherjee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XXXIV IULTCS CONGRESS

(International Union of Leather Technologists and Chemists Societies)

"Science and Technology for Sustainability of Leather"

R&D focus of research institutes, chemical companies and organizations around the world has been the sustainable development of the leather sector. In this scenario, the congress aims to address the following technological challenges:

- Fundamentals in leather science
- Strategies for sustainability
- Innovation and value addition for leather
- Advances in chemicals for smart and intelligent leathers
- Design innovation for lifestyle leather products
- Emission control strategies
- Enriching human capacity
- Global research alliances and partnerships

Important Dates:

- Congress Dates: 5 – 8 February 2017, preceded by India International Leather Fair, Chennai (1–3 February 2017)
- Congress Localization: Chennai
- Abstract submission due: 31 October 2016
- Selection of papers: 15 November 2016
- Early bird registration till: November 2016
- Expected Number of Participants: 200 International, 300 Indian

Organizers:

- Indian Leather Technologists Association (ILTA)
- CSIR-Central Leather Research Institute (CSIR-CLRI)

Congress Partners:

- Council for Leather Exports, India (CLE)
- Indian Finished Leather Manufacturers & Exporters Association (IFLMEA)

Organization committee:

- Congress President: Dr T Ramasami, Former Secretary, S&T, Govt. of India
- Patrons:
  - Mr M Rafeeque Ahmed, Chairman, Council for Leather Exports
  - Mr N Shafeeq Ahmed, President IFLMEA

- ❖ Institutional representatives:
  - Dr B Chandrasekaran, Director CSIR-CLRI,
  - Mr Arnab Jha, President ILTA,
- ❖ Congress Convener: Dr N K Chandrababu, Chief Scientist, CSIR-CLRI;
- ❖ Working President: Dr S Rajamani, ILTA

Indian Leather Industry, through CSIR-CLRI & ILTA and through the Council for Leather Exports and IFLMEA welcome all the visitors, industrialists, academicians and researchers interested in leather to participate at the XXXIV IULTCS Congress. With India International Leather Fair, just before the congress and good climate to visit Chennai, the participants to the congress would be taken through a rich experience of S&T innovations in leather and the cultural diversity of India.

Please visit website www.iultcs2017.org for further details.

15TH Sanjoy Sen Memorial Lecture

This is scheduled to be held at 3.00 PM on Saturday the 14th January, 2016. Individual invitation letters containing information in respect of venue & the speaker will be posted in due course.

Schedule of LEXPOs in FY 2016 – 17

Ground allocations from competent authorities have been received for holding LEXPOs at Durgapur, Kolkata and Siliguri during F.Y. 2016 – 17. The Fair period will be as follow :

Durgapur LEXPO – IV	:	31/12/2016 – 15/01/2017	(16 days)
Kolkata LEXPO – XXXX	:	04/02/2017 – 19/02/2017	(16 days)
Siliguri LEXPO – XXIII	:	11/03/2017 – 26/03/2017	(16 days)

New Website of ILTA

ILTA website (www.iltaonleather.org) is likely to be appearing in a new form and shape along with few more information, within a short while. It is expected that by the first week of December' 2016 it will be launched.

You are requested to :-

a) Kindly inform us your '**E-mail ID**', '**Mobile No**', '**Phone No**', through E-Mail : admin@iltaonleather.org / mailtoilta@rediffmail.com or over Telephone Nos. : 24413429 / 3459 / 7320. This will help us to communicate you directly without help of any outsiders like Postal Department / Courier etc.

b) Kindly mention the unique **Membership No.** against your each and every communication, so that we can locate you easily in our record.

c) **Kindly obtain an Acknowledgement Slip (available at ILTA Office) for any document handed over to ILTA Office.**

Susanta Mallick
General Secretary

**Executive Committee Members meet every Thursday at 18-30 hrs. at ILTA Office.
Members willing to participate are most welcome.**

Now available

Sl. No.	Title of the Book	Author	Price per Copy*	
			Inland (INR)	Foreign (USD)
01.	Treatise on Fatliquors and Fatliquoring of Leather	Dr. Samir Dasgupta	₹ 1500.00	$ 60.00
02.	Comprehensive Footwear Technology	Mr. Shomenath Ganguly	₹ 500.00	$ 50.00
03.	An Introduction to the Principles of Leather Manufacture (New Edition)	Prof. S. S. Dutta	₹ 800.00	$ 50.00
04.	Analytical Chemistry of Leather Manufacture	Mr. P. K. Sarkar	₹ 300.00	$ 10.00
05.	Synthetic Tanning Agents	Dr. Samir Dasgupta	₹ 900.00	$ 30.00
06.	Hand - Book of Tanning	Prof. B. M. Das	₹ 750.00	$ 25.00
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BIO-TECHNOLOGY IN LEATHER INDUSTRY

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Chemistry of Tanning Material and Leather Technology Department
National Research Center, Giza, Egypt.

Continued from last issue :-

A – Ashing

1. Chromium recovery through incineration of solid tannery waste between 800-1200 F. Organic materials were converted to gases and the chromium to ash. The produced gases can be used as a fuel product at least to supply energy for the system.
2. Solid waste was performed on incinerating conditions to reduce the toxic gas components, in which incinerating chambers with an alkaline scrubber and water – warming boiler. SO_2 was removed completely by the alkaline scrubber.
3. Thermal Oxidation/ Acid Extraction

Tannery sludge containing chrome were subjected to thermal oxidation followed by chromate acid extraction Cr (III) oxidation takes place with high yields (about 80%). Chromate is quantitatively extracted at pH=3 from the ashes.

B - Alkaline Hydrolysis

1. Leather scraps was boiled with $Ca(OH)_2$ {40g leather/ 8g $Ca(OH)_2$} for 15 mins., filter and/ or NaOH at elevated temperature and/or pressure acid hydrolysis
2. Alkaline hydrolysis with CaO and / or MgO was found to be important and effective method. The obtained chromium can be used for the preparation of chromium retanning agents [94].
3. Digestion of chrome shavings were carried out with sodium hydroxide (NaOH). The best operating conditions would be about 0.5M NaOH and 15 minutes for the reaction [95].

C - Oxidation

1. Sludge containing chromium and other substances were oxidized using hydrogen peroxide (H_2O_2). This method reduces the volume of sludge and organic content [96].

D - Peroxide treatments

By this process collagen fiber and Cr (VI) can get by oxidization of leather scraps.

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B- Biotechnological Treatment

Enzymes could be used in the treatment of fleshings and effluent from tannery processes. A combination of hydrolytic enzymes, viz. proteases, carbohydrates, and lipases would be required. The advantages to be realised include a protein by-product suitable for animal feed as well as energy conservation and fat recovery. Again, the major disadvantage would be the cost.

Two methods were tested to remove chrome from the waste: **enzymatic and bacterial Treatment.**

A- Enzymatic Treatment

1. Enzymatic hydrolysis [97, 98] was used for chrome recovery and the isolation of protein fractions.
2. Studies on the treatment of CCLW in the past 10 years. The initial one-step process developed by them involved the use of alkaline proteolytic enzymes to isolate a chrome-free, hydrolysate product that can be used as feed or fertilizer [99-102]. A newer two-step process was to obtain a gelable protein, with potential uses in adhesives, cosmetics, films, encapsulation or emulsifying, etc.
3. Enzymatic treatment can be used too on wastes generated during the leather process. For not tanned wastes can be used proteolyses enzymes, neutral and alkaline, generating hydrolysates rich in fat and proteins, in temperature about 50°C. To tanned wastes, containing chromium, can be obtained three fractions: the cake containing chromium, proteins and hydrolysated collagen.
4. Kumar et al. (2008) [103] studied the obtaining of an alkaline protease from *Pseudomonas aeruginosa* using proteinaceous wastes (not tanned). The authors say that the microbiological method to hydrolysate proteinaceous waste is an interesting alternative to other methods, like chemical and thermal, used nowadays to treatment of solid waste.
5. In this work, enzymes were used during soaking and liming operations. Additionally, were studied the bacterial decomposition of tanned leather wastes and the possibility to remove chromium contained in this wastes, using the bacteria, *Pseudomonas aeruginosa* [103].
6. For the enzymatic hydrolysis, an experimental alkaline protease in liquid solution was provided from a firma. The chromed leather waste was incubated with the protease enzyme under different conditions in order to determine the most efficient conditions for the hydrolysis. The enzyme was added under agitation and constant temperature.
7. Chrome tanned leather scraps can be processed by enzymatic hydrolysis employing alkaline proteases under mild conditions. A soluble collagen hydrolyzate is formed and a solid fraction (so called chrome cake) with high chromium content is formed after filtration [104, 105].
8. In other studies, the experiments to remove chromium from leather wastes through enzymatic action, showed reduction of 53.7% of residues mass. Experiments of waste treatment with bacterial *Pseudomonas aeruginosas* obtained reduction of 57.4% of chromium quantity present initially.

B- Bacterial Treatment

For the bacterial treatment an isolated gram-negative aerobic *Pseudomonas aeruginosa* species was provided from a microbiology laboratory. The tests with the bacteria were incubated under the appropriate conditions of temperature and agitation required for bacterial growth (incubation time of 7 hours, presence of sucrose and pH adjustment to 7.0). After the incubation period the suspension was filtered, the cake remaining on the filter was washed with sodium lauryl sulfate solution to remove the bacteria adhered to the waste and the sample was filtered again.

III - 4 - TREATMENT of DYE WASTE

In recent years, research attention has been focused on biological methods for the treatment of effluents, some of which are in the process of commercialization. There are three principle advantages of biological technologies for the removal of pollutants; **first**, biological process can be carried out in situ at the contaminated site; **second**, bioprocess technologies are usually environmentally benign (no secondary pollution) and **third**, they are cost effective.

A- Traditional treatment

The colour and toxicity of leather dye (as Brown VBR) was reduced by using prawn shell waste, rice husk, poultry soil waste, apricot seed and tea powder waste as bio-adsorbents. Adsorption and decolorization capacity of the adsorbents was ordered as: prawn shell waste > rice husk > poultry soil waste > apricot seed > tea powder waste [106].

B- Biotechnological treatment

Dyes are widely used in many industries as textile, rubber product, paper, printing, pharmaceuticals, cosmetics, tanning and others. [107]. Amongst these, azo dyes represent the largest and most versatile class of synthetic dyes [108]. Approximately 10-15% of the dyes are release into the environment during manufacturing and usage [109]. Since some of the dyes are harmful, dye-containing wastes pore an important environmental problem [110]. These dyes are poorly biodegradable because of their structures and treatment of wastewater containing dyes usually involves physical and/or chemical methods [111] such as adsorption, coagulation flocculation, oxidation, filtration and electrochemical methods [112].

Over the Past decades, Biological decolorization has been investigated as a method to transform, degrade or mineralize azo dyes [113]. Moreover, such decolorization and degradation is an environmentally friendly and cost competitive alternative to chemical decomposition possess [110]. Unfortunately, most azo dyes are recalcitrant to aerobic degradation by bacterial cells [114]. However, there are few known microorganisms that have ability to reductively cleave azo bonds under aerobic conditions [115-118]. Compared with chemical/Physical methods, biological processes have received more interest because of their cost effectiveness, lower sludge production and environmental friendliness. Various wood-rotting fungi were able to decolorize azo dyes using peroxidases or laccases.

But fungal treatment of effluents is usually time-consuming. Under static or anaerobic conditions, bacterial decolorization generally demonstrates good color removal effects. However, aerobic treatment of azo dyes with bacteria usually achieved low efficiencies because oxygen is a more efficient electron acceptor than azo dyes [119].

C- Conclusion of dye Treatment

Gurulakshmi M. et.al. (2008) [120] Found that, bacterial culture Bacillus subtilis to decolorize the leather dye Acid Blue 113 with decolorization efficiency of 90%, thus suggesting its application for decolorization of dye bearing of industrial wastewaters. Presence of a Co-Substrate (Starch & Peptone) is the essential conditions for attaining maximum decolorization efficiency. The anaerobic decolorization of Acid Blue 113 dye occurs as a result of reduction of N=N- bond accompanied by the formation of aromatic amines The amine intermediates formed in static conditions treatment can be removed by agitating conditions & approximately 30% decolorization under agitating conditions after a reaction period of 50 hrs.

IV- GENERAL CONCLUSION

Enzymes convey certain advantages in leather processing such as:

1. Water usage is high in conventional leather processing which is about 30 to 40 liters per kg of hide processed. The use of enzymes reduces this requirement considerably.
2. The effluent discharges (both gaseous and aqueous) in leather processing using the conventional route (without using enzymes) contributes to dissolved solids (chromium, lime, sulfides and sulphates etc) and Biological Oxygen Demand (BOD), and Chemical Oxygen Demand (COD). However, using biotech processes helps in reducing COD by 80%, chromium by 85% and Total Dissolved Solids by 85%.
3. It should have the ability to hydrolyze casein, elastin, albumin and other non-structured proteins which are not required in the hide for leather making.
4. Although studies on the use of enzymes for various stages of leather processing are numerous, the commercial production and application of enzymes in the leather industry is limited [121-123] Furthermore, demand for such enzymes is low owing to the risk of collagen degradation.
5. Disadvantages are possible damage of leather making substances, inadequate fiber-opening, flatter grain and higher chemical costs. However, it is possible to overcome these disadvantages through proper process optimization and uncontrollable.
6. Some tanners are hesitant to use the enzyme because of certain disadvantages in using them at the commercial level for reasons of the stability of the enzyme at different environmental conditions such as pH, temperature, and duration for consistent performance and the cost of production and application [124].
7. The important factor in choosing an enzyme as a de-hairing agent depends on the specificity of the enzyme used, which should not attack the collagenous matter.
8. Biotechnology for leather: future trends the manufacture of leather remains a chemical processing of biological matrix skin, worldwide. Generally, conventional tanning processes involve 'do-undo' methodologies, such as curing and soaking (dehydration

and rehydration),

9. Specific enzyme products or their combination need to be investigated for their ability to target conjugate proteins to remove growth marks or wrinkles.
10. Despite being consolidated for other industrial applications, the use of enzymes in the leather industry is not common [125].

V- FUTURE STUDIES ARE REQUIRED IN THIS AREA

The tanneries in future will use a combination of chemical and enzymatic processes. The potential for use of microbial enzymes in leather processing lies mainly in areas in which pollution-causing chemicals, such as sodium sulfide, lime and solvents are being used and conversion of waste products into potentially saleable by-products is possible. Future may witness ecolabelled leather/ leather products emerging as niche products. Biotechnological processes applied in leather production, allowing the reduction of environment impact of this activity. Nowadays, tanneries use high quantities of water and harmful products, like chromium and sulfide, generate a high levels of effluent that must be treated and solid wastes that could be reused or better treated.

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INDIAN COMPANY INTRODUCES INNOVATIVE SMART SHOES IN US

In a bid to revolutionize the fitness wearable space, an Indian company has introduced smart shoes in the US which claims scientifically improve running and fitness levels by giving real-time feedback to the consumer. Arnav Kishore, CEO and founder of Boltt, a Delhi-based startup, introduced smart shoes, a range of smart brands, shoe pod sensor and wireless headsets at Tech Disrupt event in the Silicon Valley, "Till now, all activity trackers and wearables gave data.

We are conspiring to change that by inferring this data and giving it a meaning," said Kishore. This, he said will scientifically improve running, track and further fitness levels and show the consumer their health in a whole new way.

M&B FOOTWEAR BRAND PLANS TO RAISE RS 100 CRE TO EXPAND BUSINESS IN INDIA

M&B Footwear, which markets brand Lee Cooper footwear in India, is looking to raise up to Rs.100 crore to fund its expansion plans which includes opening standalone outlets and bringing in new foreign brands in the country.

After shutting its stores in 2009-10 post economic slump, the Delhi-based M&B Footwear, is gearing up to open 150 Lee Cooper standalone stores in three years. "We are actively pursuing plans to raise about Rs.100 crore…especially to expand out retail network…we are also looking at right partners who can bring value to our business to help us grow faster," M&B Footwear Managing Director Bhai Ajinder Singh told PTI.

We are also exploring options of bringing in more foreign footwear brands which do not have presence in India, Ajinder added. The company has also set up a target of increasing turnover from Lee Cooper brand by 50 per cent to Rs. 600 crore by 2020 as against Rs. 400 crore at present.

"We have been growing at a fast pace and now the market in right for brands like Lee Cooper. We are targeting Rs. 600 crore turnover from Lee Cooper by 2020," Singh said. On Expansion he said : "We already have good presence in the metro and tier I cities through multi brand outlets in retail chains like Shoppers Stop. We are looking at opening majority of these 150 stores in tier II and tier III cities."

Prior to 2010, there were 200 Lee Cooper stores across the country. While M&B Footwear is the licencee for Lee Cooper footwear, homegrown retailer Future Group owns the rights to market Lee Cooper apparels.

(Source : P T I)

EMPLOYMENT GROWTH HAS SLOWED DOWN IN LAST 3 YEARS : GOVT.

Employment growth has shown signs of slowdown in key labour-intensive and export-oriented sectors, despite GDP growth of up to 7.6 per cent in the last three years, Parliament was informed today.

As per an information received from the Ministry of Labour and Employment, the job growth has been slow in eight select sectors in the last three years, Statistics Minister D V Sadananda Gowda said in a written reply in Lok Sabha.

The Minister was quoting the Quick Quarterly Surveys on Employment and Un-employment conducted by the Labour Bureau. The GDP growth rate at constant (2011-12) prices for the years 2013-14, 2014-15 and 2015-16 are 6.6 per cent, 7.2 per cent and 7.6 per cent respectively, he informed the House.

In eight sectors like textiles, leather and gems & jewellery, 1.35 lakh jobs were created in calendar year 2015, which was much lower than 4.21 lakh in 2014 and 4.18 lakh in 2013.

The Minister said the government has taken various steps for generating employment like encouraging private sector of economy, fast tracking various projects involving substancial investment and increasing public expenditure on schemes like Prime Minister's Employment Generation Programme (PMEGP).

He said a Ministry of Skill Development and Entrepreneurship has been established to coordinate the skill activities across all ministries. In order to improve the employability of youth, around 20 ministries run skill development schemes across 70 sectors.

"Pradhan Mantri Rojgar Protsahan Yojana" has been announced in 2016-17 Budget with the objective of promoting employment generation and an allocation of Rs.1,000 crore has been made, he said.

The scheme is being implemented by the Labour Ministry. Under the scheme, employers would be provided an incentive for enhancing employment by reimbursement of the 8.33 per cent EPS contribution made by the employer in respect of new employment.

(Source : Deccan Chronicle – 03.08.2016)

IN A FIRST, BENGAL TO DEVISE EXPORT STRATEGY TO PROMOTE ITS ARTISANS

In the process, Bengal could become the first state to prepare an export strategy in this sector. The main purpose of the move is to create a demand for Bengal's myriad products in markets abroad.

This will not only restore the past glory of Bengal's textile and other industries, but also help in reviving the economy of medium and small sectors in the state.

A memorandum of understanding has already been signed between the state government and the Export Import Bank of India (Exim Bank), in which the latter has agreed to provide financial assistance and also advisory support to the government for the export of its various products.

The Micro, Small and Medium Enterprises (MSME) department has been working towards building infrastructure so that the products could be exported to various countries, boosting sustainable growth in various sectors.

Once these goods get a good market abroad, a larger number of people will feel encouraged to be involved in these sectors. The department is yet to come up with a detailed policy.

It may be mentioned that the MSME department had taken up a series of new projects to contribute to the development of the socio-economic condition of artisans across the state by giving them a platform to showcase their handicrafts. The state government had set up 'Rural Craft Hub Project' at 11 different locations for this purpose.

EU FOOTWEAR IMPORTS ON THE RISE

According to data obtained by theworldfootwear.com, the EU has imported 22,360 million euros worth of footwear in the first half of 2016. A 5.5% increase from similar period last year. Quantities imported grew by 2.4%.

The second largest footwear consumer in 2015 (according to the latest edition of the World Footwear Yearbook) with a total of 2,759 million pairs consumed last year, registered an increase of its footwear imports during the first half of the current year. European Union imports of footwear reached 2,142 million pairs, going up by 2.4% from similar period in 2015. In value terms imports totaled 22,360 million euros, a 5.5% growth compared to the first semester of the previous year.

(Source : Culled from Net)

PORTUGESE FOOTWEAR EXPORTS CONTINUE TO GROW

In the first half of 2016, Portugal exported 40.1 million pairs of shoes valued at 902.2 million euros, growing by 1.8% from similar period last year. If this performance continues in the second semester, 2016 will be represent the 7^{th} consecutive year of positive growth.

Since 2009, Portugese footwear exports increased by more than 50%, from 1,232 million euros achieved in that year to a new record of almost 1,900 million reached in 2015. Based on the numbers for the first semester, with sales abroad growing by 1.8% from similar period in 2015, and assuming no major disruption occurs, the current year will be the 7^{th} of continued growth for the Portugese footwear industry and its exports.

(Source : Culled from Net)

BIHAR 'COURT' BANS MADE IN CHINA GOODS

Patna, Oct 8 : A Gram Kachahri (village court) in Bihar's Aurangabad district on Saturday banned the sale and purchase of 'Made in China' goods, after declaring China an enemy for supporting Pakistan. It also passed a provision with consensus to punish people found violating the order by imposing a fine, officials said. It is a first of its kind happening in the state when a village body banned 'Made in China' products.

The village court of Obra panchayat decided to ban the products manufactured in China, impacting the sale of Chinese goods in the panchayat area with a population of over 10,000, a district official said.

"We have decided to ban 'Made in China' goods and appealed to people not to use any Chinese goods," the sarpanch said. A village court member, locally known as 'Panch' Baban Mehta said : "We should not purchase and use Made in China goods…that would weaken its economy." There are over two dozen shops in Obra panchayat that sell 'Made in China' goods. Last year, during the festival season, they sold China manufactured items worth lakhs rupees. A majority of these of goods include toys, fancy lights, gift items, plastic ware and decorative goods. In rural India, there is a huge market for Chinese products as they are cheaper, compared to those produced in India.

(Source : IANS Sentinelassam – 10.10.16)

CLRI LACES UP TO DESIGN SPORTS SHOES

To improve India's medal prospects in Olympics, the Union government has set in motion plans to develop high-quality, affordable sports shoes.

At a press conference on Thursday, Union Science Minister Harsh Vardhan said the Chennai-based Central Leather Research Institute (CLRI), with its decades of experience in improving leather and developing a range of footwear, had been tasked with tackling in "mission mode" the problem of developing shoes that match "international quality standards".

Shoes that meet required specifications would likely be ready within a year, but there is no decision yet on how much it would cost, Dr. Vardhan said.

The Minister's plan stems from Prime Minister Narendra Modi's remarks at a CSIR event in September that scientists needed to do more to improve India's performance in a variety of avenues, including sports. The Prime Minister, in August, had announced setting up a task force to investigate India's disastrous performance in the 2016 Olympics at Rio.

A top CLRI official said the institute had experience is designing shoes, sole cushions and customizing them for a range of applications. "We wouldn't probably make the shoe," CLRI Director B. Chandrasekaran told The Hindu "but we would be able to say how such a shoe can be made, the appropriate material and how it can be customized to different sports."

The institute plans to tap the expertise of other CSIR labs as well.

(Source : The Hindu – 04.11.16)

A Report on Water less Chrome Tanning Technology Demonstration (WCTT) cum Workshop held in Kolkata during October 24–27, 2016

The Waterless Chrome Tanning Technology (WCTT) developed by CSIR-CLRI was demonstrated successfully in two Kolkata tanneries during October 24 - 26, 2016. At the tannery of Zia Hides and Skin Agency, the demonstration was held on a batch of 1150 pieces of goat skins having a pelt weight of 900 kg, while the same trial was conducted on 90 pieces of full thickness buffalo hide in Indian Tanning Industries Pvt. Ltd. The pelt weight of this batch was 3600 kg. It was observed that the experimental leathers were comparable with conventionally prepared leathers in respect of wet-blue colour and flatness of the grain, but in respect of fullness, the water less chrome tanned leathers especially those made from buffalo hides were superior to the regular leathers. As regards the tanning process, the actual tanning process was found to be much shorter and far simpler than the conventional process.

The practical demonstration was followed by a workshop to share the results of the demonstration with all the stakeholders in the region. The workshop was organized on October 27, 2016 at hotel REGENTA ORKO'S. The wet-blue leathers (both Goat skins and Buffalo Hides) from demonstration held in Kolkata and crust and finished leathers made from batches demonstrated earlier in other tanning clusters were displayed in the workshop hall. This offered an opportunity to all those present in the workshop to see the end results. In all 77 persons from institute, industry and various sections of the trade participated in the workshop. Twenty-four among them were from the tanning sector. They inspected the leathers (wet-blue and finished) with a lot of curiosity and expressed satisfaction over the results.

The workshop began at 11.00 a.m. with a welcome address by Dr. Dipankar Chaudhuri, Head, RCED(CSIR-CLRI), Kolkata. He gave an account of the demonstrations held and explained the need for the workshop. Dr. B. Chandrasekaran, Director, CSIR-CLRI also addressed the gathering. He traced the need for balancing economic growth and environmental protection. He also talked about the plan document submitted to DIPP by CSIR-CLRI proposing several measures including up-gradation of the existing CETPs in India for all round development of leather sector. Shri Ramesh Kr. Juneja, Chairman, Eastern Region, CLE and also President, CLCTA followed Dr. B. Chandrasekaran. Incidentally, Shri Juneja also owns Indian Tanning Industries Pvt. Ltd. where the WCTT demonstration was held. He addressed the gathering and shared his views on the demonstrated process. Appreciating the potential benefits of this novel technology such as shorter process time, smaller number of process steps and chemicals required, he expressed satisfaction over the quality of the wet-blue obtained. He emphasized the importance of area-yield in leather trade and mentioned that he was eagerly waiting for further processing of the experimental wet-blue into various kinds of finished leather to complete to check the impact of this new technology on the area-yield. Shri Juneja observed that it would be premature to make further comment on the acceptability of this technology before checking the additional cost of chemical added during the tanning process and ascertaining the modification to the tanning vessel needed for practising this new technology. Shri Imran Ahmed Khan, Hony. General Secretary, CLCTA also spoke on the occasion. He appreciated this new technology for demanding less process water and making the chrome-recovery process needless and complimented CSIR-CLRI for this development. Expressing optimism about this new technology, Shri Khan said that this technology would be very helpful in achieving compliance with the regulatory norms with regard to chromium and salt. He also felt that the demand for less process water for tanning by this technology would also help the CLCTA to accommodate more tanneries in CLC.

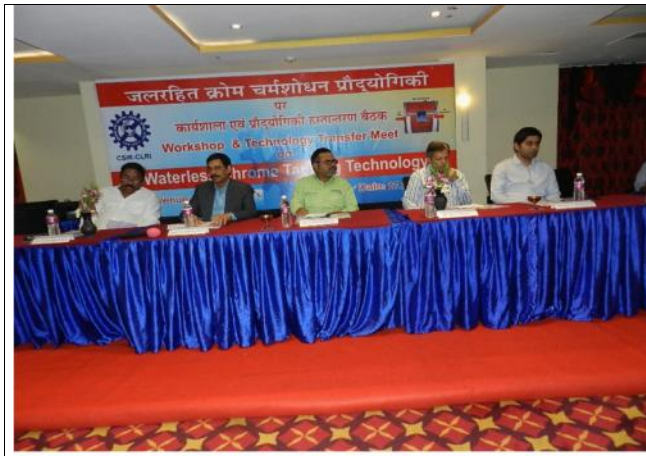
ILTA President Shri Arnab Kr. Jha was the Guest of Honour at the workshop. In his address, Shri Jha cited the management of salt and chromium as the main cause of concern for tanning sector and appreciated the development of WCTT, which will support the tanning industry in managing both the pollutants.

The Chief Guest of the workshop was Shri A. Bandopadhyay, Director, MSME Development Institute, Kolkata. In his address, Shri Bandopadhyay highlighted the importance of development and implementation of new and innovative technology in industrial sectors. He made a mention of the three 'I' concept, namely 'Innovation, Incubation and Implementation' and lauded the CSIR-CLRI initiative with regard to WCTT which is in line with the three 'I' concept. , He also elaborated on various schemes that MSME Development Institute offers to support the micro, small and medium enterprises and emphasised few such schemes that could be very useful and supportive for practising innovative and cleaner technologies requiring addition investment in terms of purchase of new machinery and equipment.

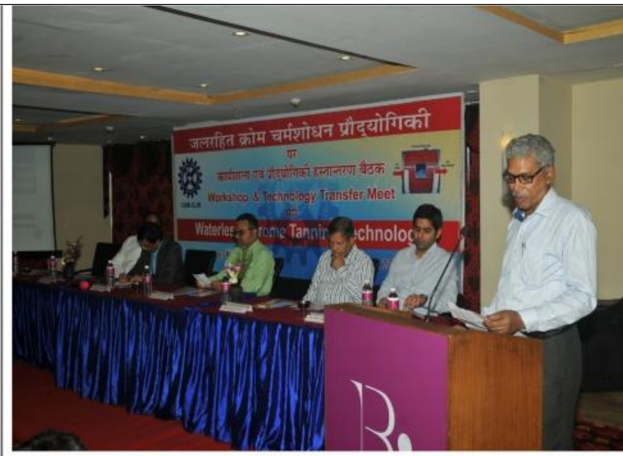
Shri Md. Ali of Zia Hides & Skins Agency, where the WCTT was demonstrated on goat skins, shared with the participants in the workshop his experience with this new tanning technology. Shri Ali told that this technology not only saved time, water and chromium salt, it produced wet-blue of excellent quality in terms of colour-uniformity, fullness and grain-flatness.

There were two power-point presentations from CSIR-CLRI on WCTT and its licensing. These presentations evoked several queries from the audience. The most important query from the participant was regarding the level of chromium that would be leached out of the water less chrome tanned leather in the subsequent wet processing. Responding to this query, Dr. P. Thanikaivelan of CSIR-CLRI stated that the leachable chromium normally remains very close to 2-3% of the total chromium taken up by the leather during tanning. He assured the house that the leachable chromium from the experimental leather would be significantly lower than that for the conventionally processed leather.

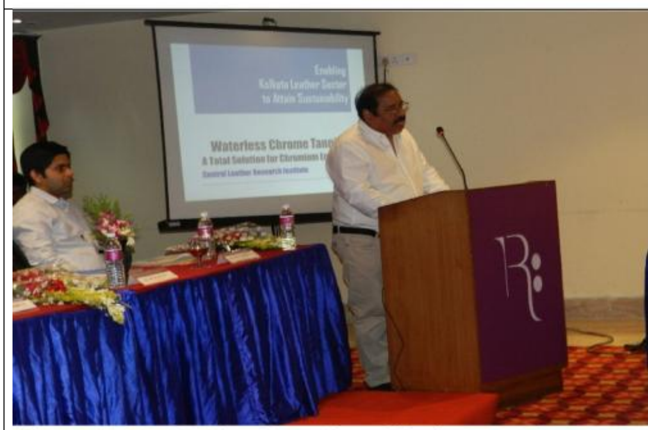
The programme came to an end with a vote of thanks proposed by Dr. J. Raghava Rao, Chief Scientist, CSIR-CLRI. Dr. Rao highlighted the importance of protecting the environment and emphasised the need for absorbing this new technology for both the industry as well as the society. He thanked everyone for their participation and support. There was a well-arranged buffet-lunch for the participants at the end of the workshop.



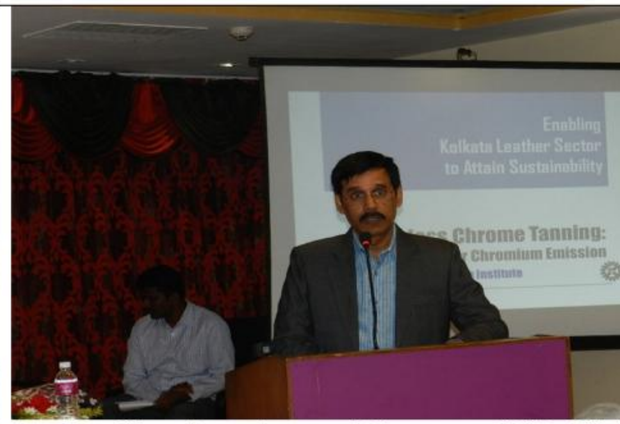
Dignitaries on the dais



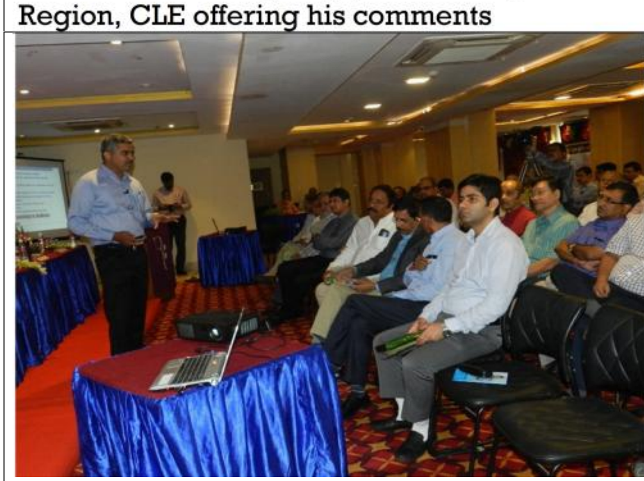
Dr. Dipankar Chaudhuri, Scientist and Head, RCED(CSIR-CLRI), Kolkata delivering the Welcome Address



Mr. Ramesh Kr. Juneja, Chairman, Eastern Region, CLE offering his comments



Dr. B. Chandrasekaran, Director, CSIR-CLRI addressing the participants



Dr. P. Thanikaivelan making a power point presentation

Mr. Imran Ahmed Khan, Hony. General Secretary, CLCTA delivering his address

NO FORM 16 YET ? YOU CAN STILL FILE YOUR INCOME TAX RETURNS

Two weeks to the tax filing deadline and still have not received your Form 16? Maybe it's time you tried filing your returns without one.

The Income-Tax Act lays down that TDS certificate must be issued by the employer, once a year, on or before May 31 of the financial year immediately following the financial year in which tax is deducted. "If an employer fails to provide you with a Form 16 after having deducted TDS - the minimum penalty that the employer will pay is Rs 100 for every day the default continues," says Archit Gupta, CEO, ClearTax.in.

The reason for not issuing Form 16 could be many. The company might be in trouble and may not have deposited your taxes at all or the HR department may be just lazy. Whatever may be the case, there is no point running after your employer anymore since the deadline is close. You might start collecting the alternate documents that will help you calculate your tax liability and file returns. This will take some time especially if you are planning to file your returns yourself.

Start by familiarizing yourself with the different ITR forms and the correct form for you. Most of the salaried class will be filing an ITR 1, 2 or 2A. Form 3, 4 and 4A are for people with income from professional practice or business. If you are using the government filing site, you will have to choose and download the correct ITR.

The form-selection process is automated if you are filing through an online-filing platform. Next step is to get all the documents ready to calculate your taxable income.

Declaring your taxable income: In absence of Form 16, your pay slip is the second-best resource to calculate your income from salary . Remember to deduct the non-taxable heads such as HRA, LTA and other reimbursements from total income. If you are filing ITR2A, ITR-2 and ITR-4, you will have to provide a detailed salary schedule with a break-up of allowances that are exempt from tax along with value of perquisites. "Refer to your appointment letter that gives a break-up of your CTC for details," says Gupta.

Your income should include earnings from other sources too. Interest income can be easily retrieved from your TDS certificates from bank or Form 26AS. Do not forget to declare rental income, capital gains, income from savings bank account, cash gifts above Rs 50,000 received from a non-relative and even income exempted from tax such as dividend income.

Match your TDS numbers: Form 26AS is the best source to cross-check 26AS is the best source to cross-check your entries. Your income from all the sources (including interest income where you had submitted a Form 15GH), tax deducted at source and any high-value transactions and sale of immovable property are all reflected in Form 26AS. An advance tax paid needs to be mentioned in the ITR as well. Verify your tax payment challan(s) numbers with the figures in Part D of Form 26AS.

"Verifying all the details as per the Form 26AS is a must as many have been getting notices from the department recently where the ITR filed by the taxpayer does not match with the information available in the form," says Sudhir Kaushik, CFO, Taxspanner.com.

Recheck the TDS figures carefully, if your employer is in some financial trouble. Cross-check the TAN num bers to know verify the employer and the corresponding TDS. There have been cases where the employer had deducted TDS from your salary but the same was not deposited with the government. The onus of filing correct returns is on the taxpayer.

If the employer has deducted tax, it must show up in your Form 26AS. If it does not, either your PAN was not correctly mentioned or the employer did not deposit the TDS. "If it is the latter and the employer refuses make corrections you may have to pay tax to the government on your income yourself and later on claim from your employer," says Gupta. Another solution can be approaching your jurisdictional TDS Commissioner.

"We have seen examples wherein the company immediately deposited TDS and issued Form 16 upon receipt of notice from the tax department. Non-deposit of TDS is a serious offence and can result in prosecution and rigorous imprisonment," says Vaibhav Sankla, director, H&R Block India.

Handy Docs if There's No Form 16

DOCUMENT	INFORMATION TO EXTRACT
Payslips	Correct income under the head 'salary', TAN of the employer, EPF account number and code and the registered office address
CTC breakup	Claim eligibility under various tax-free income components such as HRA, LTA and other reim- bursements. Especially important if you are fil- ing ITR 2 or 2A
Form 26AS	Cross-checking TDS deductions and deposits
TDS certificates from bank	Interest income and tax paid as TDS
Tax-saving investment proofs	Deductions under various sections
Home & eduction loan certificates	Deduction under Section 80, 24 and 80E
All Bank statements	Interest on savings account, gifts received, div- idend income. Also required for declaring all current and savings account numbers with their respective IFSC codes
HRA receipts, LTA expenses and reimbursement slips	Expenses to be deducted from total salary to calculate taxable income

Claim the correct deductions: If you were diligent in declaring your investments during January and February , you are perhaps well-organised already . Most of your deductions under Section 80C such as insurance premiums, mutual fund investments, PPF contribution, children's school tuition fee, are easily traceable.

Just get the investment proofs, add the numbers and you can fill the aggre the numbers and you can fill the aggregate as deduction under Section 80C.Remember to include your EPF contributions and investment made in NPS under Section 80C too. You can get your EPF contributions in your EPFO statement. If the employer has not provided one, just go online. All you need is account number and establishment code, which are usually mentioned at the top of your salary slip. You will also have to key-in the state where the employers' EPF trust is registered.

Your NPS contributions will be under two sections. Your contributions as an employee gets deduction under Section 80CCD (1), which comes under the overall Rs 1.5 lakh limit under Section 80C. This year onwards, you can claim an additional 50,000 deduction under Section 80CCD(1b)for individual contribution, which includes any contribution made as an employee. "If you contributed Rs 50,000 or more towards NPS via salary deductions, maximise the tax benefits under both Section 80C and Section 80CCD (2).

If you have a home loan, principal repayments will also be added under Section 80C. Consult the loan certificate to know the break-up between your principal and interest payments.

DEMONETIZATION : LONG TERM GAIN

The market may be overestimating the impact of demonetisation, says Ridham Desai, managing director of Morgan Stanley. The impact will be negative in the short run, according to him, as people scramble to exchange $220 billion worth of old currency notes. The ongoing cash crunch may delay the economic recovery that India had started to see but as we approach the end of December "this chaos will seem less relevant".

The impact is negative in the short run but not as large as is being made out by people. Yes, India is a cash rich economy, bulk of it is not black money but transactional cash. All of us transact in cash. That's the anchoring of people in the country. They like to deal in cash. They don't want electronic (banking). That is why we have only 40 million debit cards in a country of 1.25 billion.

To be sure, the government's move has provided a shock to the system which now has to accelerate its move towards electronic transactions, and as and when that fructifies, he says, India stands to benefit.

What will be interesting to observe, he points out, is where the currency in circulation settles at, six months from now.

It's not a net 13 percent of GDP that banks are receiving in cash. What we will have to see is in six months from now where does currency in circulation settle. It was 13 percent before demonetisation, does it settle at 11 percent, 9 percent or 13 percent. That difference is the net increase in banking penetration.

'GST A Bigger Step'

For him, the bigger trigger for the Indian economy and the fight against unaccounted wealth will be the implementation of the Goods and Services Tax (GST). The indirect tax regime, once it comes into effect, will be 10 times more potent that demonetisation in its ability to reduce unaccounted wealth.

Under GST, if you are a producer of a good and you don't pay tax, so you are saving 25 percent tax (that's the average rate of tax on an indirect basis). Suppose your margin is 10 percent which puts you outside the tax rate and so you save 3.5 percent in income tax. That's a big difference. That's the magnitude of the impact.

While on the subject of GST, he says the multi-rate structure is the best way to go. It would not have been possible for the government to shift to a single or dual rate structure without significant damage to the economy. He expects that transition to happen only 5-7 years from now.

'Fund Flows Will Return'

Desai is not worried about the foreign portfolio outflows India has seen over the last few months, and says it is a phenomenon seen across emerging markets right now and not an India-centric issue. He expects flows to return over the next 1-2 years, especially since foreign investors remain bullish on India.

Desai is bullish on financials, technology, consumer discretionary and to an extent industrial sector right now and would avoid discretionary stocks like staples and healthcare. Technology for him is a pure valuation call.

It is logical and sensible for the U.S. to continue to support outsourcing to India because India reduces cost for American corporations and drives profits higher. Stocks look cheap. They are pricing in single-digit earnings growth over the next 5 years. That looks like an attractive entry point. Tech stocks also correlate very positively with U.S. bond yields.

Fed Versus RBI

Desai expects the Reserve Bank of India to cut interest rates in its December 7 policy. The risk of a rate hike by the U.S. Federal Reserve, which he says will come through next month, is less relevant for India – a sign of the strength in the country's external balance sheet.

(Source: Ridham Desai, Managing Director, Morgan Stanley India)

LEATHER SCIENCE ABSTRACTS

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All enquiries for further details should be addressed to: THE DIRECTOR, **(ATTN.: EDITOR, LESA)** CENTRAL LEATHER RESEARCH INSTITUTE, ADYAR, CHENNAI-600 020, INDIA.

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Chem. Ind. Dig.

Chem. Wkly.

Indian J. Biotechnol.

Indian J. Chem.

Indian J. Chem.-Section B(Organic including Medicinal)

Indian J. Exp. Biol.

Indian J. Sci. Technol.

J. Am. Leather Chem. Assoc.

J. Soc. Leather Technol. Chem.

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Scitech J.

Spectrosc. Europe

World Leather

LEATHER SCIENCE AND TECHNOLOGY

LEATHER INDUSTRY.HISTORY.MANAGEMENT.ECONOMICS. EDUCATION

49.15077

Attract the good, retain the better and advance the best. MARIWALLA (Y), (M/s. Index Advisory Private Limited, No. : 102, Meadows, Sahar Plaza, Andheri-Kurla Road, Andheri East, Mumbai-400 059, India). (Chem. Wkly.; 60, 11; 2014, Oct., 21; 215-6).

Discusses three goals, that should have to be followed by each and every organization such as attracting the good; retaining the better and advancing the best for attaining the very grand success in every effort by the manufacturer of any concern. (1 Fig.).

49.15078

Mind your own business. SETTER (S), (Leather Int'l; 286, 4844; 2014, Sep.; 22, 24 &26).

Eviscerated the unsound financial planning of Green peace and governments the world over through growing tired of seeing the flaws developing the global leather industry and exposed the serious operation failings. (2 Photos).

49.15079

Center of attention. BELLESE (F), (M/s. JBS Couros, Marketing and Sustainability Division, Avenida Marginal Direita do Tiete.500. Vila Jagriara- Sao Paulo/SP 05118-100., Brazil). (Leather Int'l; 216, 4844; 2014, Sep.; 40, 42 & 44).

Discusses the ways in which the right projects can contribute to the well-being of the company and its workforce as any leather industry that has to adapt and thrive, human capital has to be as important as technological innovations. (6 Photos).

49.15080

Tide of conformance. HUDSON (A), (M/s. SGS, 1 Place des Alpes, P.O. Box 2152, 1211, Geneva 1, Switzerland).(Leather Int'l; 216, 4844; 2014, Sep.; 46-8).

Describes how the external drivers in the current days have grown to include not only quality and price, but product conformance as being a successful leather supplier generally meant focusing on either making the highest quality of leather or providing low-cost products in the past but it is found that this fact still remains the same in many ways. (3 Photos).

49.15081

Flexible intermediate bulk container-Indian players to benefit from changing preferences.

PATEL (K), PATEL (U), (Chem. Wkly.; 60, 8; 2014, Sep., 30; 199-202).

The Indian Flexible Intermediate Bulk Container (FIBC) industry has the potential to maintain positive growth through demand emanating from international as well as domestic industries, driven by lightweight, user friendly, sustainable and enhanced packaging options. In the medium term, the increasing demand for Indian FIBCs from major destination markets, viz. the USA and Europe and stable foreign exchange rates are expected to retain the demand momentum, in an environment of increasing competition among Indian manufacturers. It is envisaged that entities with strong foothold in international market with value-added product portfolio, better working capital management and sound foreign exchange fluctuation risk management would be in a position to earn higher margins and it is expected both that the Indian FIBC industry to grow at approximately 5-7% per annum globally and at 12-15% per annum domestically overthe next three years, riding on increase in domestic output and their shift towards FIBCs offering enhanced performance and better visibility and that the Profit before Interest, Depreciation and Tax(PBIDT) margin of the manufacturers to remain in the range of 10-12% over the next three years in the backdrop of increasing competition from domestic units and international market. (3 Ref.; 2 Tab.; 4 Charts).

49.15082

Decoding the innovation black box : Chemical industry is search of answers. RAJAGOPAL (R), (M/s. "Chemical Weekly", Corporate Office, No. : 602, 6th Floor, B-Wing, Godrej Coliseum, Behind EverardNagar, Off Eastern Express Highway, K.J. Somaiya Hospital Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 11; 2014, Oct., 21; 201-7).

Discussed the crucial aspects of deciphering the innovation black box and creating value as the innovation, its complexities and potential form the main features and the way, in which the feedstocks, technology, regulations, customer and market forces influence the course of innovation. It brings forth the significance of collaborative and descriptive innovations for thechemical industry while highlighting the limits of innovation process. Finally suggested the possible options, for the Indian chemical industry to identify, assess and evaluate the possible innovation models. (5 Ref.; 11 Photos).

49.15083

Salt industry in India : Suggestions for vision document. SINGH (YR), (Chamber of Indian Trade & Industry, Nos. : F-102 & 103, Kanishka Complex 3-LSC, Saini Enclave, Delhi-110 092, India). (Chem. Wkly.; 60, 4; 2014, Sep., 2; 219-20).

Listed the various policies, that are needed to be taken by the government immediately in order to meet salt requirements of the salt industry and the domestic sector. It is viewed that the increase in the salt production and an improvement in the quality of salt can be surely witnessed if these policies are undoubtedly observed the government. Indian will thus be able to meet the requirements of its domestic and industrial sectors, while increasing exports. (1 Photo).

49.15084

Clean coal technology for making Indian chemical industry competitive. MOHUNTA (DM), (M/s. Commercial, Chemical and Development Company, No. : 5 East Park Road, Shenoy Nagar, Chennai-600 030, India). (Chem. Wkly.; 60, 12; 2014, Oct., 28; 200-2).

Discusses in detail about the clean coal technology, which renders a pivotal role for achieving independence from the vagaries of geopolitics and state controlled monopolicies and the way, in which China is currently showing the way for it. (4 Fig.).

49.15085

Renewable chemistry : The potential for bio-based fuels & high value ingredients from algae. (Chem. Wkly.; 60, 4; 2014, Sep., 2; 213-8).

Algae plays an important role in the bio-based economy. Algae are efficiently cultivated in places that are unsuitable for agriculture and where nature is not harmed. Sustainable production of biodiesel, but also many other products such as proteins, colorants and raw material for bio-plastics is achievable. The production efficiency must be increased ten times and cost must be reduced ten times for achieving profitable cultivation of algae. In addition, besides oil for biofuel, other useful substances such as proteins must be extracted from the algae. (5 Ref.; 9 Tab.; 2 Fig.; 2 Photos).

49.15086

Fertiliser outlook : Gas availability and prices : Continuing concern for industry awaiting new policy. (Chem. Wkly.; 60, 11; 2014, Oct., 21; 209-12).

Discusses in detail about the various factors such as the healthy P&K (Phosphatic&potassic) sales growth despite delayed monsoon due to relatively lower system inventories and low base effect; delayed monsoon which is expected to lead to lower crop production; policy change for urea production beyond cut-off quantity to determine domestic production volumes; budget that increases subsidy allocation for fertilizer industry and the subsidy receivables which are likely to decline during FY15; gas allocation policy to lower fertilizer sector priority; the comprehensive fertilizer policy as well as some improvement in outlook as monsoon picks up pace in the second quarter of FY15 as well as the comprehensive fertilizer policy which is expected to touch on reforms that are awaited very soon. (3 Photos).

49.15087

Shifting feedstock mix-an opportunity for US PE buyers? SARAVANAN (V), (Research Analysis Division, M/s. Beroe Incorporation, Ground Floor, ASV Chandilya Towers, Nehru Nagar, 1st Main Road, Rajiv Gandhi Salai (Old Mahabalipuram Road), Okkiyam Thoraipakkam, Chennai-600 097, India). (Chem. Wkly.; 60, 6; 2014, Sep., 15; 223-7).

Analysed the impact, of the shift in feedstock case in the packaging industry. Highlighted the possible shift in polyethylene(PE) margins, trade flow pattern and emergence of a new pricing mechanism. This will help PE buyers to devise their sourcing strategy through better understanding of systematic parameters like (a) Current feedstock use; (b) emerging trend; (c) impact of raw materials; (d) future of the US PE market; (e) shift in competitiveness and (f) possibility of natural gas based pricing mechanism etc. The changing trend in raw-materials have an impact on the US, Europe and LATAM PE industry and necessitates buyers to take a relook into their sourcing strategy, contract pricing mechanism and buying pattern. (7 Ref.; 1 Tab.; 6 Fig.; 2 Photos).

49.15088

Green chemistry : driving pharma profits & environmental improvements. SHAH (V), (M/s. Piramal Enterprises Limited, 10th Floor, Piramal Tower, Ganpatrao Kadam Marg, Lower Parel, Mumbai-400 013, India). (Chem. Wkly.; 60, 9; 2014, Oct., 7; 203-9).

Green chemistry plays an important role in helping the pharmaceutical and drug industries to achieve their environmental target and delivers economic benefits. Many pharmaceutical companies have at present begun investing in R&D to develop and employ green synthetic strategies wherever possible. Even companies in the contract research and manufacturing services(CRAMS) segment have currently steadfastly started working on employing green chemistry principles, including calculating the E-factor to measure the waste generated, maximizing the use of bio- or chemo-catalysis for asymmetric synthesis and understanding the atom economy of the process during route scouting or the route selection stage itself. CRAMS players are currently keen to use reagents and reaction conditions that are as safe, environmentally friendly and scalable as possible. Further, internal process research programmes in these companies aim to achieve Green Chemistry by Design(GCSD), where syntheses are designed based on safety, environment, legal, economics, control and throughput(SELECT) criteria and the emphasis is placed on reducing the number of steps and developing safe and scalable approaches, thus leading to greener processes. Many companies can evaluate the new environmentally friendly routes on a case-by-case basis, based on the economic benefits they provide even though it is found to be an uphill task for many pharmaceutical companies to develop and adopt these routes utilizing green chemistry for existing drugs. The industry can also look at adopting green chemistry routes during the drug development stage itself. This will be a sound and environmentally prudent business practice, as it decreases the E-factor on an ongoing basis. (19 Ref.; 1 Tab.; 7 Fig.).

49.15089

The identity of leather. Luxury in the leather industry. AMBERG (B), (World Leather; 27, 5; 2014, Oct./Nov.; 43-5).

Defines the term viz. :"Luxury" and discusses its effects on the leather industry in a speech. (1 Photo).

49.15090

Fair game.SETTER (S), (Leather Int'l; 216, 4845; 2014, Oct.; 14-5).
The firm that just come out on top before moving on to discuss the practices of waste leather within manufacturing as a cluster of the leather industry's top exhibitions clashing together through the later months of the year. (1 Photo).

49.15091

Innovation and IPR.SHAH (V), (Vision Consulting Group, No. : 201, Darvesh Chambers, No. : 743 PD Hinduja Road, Khar Road, Mumbai-400 052, India). (Chem.Wkly.; 60, 10; 2014, Oct., 14; 215-8).

Intellectual Property Rights(IPR), which was initially a tool to encourage innovation, is now shifting it, as it is creating "legal monopolies" globally. Strong IPR are preventing new technologies from disseminating to less developed and developing countries, despite the Trade Related Intellectual Property Rights(TRIPS) agreement. This will be an increasingly deliberating factor over the next five years. Governments in developing and less developed countries must reduce IPR. Stressed the necessities of coordination, not harmonization, in IPR; distinctions that should have to be made between developed countries and developing and less developed countries acknowledging that the global optimal level of protection requires international coordination and not harmonization. Indicated the proponents of strong IPR in all countries that fail to recognize the benefits experienced by industrialized countries of adopting a weaker IPR protection in earlier stages of their development.

49.15092

Nothing to hide :The meat of the matter-Part 5. HADLEY (P), (World Leather; 27, 5; 2014, Oct./Nov.; 12-5).

It is argued that the combination of the factors such as the ethical sourcing, animal welfare and social responsibility has left the present producers and buyers of leather with a challenging set of conditions as there is heightened interest in this combination but at the same time, the global picture of livestock farming and meat supply and demand is changing. (4 Ref.; 1 Tab.; 2 Photos).

RAW HIDES AND SKINS

49.15093

Tribasic copper chloride : A micronutrient in animal feed. MOHANAN (PK), (Research & Development Division, M/s. Biota Agro Solutions (Private) Limited, No. : V/894, Kuttikattukara, Kochi - 683 504, Kerala State, India). (Chem. Wkly; 60, 35; 2015, Apr., 7; 211-3).

Explains well about the importance of copper as a micronutrient in animal feed. Most of the animal feed manufacturers were using copper sulphate as a source for copper in animal feed until recently. Gives the demerits of copper sulphate in detail. The invention of tribasic copper chloride(TBCC) in 1994-95 has replaced copper sulphate in animal feed to a great extent, because of its extra-ordinary benefits and lack of demerits. Highlights a new process, that has been developed for making TBCC using different raw materials. (6 Ref.; 1 Tab.; 2 Photos).

49.15094

Preservation of goat skin using *Tamarindusindica* leaf extract-Green process approach.TAMIL SELVI (A), KANAKARAJ (J), SARAVANAN (P), BRINDHA (V), SENTHILVELAN (T), (Leather Processing Division, Council of Scientific and Industrial Research-Central Leather Research Institute(CSIR-CLRI), Adyar, Chennai-600 020, India). (J. Soc. Leather Technol. Chem.; 99, 3; 2015, May-Jun.; 107-14).

Preservation of animal skin using common salt is widely followed globally and has been in vogue since time immemorial. Salt used for preservation is discharged along with the soak liquor and contributes to 70% of total dissolved solids (TDS) load from leather manufacturing. Studied the plant based preservation with *Tamarindusindica* as an attempt to reduce chloride and TDS. Applied the different concentrations of salt and tamarind leaf extract on freshly flayed goatskins based on its green weight and compared with control(40% salt alone/kg of skin weight). Sensory evaluation of the preserved skin was done every day(till 21st day) for small, hair slip and putrefaction. The samples were collected on 1st, 2nd, 3rd, 7th, 14th and 21st day and tests such as moisture content, total nitrogen content, protein content, hydroxyproline content and microbial load for finding out the curing efficiency. Processed the skin those were preserved for 21 days and examined the leather and properties. The result showed that 15% salt with 15% *Tamarindusindica* and 10% salt with 15% *Tamarindusindica* (Test) showed good preservation systems. (47 Ref.; 7 Tab.; 3 Fig.).

PROTEINS AND COLLAGEN

49.15095

Progress of application and chemical modification of biomass collagen : A review. WANG (X), REN (L), QIANG (T), GUO (P), ZHANG (F), (College of Resource and Environment, Shaanxi University of Science and Technology, No. : 6 Xuefu Road, Weiyang District, Xi'an 710021, Shaanxi Province, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 5; 2015, Sep.-Oct.; 216-22).

As an animal biomass resource, collagen not only has rich sources, but is also an important component of animal skins. Summarizes the structure and functional characteristics of collagen.Reviews the latest achievements on molecular assembly modifying methods for collagen cross-linking groups and graft copolymerization modifications.Summarizes also the applications of modified collagen in the fields of leather, paper making, cosmetics, biomedical material and food industry etc. Additionally, states the prospect of the application in the leather industry. (48 Ref.;5 Fig.).

ENZYMOLOGY

49.15096

A way to reduce injury to skin in enzymatic unhairing. SONG (J), TAO (W), CHEN (W), (The Key Laboratory of Food Colloids and Biotechnology, Ministry of Education, School of Chemical

and Material Engineering, Jiangnan University, No. : 1800 Lihu Avenue, Wuxi 214122, Jiangsu Province, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 3; 2015, May-Jun.; 115-9).
Enzymatic unhairing is a cleaner production method. However, the main difficulty which hinders the utilization of protease in unhairing is the injury to skin caused by the protease. Describes the purified collagenase from the protease (2709). The particular collagenase is a metalloprotease which is inhibited by EDTA(Ethylenediaminetetraacetic acid). On the other hand, 2709 itself is a serine protease which is insensitive to EDTA. A way to reduce the injury to skin was put forward. The protease(2709) retains 90.5% of the proteolytic activity and the unhairing capacity of 2709 has little loss when 10 mM EDTA is added to crude enzyme solutions of 2709. At the same time, 2709 loses 66.9% of the collagenolytic activity since the collagenase is inhibited by EDTA. Therefore, the injury to skin will be reduced. (29 Ref.; 4 Tab.; 3 Fig.).

49.15097

Towards sustainable leather production : Vegetable tanning in non-aqueous medium. BHARGAVI (NRG), JAYAKUMAR (GC), SREERAM (KJ), RAGHAVA RAO (J), BALACHANDRAN UNNI NAIR, (Council of Scientific and Industrial Research-Central Leather Research Institute(CSIR-CLRI), Adyar, Chennai-600 020, India). (J. Am. Leather Chem. Assoc.; 110, 4; 2015, Apr.; 97-102).

Describes the process of stabilizing the skin collagen against denaturation under heat, enzymes, stress etc. popularly described as tanning is carried out either using metal ions(predominantly Cr**(III))** or vegetable tannins derived from plant sources rich in polyphenols. Conventional leather processing is carried out in aqueous medium and hence the tannins have been extracted into water, sulfide to increase water solubility and then sold as spray dried extracts. Classical drawbacks include the low resistance of the extracts to bacteria and fungi, copious quantities of water required for extraction and tanning etc. Looks at paradigm shift from water extraction of tannins to solvent based extraction, followed by leather processing in solvent in an attempt to make the leather processing sustainable and taking cue from other economically viable methods for tannin extraction. The results presented with ethanol as the green solvent highlights the significance of the developed method, in not only enhancing tannin to non-tannin ratio(T/NT), but also improving thermal stability of the tanned collagen at microscopic rat tail tendon(RTT) and macroscopic leather level. (15 Ref.; 4 Tab.; 12 Fig.).

POST-TANNING

FINISHING

49.15098

Sampling- is not gambling(exit grab sampling). ESBENSEN (KH), WAGNER (C), (Geological Survey of Denmark/Aalborg University, Fredrik BajersVej 5, 9100 Aalborg, Denmark). (Spectrosc.Europe; 27, 4; 2015; 27-9). Presents the samples of examples of gambling rather than proper sampling. Discusses the grab sampling and demand that this approach is rejected with extreme prejudice-naming it as a technique based on hope rather than knowledge. (1 Ref.; 6 Fig.).

LEATHER CHEMICALS AND AUXILIARIES
49.15099

Knoevenagel condensation of isatin with nitriles and 1, 3-diketones. RIYAZ (Sd), INDRASENA (A), NAIDU (A), DUBEY (PK), (Department of Chemistry, College of Engineering, Jawaharlal Nehru Technological University, Kukatpally, Hyderabad-500 085, Telengana State, India). (Indian J. Chem. – Section B (Organic including Medicinal); 53B, 1; 2014, Jan.; 120-3).

Discusses the Knoevenagal condensation of isotin 1 with some nitriles 2 and with cyclohexane-1,3-diones 4 using piperidinium acetate as catalyst in water at 100°Centigrade results in the formation of á,â–unsaturated products, i.e. 2-(2-oxo-1,2-dihydro-indol-3-ylidene)-malonitriles 3 and 5-dimethyl-2-(2-oxo-1,2-dihydro-indol-3-ylidine) cyclohexane-1,3-diones 5 respectively. Establishes the structures of products by infrared(IR), ^{1}H nuclear magnetic resonance(NMR) and mass spectroscopy(MS). (11 Ref.; 3 Tab.; 2 Schemes).

49.15100

Chlorambucil and ascorbic acid-mediated anticancer activity and hematological toxicity in Dalton's ascities lymphoma-bearing mice. KALITA (S), VERMA (AK), PRASAD (SB), (Cell and Tumor Biology Laboratory, Department of Zoology, North-Eastern Hill University, Umshing-Mawka Mawkynroh, Shillong 793 022, Meghalaya State, India). (Indian J. Exp. Biol.; 52, 2; 2014, Feb.; 112-24).

Describes chlorambucil as an anticancer drug with alkylating and immunosuppressive activities. It was aimed at to explore the modulatory effect of ascorbic acid on therapeutic efficacy and toxicity induced by chlorambucil by considering various reports on the possible antioxidant/protective functions of ascorbic acid(vitamin C). Dalton's ascites lymphoma tumor serially maintained in Swiss albino mice were used for the present experiments. The result of antitumor activity showed that combination treatment with ascorbic acid and chlorambucil exhibited enhanced antitumor activity with 170% increase in life span(ILS), which is significantly higher as compared to chlorambucil alone(ILS 140%). Analysis of apoptosis in Dalton's lymphoma tumor cells revealed a significantly higher apoptotic index after combination treatment as compared to chlorambucil alone. Blood hemoglobin content, erythrocytes and leukocytes counts were decreased after chlorambucil treatment, however, overall recovery in these hematological values was noted after combination treatment. Chlorambucil treatment also caused morphological abnormalities in red bloodcells, majority of which include acanthocytes, burr and microcystis. Combination treatment of mice which ascorbic acid plus chlorambucil showed less histopathological changes in kidney as compared to chlorambucil treatment, alone, thus, ascorbic acid is effective in reducing chlorambucil-induced renal toxicity in the hosts. The administration of ascorbic acid in combination with chlorambucil may be recommended on the basis of the results, for further development, hopefully into the clinical usage. (79 Ref.; 2 Tab.; 37 Fig.).

49.15101

Silica-supported boric acid catalyzed synthesis of dihydropyrimidin-2-ones, bis(indolyl) methanes, esters and amides. VISHAL KUMAR, CHITRA SINGH, SHARMA (U), VERMA (PK), BIKRAM SINGH, NEERAJ KUMAR, (Natural Plant Products Division, Council of Scientific and Industrial Research-Institute of Himalayan Bioresource Technology(CSIR-IHBT), Post Box No. : 6, Palanpur – 176 061, Himachal Pradesh State, India). (Indian J. Chem.-Section B(Organic including Medicinal); 53B, 1; 2014, Jan.; 83-9).

Discusses the establishment of Silica-supported boric acid (H_3BO_3-SiO_2) as a green, efficient and recyclable catalyst for the synthesis of dihydropyrimidin-2-ones, bis(indolyl) methanes and acetylation of alcohols, phenols, amines and thiols under solvent free conditions. The main features of the present method include clean reaction, mild conditions, low loading of environment friendly catalyst and easy workup procedure. The catalyst can be recycled at least five times without any significant loss in activity. (20 Ref.; 3 Tab.; 2 Fig.;2 Schemes).

49.15102

An approach for conversion of retinoid acid to retinylretinoate using dehydroretinol. DAS (L), BHAGAWATI (B), SARKAR (CR), GOSWAMI (BC), (Department of Chemistry, Gauhati University, GopinathBordoloi Nagar, Guwahati-781 014, Assam State, India). (Indian J. Chem.-Section B(Organic including Medicinal); 53B, 1; 2014, Jan.; 111-4).

Describes retinoic acid as highly effective against photo aging. But its carboxyl end group results in a number of side effects. Attempts the development, of a derivative of retinoic acid without carboxyl group using 3,4-didehydroretinol, 3,4-Didehydroretinol is purified from a natural source of Wallayoattu fish liver for overcoming the above indicated difficulty. Both retinoic acid and didehydroretinol are allowed to react in presence of *N,N*-carbonyl diimidazole and dimethyl amino pyridine. The yield of the purified product retinylretinoate is 55% with respect to didehydroretinol. The purified product is characterized to the help of ultraviolet-visible(UV-vis) spectrophotometer, high performance liquid chromatography (HPLC), Liquid chromatography-mass spectrometry (LC-MS) and nuclear magnetic resonance (NMR)spectra. It is a new hybrid compound containing both retinoid acid and didehydroretinol. (12 Ref.; 2 Fig.; 1 Scheme).

49.15103

A novel assay method for calcium calmodulin dependent phosphatase from bovine brain extract. DEVARAJU (KS), MOHAN KUMAR (BS), SURESH BABU (SV), GOPI (A), SARASWATHI (R), HARISH (BM), (Department of Neurochemistry, National Institute of Mental Health and Neurosciences(NIMHN), Hosur Main Road, Lakkasandra, Wilson Garden, Bengaluru-560 029, Karnataka State, India). (Indian J. Exp. Biol.; 52, 2; 2014, Feb.; 168-74).

Describes the calcium calmodulin dependent protein ser/thr phosphatase also referred to as protein phosphatase 2B(PP2B), is rich in neural tissue and which plays an important role in the overall function of the nervous system. Routinely phosphase assay employs, para-Nitrophenylphosphate(p-NPP), as a substrate, is also extended to assay PP2B. However, here, the differential spectral characteristic property of tyrosine and phosphotorosine has been exploited to employ the latter as a candidate substrate for the PP2B assay. The specific activity of PP2B using phosphotyrosine in bovine *Bos Taurus indicus* brain extract(*Bos Taurus indicus*), was measured in presence of different metal ions like Ca^{2+}, Mn^{2+} and Mg^{2+}. Further modulators like dithiothreitol(DTT), calmodulin(CaM) and metal chelators such as ethylene glycol tetraacetic acid(EGTA) and ethylenediaminetetraacetic acid(EDTA) were applied to confirm the role of divalent cations and to determine calcium calmodulin dependent phosphatase activity. PP2B activity was higher with phosphotyrosine in presence of Ca^{2+} than with p-NPP. Further experiments, involving calmodulin as a modulator, confirmed phosphotyrosine as a better substrate over p-NPP. Calmodulin further enhanced the effect of phosphotyrosine as a potential substrate confirming calcium calmodulin dependent phosphatase activity, Phosphotyrosine is proposed as a better substrate in assaying dependent phosphatase activity when compared to para-nitrophenylphosphate. (22 Ref.; 9 Fig.).

49.15104

Simultaneous reductive azo cleavage and nucleophilic addition of pyridyl imide to coordinated CO in a ruthenium complex. Isolation and characterization of new carbamoyl complexes. CHATTERJEE (I), GHOSH (P), DATTA (H), GOSWAMI (S), (Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, No.: 2A&2B, Raja S.Chandra Road, Kolkata-700 032, India). (Indian J. Chem.; 52A, 1; 2014, Jan.; 27-33).

Discusses the reactions of $Ru_3(CO)_{12}$ with 2-(arylazo)pyridines(L^{1a-c}) in boiling toluene afford the violet complexes, $Ru^{II}(L^{1a-c})(L^2)(CO)cl(1a-c)[L^2]^-$=N-(pyridine-2-yl)formamide. This reaction exemplifies an unusual transformation, where in the anionic bidentate ligand$[L2]^-$ is formed by the nucleophilic attack of phenyl imide fragment(formed *in situ* by the rupture of –N=N-) on coordinated carbon monoxide. The Ru-carbamoyl complexes are characterized by X-ray crystallographic structure analysis of one of a representative complex(1b), nuclear magnetic resonance (NMR) spectra, cyclic voltammetry (CV), ultraviolet-visible spectroscopy (UV-vis-S), electron paramagnetic resonance spectroscopy (EPRS) and density functional theory(DFT).The complexes display one reversible cathodic response near -60V along with an irreversible anodic response near 1. 40V. The response at cathodic potential is due to reduction of the coordinated azo-function while that in anodic potential is presumably due to oxidation of Ru^{II}-center. The reversible reductive process is characterized by electron paramagnetic resonance (EPR) spectroscopy. Employed the DFT calculations to confirm structural features and to support their spectral and redox properties. (27 Ref.; 3 Tab.; 6 Fig.; 3 Schemes).

49.15105

*p*H-driven structure modulations in cobalt(**II**) coordination polymers constructed from 2,2'-bipyridine-5,5'-dicarboxylic acid. BHATTACHARYA (D), (Chemistry and Biomimetic Group, Council of Scientific and Industrial Research-Central Mechanical Engineering Research Institute(CSIR-CMERI), Mahatma Gandhi Avenue, Durgapur-713 209, West Bengal State, India). (Indian J. Chem.; 53A, 1; 2014, Jan.; 46-51).

Describes two new Co(**II**) coordination polymers, viz. [{Co(bpdc)(H_2O)}.CH_3OH] and [Co(bpdc)$(H_2O)_3$](H_2bpdc=2,2'-bipyridine-5,5'-dicarboxylic acid) are obtained in quantitative yields from the reaction of $CoCl_2 \cdot 6H_2O$ and H_2bpdc in a water-rich environment in the presence of KOH at ambient temperature. While at *p*H=5, compound(2) showing a 1 dimension(1D) zigzag chain is obtained, at *p*H=2, compound(1) is obtained which has a 2D rhombic grid-work from 2 sets of parallel{Co(H_2O)(bpdc)} chains which cross at the Co(**II**) sites at an angle of 70° with (4,4)-topology. Hence, the *p*H of the solution is found to be an important factor in determining the coordination mode and dimensionality in the self-assembly of Co(**II**) and H_2bpdc under mild conditions. (47 Ref.; 3 Tab.; 5 Fig.; 2 Schemes).

49.15106

An improved procedure of Miyashita protocol for the preparation of ureidomethylene derivatives of 1,3-dicarbonyl compounds. MAJEE (A), KUNDU (SK), SANTRA (S), HAJRA (A), (Department of Chemistry, Visva-Bharati(A Central University), Santiniketan-731 235, Bishnubati Village, Bolpur District, West Bengal State, India). (Indian J. Chem.-Section B : (Organic including Medicinal); 53B, 1; 2014, Jan.; 124-6).

Describes the development, of a facile method for the synthesis of ureidomethylene derivatives by the condensation of 1,3-dicarbonyl compounds, urea and trimethylorthoformate in presence of $Zn(OTf)_2$ under solvent-free conditions. A variety of 1, 3-dicarbonyl compounds undergo this reaction to yield the corresponding ureidomethylene derivatives in good yields. Methyl substituted ureas also give the condensation product under similar reaction conditions. (3 Ref.; 2 Tab.; 4 Schemes).

49.15107

Electrocatalytic oxidation of ascorbic acid by immobilized silver nanoparticles on self-assembled L-cysteine monolayer modified gold electrode. BARMAN (K), JASIMUDDIN (Sk), (Department of Chemistry, Assam University, Silchar-788 011, Cachar District, Assam State, India). (Indian J. Chem.; 53A, 1; 2014, Jan.; 57-61).

Reports the electrocatalytic oxidation of ascorbic acid in phosphate buffer solution(*p*H 7.0) by immobilized silver nanoparticles(Ag@CTAB) on L-cysteine modified electrode. The modified electrode has been characterized electrochemically using redox couple $[Fe(CN)_6]^{3-/4-}$. Studied the electrocatalytic activity of the prepared electrodes using cyclic voltammetry and electrochemical impedencespectroscopy(EIS). Electrochemical measurements show that the modified electrode(Au/L-cysteine/AgNPs) is highly active towards ascorbic acid oxidation. The oxidation peak of ascorbic acid at the Au/L-cysteine/AgNPs electrode is highly stable upon repeated potential cycling. The oxidation current of ascorbic acid increases upon each increment(0.05-0.35 ìM) in differential pulse voltammetry experiments. The oxidation current shows a linear relationship with the concentration of ascorbic acid with a correlation coefficient of 0.996. The detection limit of ascorbic acid was found to be $2X10^{-12}$*M*. Common physiological interferents such as glucose, tartaric acid, nitric acid and cysteine do not show any interference within the detection limit of ascorbic acid. The silver nanoparticles modified gold electrode has been used to determine the amount of ascorbic acid present in fruit and vegetable juices. (36 Ref.; 1 Tab.; 4 Fig.).

49.15108

On the primary yield of radical products of anodic contact glow discharge electrolysis. SRIVASTAVA (Y), JAISWAL (S), PRAKASH SINGH (O), GUPTA (SKS), (Department of Chemistry, Faculty of Science, Banaras Hindu University, Varanasi-221 005, Uttar Pradesh State, India). (Indian J. Chem.; 53A, 1; 2014, Jan.; 62-5).

Investigated the scavenging effects of Fe^{2+}(Iron(**II**) on OH(Hydroxide)* and H_2O_2(Hydrogen peroxide) generated by anodic contact glow discharge electrolysis(CGDE) in acidic media. Analysis of a kinetic scheme involving competing reactions of OH* with different species in a Fe^{2+} containing system leads to a primary yield of 11 molecules(molecule electron)$^{-1}$ each for OH* and H* each in the liquid phase reaction zone of anodic CRGE. This value agrees well with the yields reported. earlier involving H* and other OH* scavengers and thus may be accepted as a reliable measure of the primary radical yield of anodic CGDE. A comparison with the radiolytic yield of radicals suggests that the average energy of gaseous H_2O^+(water) ions bombarding the liquid H_2O(water) molecules and producing the radicals is subsequently above 100 eV. (46 Ref.; 1 Tab.; 2 Fig.).

49.15109

Organoselenium compounds based on substituted acetanidides : synthesis, characterization and antioxidant activity. PHADNIS (PP), HODAGE (AS), PRIYADARSINI (KI), JAIS (VK), (Chemistry Division, Bhabha Atomic Research Center(BARC), Trombay, Mumbai-400 085, India). (Indian J. Chem.; 53A, 1; 2014, Jan.; 34-40).

Discusses the synthesis and characterization, of a series of organoselenium compounds based on substituted acetanilides of compositions, $Se\{CH_2)_nCONHC_6H_4X\}_2$($n$=1,2) and $(SeCH_2CH_2CONHC_6H_4X)_2$(X=OH/$NH_2$), by microanalyses, Infrared(IR), nuclear magnetic resonance(NMR)(^1H,$^{13}C\{^1H\}$, $^{77}Se(^1H\})$ spectroscopy and mass spectrometry. Evaluated the antioxidant activity of these compounds against 1,1-diphenyl-2-picryl-hydrazyl(DPPH) radicals in vitro. Some of these compounds exhibit better inhibition of DPPH radicals than standard butylated hydroxyl toluene(BHT). The selenide, analogous to paracetamol, (p-$HOC_6NHCOCH_2)_2Se$, exhibits the highest antioxidant capacity in a given series. (33 Ref.; 1 Tab.; 1 Fig.; 2 Schemes).

49.15110

Chitosan-pectin-alginate as a novel scaffold for tissue engineering applications. ARCHANA (D), UPADHYAY (L), TEWARI (RP), DUTTA (J), HUANG (YB), DUTTA (PK), (Department of

Chemistry, Motilal Nehru National Institute of Technology, Teliarganj, Allahabad-211 004, Uttar Pradesh State, India). (Indian J. Biotechnol.; 12, 4; 2013, Oct.; 475-82).

Describes the chitosan-pectin, chitosan-alginate and chitosan-pectin-alginate scaffolds were prepared by freeze-drying technique. The physico-chemical characteristics of the scaffolds were characterized by fourier transform infrared(FTIR) and scanning electron microscopy(SEM). Evaluated the biological activities like antibacterial assessment, swelling behavior, biodegradation and cytotoxicity study of the prepared scaffolds. The results show high swelling property, good mechanical strength, moderate biodegradable properties, excellent antibacterial activity and cell-viability for chitosan-pectin-alginate ternary scaffold. Hence, it can be served as a potential material for tissue engineering applications. (22 Ref.; 1 Tab.; 14 Fig.).

49.15111

A common HPLC-PDA method for amino acid analysis in insects and plants. DHILLON (MK), SANDEEP KUMAR, GUJAR (GT), (Division of Entomology, Indian Agricultural Research Institute(IARI), Hill Side Road, Pusa Campus, New Delhi-110 012, India). (Indian J. Exp. Biol.; 52, 1; 2014, Jan.; 73-9).

Describes a common method for analysis of 17 amino acids from various insect species and plant parts that was standardized using high performance liquid chromatography-photodiode array detector(HPLC-PDA). Prior to hydrolysis, lyophilization of test samples was found indispensable to remove excess moisture, which interferes in hydrolysis and separation of amino acids. 500 and 100 ìL of boiling hydrochloric, respectively for reconstruction and 20 ìL of hydrolyzed samples used for derivatization, after the hydrolysis of plant and insect samples thus provided best results. Gradient profile of mobile phase and run time up to 65 minutes were standardized to (i) overcome the problems related to eluting underivatized sample part, (ii) optimize the use of mobile phase and run time and (iii) get better separation of different amino acids. Analysis of Chilopartellus larvae reared on sorghum seeding powder based artificial diet indicated that arginine and histidine quantities were on par in both samples. However, methionine was higher and leucine, isoleucine, lysine, phenylalamine, threonine and valine were lower in sorgham seedlings than in Chilopartellus larvae, suggesting compensation of the amino acids by the insect through voracious feeding, as is being expected from artificial diet. This method was found highly sensitive, reproducible and useful for the analysis of amino acids for better understanding of insect-plant interactions. (32 Ref.; 1 Tab.; 7 Fig.).

49.15112

Gene flow and estimation of loss of genetic assortments in cultured and wild genotypes of *Catlacatla*(Hamilton, 1822), M.P., India. GARG (RK), BATTAV (N), SILAWAT (N), SINGH (RK), (Center of Excellence in Biotechnology(CEB), Madhya Pradesh Council of Science and Technology(MPCST), VigyanBhavan, Nehru Nagar, Bhopal-462 003, Madhya Pradesh State, India). (Scitech J.; 1, 1; 2014, Jan.; 20-4).

Aims for an elucidation, of gene flow and genetic variability among and within wild(n=07) and cultured genotypes(n=15) of *Catlacatla*. Obtained a total of 103 distinct deoxyribonucleoroacid(DNA) fragments ranging from 100-1678 kb by amplification 06 selected random amplified polymorphic DNA-polymerase chain reaction(RAPD-PCR) primers. Genetic differentiation (G_{ST}) among the populations was found to be GST=0.2778, estimated gene flow between population(N_m=1.3001, intra-population heterozygosity (H_s=0.289±0.0155) and total heterozygosity (H_z=0.43280.0112) clearly reflecting high genetic polymorphism. However, population wise, the genetic analyses in hatchery raised population indicated lower genetic polymorphism(P) as 81.48% as compared to wild population(90.74). Nei's gene diversity (h) observed as 0.303±0.1868 in foral population. The results indicates that compared to wild stock, the genetic changes including reduced genetic diversity have taken place in hatched stocks as shown by allele richness and heterozygosity studies as well as pairwise GST analyses. (42 Ref.; 3 Tab.; 3 Fig.).

49.15113

Effect of neodymium on the growth of sulphamic acid single crystal. KANNAN (B), SESHADRI (PR), MURUGAKOOTHAN (P), ILANGOVAN (K), (Post Graduate and Research Department of Physics, A.M. Jain College, Meenambakkam, Chennai-600 114, India). (Indian J. Sci. Technol.; 7, 2; 2014, Feb.; 221-5).

Describes the growing crystals that increase, day by day due to their remarkable applications. Witnessed an interest, on investigating the effect of the dopant in the crystal structure and general characterization of pure SulphamicAcid(SA) single crystal. Hence, confirmed the neodymium doped Sulphamicacid(Nd : SA) single crystal was grown by low temperature solution growth method. The presence of neodymium in the grown crystal by EDAX(Energy Dispersive Analysis of X-rays) spectrum. Determined the cell parameters of the grown crystal by single crystal-ray diffraction.Analyzed the functional groups of the grown crystal by fourier transform-infrared (FT-IR) study. Performed the thermal and ultraviolet-visible near infrared resonance(UV-vis-NIR) transmission studies to know the thermal and optical behaviours of the grown crystal. Confirmed the nonlinear optical behavior by Kurtz-Perry powder technique. (9 Ref.; 2 Tab.; 7 Fig.).

49.15114

Solid/liquid separation through cake filtration. ANLAUF (H), (Karlsruhe Institute of Technology (KIT), Institute of Mechanical Process Engineering (IMPE), Bereich Angewande Mechanik, Bauingenieur-Kollegiengebaude III, Geb. 50.31, Gotthard-Franz-Strasse 3, 7613 Karlsruhe, Germany). (Chem. Wkly.; 59, 23; 2014, Jan., 14; 207-13).

Discusses the method of cake filtration, that offers a vast range of physical and technical possibilities, among the processes for mechanical separation of particles from liquids. (14 Ref.; 8 Fig.).

49.15115

Polymorphism : Challenges and opportunities. SATHISH KUMAR (N), (M/s. Technical Atra Labs Private Limited, No. : H-19, Maharashtra Industrial Development Corporation(MIDC), Waluj, Aurangabad-431 133, Maharashtra State, India). (Chem. Wkly.; 59, 13; 2013, Nov., 5; 217-22).

The term "polymorphism" has been derived from the Greek words poly=many, morph=form. Polymorphism is frequently defined as the ability of a substance to exist in two or more crystalline phases that have different arrangements and/or conformations of the molecules in the crystal lattice. Polymorphism does impact product development, clinical studies, product manufacturing, product quality and product stability. The large majority of manufacturing problems encountered in commercial scale manufacturing are related to the physical properties of the application programming interface(API) and/or excipients. These problems are caused by polymorphic changes. Thus the change management and validation in API manufacturing and product manufacturing should address its potential impact on the formation of the drug. (19 Ref.; 2 Tab.; 4 Fig.; 1 Photo).

49.15116

Molecular characterization of linear alkylbenzenesulphonate degrading *Pseudomonas nitroreducens*(MTCC 10463) and *Psaerufinosa*(MTCC 10462). ASOK (AJ), JISHA (MS), (School of Biosciences, Mahatma Gandhi University, PriyadarshiniHills(PO), Kottayam-686 560, Kerala State, India). (Indian J. Biotechnol.; 12, 4; 2013, Oct.; 514-22).

Surfactants are surface active chemical compounds, which extensively used in various industrial and household formulations. Now-a-days, linear alkylbenzenesulphonate(LAS) is the most important anionic surfactant in use. The biodegrability of LAS is the main reason for acceptance as a major chemical in industrial applications. But the huge amount discharged upsets the efficient removal by biodegradation and its acute exposure pose harm to the environment. Conducted the studies on indigenous isolates capable of efficient LAS degradation and selected two strains of the genus*Pseudomonas* showing about 81% of LAS degradation. The biochemical and molecular characterization of the isolates were done in order to identify them. Identified the selected isolates as *Pseudomonas nitroreducens* (L9)(MTCC 10463) and *Pseudomonas aeruginosa* (L12)(MTCC 10462). The sequences generated in the 16S recombinant deoxyribonucleoroacid(rDNA) analyses were deposited in the National Center for Biotechnology Information(NCBI) Bank under the accession numbers HQ271083(L9) and HQ27054(L12). The role of plasmid in biodegradation was checked and it was found that genomic DNA and plasmid together code for the degradation capacity of the selected strains. Though the colony count was reduced at high LAS concentrations, selected isolates was able to withstand very high concentration of LAS(12000 rpm). The isolate showed diauxic growth in the presence of an alternative carbon source, such as dextrose. The selected strains were found to be two promising candidates for the bioremediation of the anionic surfactant LAS. (25 Ref.; 1 Tab.; 13 Fig.).

49.15117

Application of sustainable tannins with low carbon foot print. DIAZ (J), CASAS (C), SOROLLA (S), (Escuela de Ingeniería de Igualada, Plaza Rei 15, 08700 Igualada, Barcelona, Spain). (Aqeic Bol. Tecn.; 65, 2; 2014, Apr./May/Jun.; 57-70). (Spanish).

Currently, people are living in an 'eco-friendly boon' and this involves developing processes with less environmental impact and trying to make them as ecological as possible. That is the reason for carrying out this work. Aimed to use a vegetable extract as a sustainable source for the tanning process. This work considers the fruit of the Tara tree as a low carbon footprint raw material source for tanning agents and proposes alternatives to avoid the use of commercial vegetable extracts and mineral salts. Various designs have been developed for new tailored Tara tannins by chemical and physical modification, in order to obtain a higher percentage of tannins and therefore improve their tanning capability. Describes the development and optimization of the several aqueous extractions at different temperatures in chemical modifications in order to reduce the astringency and improve the penetration of the tannin molecules through the leather structure. The degree of hydrolysis has been controlled by means of the gallic acid content by high performance liquid chromatography(HPLC). The Tara has been milled and sieved at several particle sizes, with the purpose of obtaining a smaller molecular size in the physical modification part. Both chemical and physical modifications were tested in skin, in a wet white pretanning process, combining them with the fewest possible commercial vegetable extracts and syntans. The formulations have been optimized by experimental design.

49.15118

Oilfield production chemicals for sustained energy production-An overview. RADHAKRISHNAN (N), ROY (S), CHOUDHARY (S), GHOSH (S), (Oil Field Chemicals, Energy Services, Nalco Champion, Liberty Building, Sir VithalDasthakersey Marg, Bacbay Reclamation, Mumbai – 400 020, India). (Chem. Ind. Dig.; 26, 10; 2013, Oct.; 93-4&97-9).

Oilfield chemicals help maximize production and minimize assets. World wide increase in exploration and production related activities has significantly enhanced growth in the Oil Field Chemical(OFC). Discusses the various production related challenges and application of production chemicals to overcome them. (6 Fig.).

49.15119

Fatty oil biosynthesis in oleaginous yeast. RAJASEKHARAN (R), (Council of Scientific and Industrial Research-Central Food Technological Research Institute(CSIR-CFTRI), Cheluvamba Mansion, Opposite to Railway Museum, Mysore-570 020, Karnataka State, India). (Chem. Wkly.; 59, 24; 2014, Jan., 24; 209-11).

Stresses the importance, of understanding the biosynthetic pathway and its regulation for modifying the lipid composition with respect to the quality and quantity of triacylglycerol (TAG). Oleaginous yeast is one of the valuable resources for alternative, economical and healthy edible oil. A light is shed on the mechanism and regulation of triacylglycerol biosynthesis in oleaginous systems. (9 Ref.; 1 Fig.; 2 Photos).

49.15120

Callus induction and plant regeneration from leaf explants of jojba [*Simmondsiachinesis* (Link) Schneider]. SUNIL KUMAR, MANGAL (M), DHAWAN (AK), NARENDER SINGH, (Department of

Botany, Kurushetra University, Thanesar, Kurushetra-136 119, Haryana State, India). (Indian J. Biotechnol.; 12, 4; 2013, Oct.; 544-7).

Describes an efficient micropropagation protocol involving callus induction and short regeneration has been standardized in *Simmondsiachinensis*, an oil yielding, medicinal and multi-purpose plant species. Higher percent of callus proliferation(97.3%) was obtained from leaf explants, taken from field grown mature plant, when cultured on MS (Murashige and Skoog) medium supplemented with 2,4-D(2.0 mg L^{-1})+BAP(0.5 mg L^{-1})+CH (Chronarch) (100 mg L^{-1}) within 20-22 diameter of inoculation. The callus was yellowish green in color and soft in texture. Further, optimum shoot regeneration was obtained from the leaf derived callus on MS medium fortified withBAP (6-benzylaminopurine) (2.0 mg L^{-1})+NAA (acnaphthaleneacetic acid) (0.5 mg L^{-1})+GA_3(Gibberellic acid) (0.3 mg L^{-1}). About 92% cultures responded with an average number of 9.1 shoots per culture. The shoots obtained via callogenesis were rooted on half-strength agar-solidified MS medium supplemented with IBA(1.0 or 2.0 mg L^{-1}). The medium containing2-5 mg L^{-1}IBA(Indole-3-Butyric acid) was the best for rooting of shoots. The rooted shoots were transplanted to soil with 75% success. The protocol will be of immense importance in rapid mass multiplication of elite germplasm, as well as for conservation of this important species. (13 Ref.; 3 Tab.; 6 Fig.).

49.15121

Fermentation variable for the fermentation of glucose and xylose using *Saccharomyces cerevisiae Y-2034* and *PachysolantannophilusY-2460.* KOCHER (GS), UPPAL (S), (Department of Microbiology, Punjab Agricultural University, Ferozepur Road, Near Vishal Mega Mart, Ludhiana-141 004, Punjab State, India). (Indian J. Biotechnol.; 12, 4; 2013, Oct.; 531-6).

The fermentation variables like temperature, *p*H and agitation were optimized by response surface methodology(RSM) algorithm, Design Expert 7.1 and a response quadratic model was generated that revealed a correlation between all these parameters and also provided 23 solutions for process validation. The effect of inoculum size revealed 5.0 and 2.5%(v/v) of *Saccharomyces cerevisiae* Y-2034 and *Pachysolantannophilus*Y-2460, respectively as optimumfor sequential fermentation under the optimized conditions. The optimization of sequential fermentation led to improvement in total ethanol yield from 20.61 to 22.24 g L^{-1}. (15 Ref.; 1 Tab.; 8 Fig.).

49.15122

A quantum chemical DFT/HF study on acidity constants of some benzothiazole and thiazole derivatives. TAY (F), DURAN (M), DEMIRAYAK (S), (Department of Chemistry, Faculty of Science and Letters, Eskisehir Osmangazi University, MeselikKampüsü, 26480 Eskisehir, Turkey). (Indian J. Chem. (Organic including Medicinal); 53B, 1; 2014, Jan.; 102-10).

Theoretically investigated the acid dissolution(Ka) constants of some 4- and/or 6-substituted-2-aminobenzothiazole compounds. Calculated the gas and aqueous phase geometries, thermal and solvation free energies with full geometry optimization by using Hartree-Feck(HF)(6-31G(d) and B3LYP(6-31G(d)) methods for 2-aminobenzothiazole, 2-aminothiazole derivatives and their fixed models. From the calculated acidity constants of investigated compounds, it has been detected that the protonation occurs at the nitrogen atom of the amino group for 2-aminobenzothiazoles and at ring nitrogen atom for 2-aminothiazoles. Acceptable correlations have been observed between theoretically(HF-B3LYP) and experimental pKa values of the molecules with regression coefficients(R2=0.98, 0.86) and (R2=0.98, 0.85) for the protonation of benzothiazole and thiazole molecules, respectively. Theoretical calculations also show that basicity of the studied compounds increase in the presence of electron donor substituents. (48 Ref.; 5 Tab.; 8 Fig.).

FINISHING MATERIALS

49.15123

Emulating elegant emulsions-Part 1 : characteristics of emulsions. DIXIT (S), (Chem. Wkly.; 60, 41; 2015, May, 19; 201-6).
Defines the meaning of the term viz. : 'Emulsions' and 'Emulsifiers'. Discusses the different types and characteristics as well as the methods of preparing emulsions from concentrates. (4 Tab.; 3 Fig.).

49.15124

Emulating elegant emulsions-Part 2 : Emulsifiers : Types & Selection. DIXIT (S), (Chem. Wkly.; 60, 42; 2015, May, 26; 183-6).

Discusses the types, selections and the properties of the emulsifiers with special reference to the Hydrophile-lipophilebalance(HLB) and the HLB surfactant selection system with various steps. (2 Tab.).

49.15125

Emulating elegant emulsions-Part 3 : Emulsifiers : Manufacturers & analysis. DIXIT (S), (Chem. Wkly.; 60, 43; 2015, Jun., 2; 205-10).

Describes the emulsifiers that promote the ease of emulsion formation, stability etc. in emulsion formulations. Discusses the methods of preparing emulsions; determinations of types of emulsion and the analysis of the emulsions. (14 Fig.).

49.15126

Biobased films prepared from collagen solutions derived from un-tanned hides. LIU (C), LATONA (NP), TAYLOR (MM), ALDEMA-RAMOS (ML), (United States Department of Agriculture(USDA), Agricultural Research Service(ARS), Eastern Regional Research Center(ERRC), No. : 600 East Mermaid Lane, Wyndmoor, Pennsylvania 19038-8598, USA). (J. Am. Leather Chem. Assoc.; 110, 2; 2015, Feb.; 25-32).

Presents the recent findings for the conversion of limed and delimed bated hides into collagen films. The most important step for preparing a collagen film or fiber is its dissolution. Reports many solvent systems. The variables which affected film formation that had been studied were the concentration of collagen solution and the point of glutaraldehyde crosslinker during the costing of films. Presents also the preparation of collagen films, their resultant mechanical properties and their morphology by examination with scanning electron microscopy(SEM). (21 Ref.; 1 Tab.;22 Fig.).

LEATHER PROCESSINGMACHINES

49.15127

Doubleflow Gas Conductor(DGC) : A versatile gas-liquid Contactor-Reactor. PALEKAR (MG), (M/s. STEP Private Limited, Headquarters, No. : 1/C-1/Wing 1, Bindra Rose Society, Mahakali Caves Road, Andheri East, Mumbai-400 093, India). (Chem. Wkly.; 60, 41; 2015, May, 19; 211-5).

Indicates the utility of Downflow Gas Contactor(DGC) in a range of gas-liquid & liquid-liquid systems. Gives the introduction, concept, description, mode, advantages of DGC.Provides a list of major projects that have been completed so far by using the DGC. (2 Tab.; 1 Fig.;3 Photos).

LEATHER PROPERTIES. QUALITY CONTROL

49.15128

Effect of hyaluronic acid on the properties of chrome-tanned leather. SIDDIQUE (MAR), ANTUNES (APM), COVINGTON (AD), MAXWELL (C), GARWOOD (R), (Institute for Creative Leather Technologies, School of Science and Technology, University of Northampton, Boughton Green Road, Northampton NN2 7AL, Northamptonshire, Wales). (J. Soc. Leather Technol. Chem.; 99, 2; 2015, Mar.-Apr.; 58-69).

Discusses the elimination of hyaluronic acid from hides that takes place in the soaking stage in the presence of a neutral salt in conventional beamhouse operations. Investigated the impact of sodium chloride and sodium silicate(sodium metasilicate salt)-cured hides along with green hides in terms of removal of hyaluronic acid and also the opening up of fiber structure by scanning electron microscope(SEM) through beamhouse operations. Analyzed the residual hyaluronic acid in hide and pelt samples taken after each beamhouse operation through bio-chemical analysis assisted by ultraviolet-visible spectrophotometry. Investigated again the interaction of residual hyaluronic acid with chromium**(III)** in terms of chromium**(III)** in cross-sectional layers of chrome-tanned leather through SEM-energy x-ray spectroscopy(SEM-EDX) and also the hydrothermal stability of chrome tanned leather by differential scanning calorimetry(DSC). It was found that sodium chloride can remove hyaluronic acid completely in the soaking operation and facilitate good opening and splitting up of fiber structure, which enables good penetration and fixation of chromium**(III)** species with the purified collagen. In contrast, in the absence of a neutral salt, residual hyaluronic acid existed throughout the beamhouse operation, which resulted in poor opening and splitting up of fiber bundles and tatter inhibited the penetration of chromium**(III)** species in cross-sectional layers. As a result, comparatively lower hydrothermal stability was observed. Sodium silicate-cured hides did not provide satisfactory results in terms of removing the hyaluronic acid present in the hides, poor opening and splitting up of fiber structure also were observed and residual hyaluronic acid was identified even at pickle stage. As a result, the distribution of chromium**(III)** species at the cross-sectional layers varied widely and poor hydrothermal stability of tanned leather was additionally observed after chrome tanning. (40 Ref.; 3 Tab.;15 Fig.).

49.15129

Thermochromism for smart leathers. TAMILMANI (V), KANADASAN (D), MUTHAZHAGAN (R), SREERAM (KJ), RAGHAVA RAO (J), BALACHANDRAN UNNI NAIR, (Council of Scientific and Industrial Research-Central Leather Research Institute(CSIR-CLRI), Adyar, Chennai-600 020, India). (J. Am. Leather Chem. Assoc.; 110, 6; 2015, Jun.; 161-4).

Discusses about the leather industry which globally is poised for enhancing the unit value realization. With availability of new material remaining more or less constant, conferring customer desired smart properties to leather enhances the value of leather. It is also quite possible that such new features would enable leather to enter unexplored territories such as those envisaged for smarter textiles. An innovation in visual stimulus creates immediate appeal and utility, leading to consumer perception of owning it. A survey of such stimulus based innovations of immediate appeal to people indicated a preference to thermochromism-a reversible color change influenced by temperature. While such applications are predominantly associated with sensor applications, the same as a concept for leather has not yet emerged. Reports synthesis of a rare earth doped transition metal complex that had a color shift from pale pink to dark green in the temperature range of 200-210°Centigrade.This colorant would be applied through conventional finishing techniques on leather and is envisaged to have applications in safety products such as heat resistant gloves. (6 Ref.; 3 Tab.; 2 Fig.).

49.15130

Effect of chrome content in the chrome tanning liquid of the leather tanning machine on the properties of leather. YANG (C), CHEN (J), LIU (H), JIA (J), (China Leather & Footwear Industry Research Institute, No. : 18 Jiangtai West Road, Chaoyang District, Beijing 100016, China). (J. Soc. Leather Technol. Chem.; 99, 1; 2015, Jan.-Feb.; 33-8).

Studied the effect of chrome content in chrome tanning liquid on the physical and mechanical properties of leather when using the specially designed leather tanning machine and characterized the leather by EDS(Energy Dispersive X-ray Spectroscopy) and SEM(scanning electron microscopy).The results showed that, considering the chrome content in leather and the physical and mechanical properties of leather, the best chrome content in the chrome tanning liquid was 1 kg/L. The EDS results showed that the distribution of chrome in leather was relatively uniform.The SEM results showed that the collagen fiber dispersion of leather tanned with the leather tanning machine was better than the leather tanned by drum. (17 Ref.; 1 Tab.; 15 Fig.).

49.15131

Damage of pickled hides, wet-blue leather and vegetable tanned leather due to biodeterioration. FONTOURA (JT), GUTTERRES (M), (Federal University of Rio Grande do Sul, Chemical Engineering Department, Laboratory of Leather and Environment Studies(LACOURO), Luiz Englert Str., s/no. 90040-040, Porto Alegre, RS, Brazil). (J. Am. Leather Chem. Assoc.; 110, 5; 2015, May; 138-44).

Fungi and bacteria can be responsible for undesirable in hides and leather. Identifies some of the defects caused by fungal growth on pickled hides, wet blue leather and vegetable tanned leather, such as stains, protein material loss, deterioration of grain layer and modification of the physical and mechanical properties of resistance. The assessment of the samples exposed to mirobiological attack was carried out through visual observation, scanning electron microscopy(SEM), tensile strength(TS) test and determination of mass loss. Leather without preservation or treated with insufficient antimicrobial agent to prevent fungal contamination showed changes in the structure, loss of protein material, a reduction in physical and mechanical properties as well as the presence of stains that may compromise the quality of the final product. (19 Ref.; 3 Tab.; 22 Fig.).

49.15132

Development of an alternative low salt bovine hide preservation using PEG and crude glycerol-Part 1 : Evaluation of PEG molecular weight fractions. ALDEMA-RAMOS (ML), MUIR (ZE), TRUSELLO (J), TRUONG (N), UKNALIS (J), (United States Department of Agriculture (USDA), Agricultural Research Service(ARS), Eastern Regional Research Center(ERRC), No. : 600 East Mermaid Lane, Wyndmoor 19038, Pennsylvania, USA). (J. Am. Leather Chem. Assoc.; 110, 4; 2015, Apr.; 109-13).

Brine curing using sodium chloride is widely used for the short-term preservation of cattle hides. It has become the traditional method of hide preservation used by meat packers, hide processors and tanners worldwide due to economics and efficiency. But brine curing is known to cause serious effluent pollution problems in the environment. Aims for the development of an alternative brining process that requires less salt to effectively preserve bovine hides by incorporating dehydrating agents. In low salt preservation, the anticipated hardening effect due to over dehydration caused by polyethyleneglycol(PEG) polymers was compensated by adding crude glycerol and sodium carbonate. Low molecular weight PEGs were more effective than high molecular weight polymers. Preservation was found to be effective because no sign of putrefaction was observed in alternatively cured hides and the properties of these hides were comparable to those of traditionally preserved hides. The salt concentration required for hide preservation could be reduced when PEG was incorporated. (16 Ref.; 2 Tab.; 3 Fig.).

49.15133

Development of an alternative low salt bovine hide preservation using PEG and crude glycerol, Part II : Mechanical properties of leather products. ALDEMA-RAMS (ML), MUIR (ZE), UKNALIS (J), TRUONG (N), TRUSELLO (J), (United States Department of Agriculture, Agricultural Research Service, Regional Research Center, No. : 600 East Mermaid Lane, Wyndmoor, Pennsylvania 19038, USA). (J. Am. Leather Chem. Assoc.; 110, 5; 2015, May; 125-9).

It is stated that the hides from which they are derived should be preserved properly while in storage and transit to prevent putrification for obtaining good quality leather products. Current practice for hide preservation is salt curing via concentrated sodium chloride(NaCl) solutions. Aims for developing alternative brining processes that require lesser amounts of salt and have no adverse effect on the resulting leather products. Only a fraction of the commonly used amount of salt is necessary(from about 50% to less than 25% of the weight of raw hide) to generate an efficiently preserved hide by incorporating a dehydrating agent such as polyethylene glycol(PEG) polymers.The scanning electron microscope(SEM) images and mechanical properties of the resulting crust leather products were comparable to the control obtained from traditionally preserved hide. A humectant such as glycerol (with sodium carbonate) was also included to compensate for the potential over drying and formation of very tight grain.The rehydration of the test preserved hides is completed in a shorter period of time because the amount of salt in the hides is already quite low. It is quite desirable as an ingredient in the new alternative less salt hide preservation by considering the low cost in obtaining the crude glycerol and its positive effects on quality of leather. (10 Ref.; 2 Tab.; 7 Fig.).

49.15134

Bovine Demodicosis : Leather from the raw material to the finished product. TAHA (M), ABU-SAMBA, SHUAIB (YA), (Department of Preventive Veterinary Medicine, College of Veterinary Medicine(CVM), Sudan University of Science and Technology(SUST), P.O. Box 204(Hilal Kuku), Khartoum North, The Sudan and Research Center Borstel, Parkalle 18, 23845 Borstel, Germany). (J. Soc. Leather Technol. Chem.; 99, 2; 2015, Mar.-Apr.; 80-90).

Presented the results obtained had shown that bovine demodicosis caused significant damage and depreciation in the quality of leather from the raw material to the finished product. The damage in the fine structures and reduction in the physical properties and chemical composition of the crust leather produced would definitely culminate in serious economic losses in the rational economy of the Sudan from the exportation of raw or partially processed leather and the expenses of labor and material spent on otherwise reject finished product. It is currently thought as appropriate to suggest that the government, veterinarians and research workers should devote more time to the prevention and control of bovine demodicosis to safeguard against the serious economic losses resulting from the disease. They should create awareness of the cattle owners regarding the damaging effects of demodectic mange in the quality of cattle hides, animal health and production and should co-operate to decrease the ill-effects of the disease on livestock production. Tanners should also avoid selecting affected hides involving unnecessary expenditure on the production of otherwise useless finished product because the deleterious effects of this disease persists in any leather goods manufactured from the produced leather. (44 Ref.; 2 Tab.;8 Fig.).

BY-PRODUCTS

49.15135

Dechroming of chromium-containing leather waste with low hydrolysis degree of collagen. DING (W), LIAO (X), ZHANG (W), SHI (B), (The Key Laboratory of Leather Chemistry and

Engineering of Ministry of Education, Sichuan University, Chengdu 610065, People' Republic of China and National Engineering Laboratory for Clean Technology of Leather Manufacture, Wangjiang Campus, Section No. : 24 of Southern Yichuan, Chengdu 610065, Sichuan Province, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 3; 2015, May-Jun.; 129-33).

Dechroming is essential for utilization of chromium-containing leather wastes. Strong hydrolysis conditions favor breaking of the chromium and collagen linkage, but lead to a high degree of hydrolysis of the collagen so that the separation of chromium from the gelatinous hydrolysates becomes difficult. Here, investigated a mild acid-alkali alternate treatment of the waste with hydrolysis, so as to develop a technology that has high dechroming level and low hydrolysis degree of collagen. A satisfactory dechroming method with four steps was finally obtained and the reaction conditions for each step were optimized as follows. Step 1-waste in the solution with 2g/L NaOH(sodium hydroxide) and 40 g/L urea(hydrolysis assistant) was stirred for 0.5 hours at 40°Centigrade. Step 2-waste in 50 g/L sulfuric acid solution was stirred for 1 hour at 40°Centigrade.Step 3-waste in 40 g/L $Ca(OH)_2$(calcium hydroxide) suspension was stirred for 2 hour at 30°Centigrade. Step 4-waste in 50 g/L sulfuric acid solution was stirred for 1 hour at 30°Centigrade.With this method, total extent of the dechroming of the waste was higher than 97% while the hydrolysis degree of collagen was lower than 10%. (29 Ref.; 4 Tab.; 2 Fig.).

49.15136

Synthesis and urea-loading of a novel biosusperabsorbent polymer-based on leather waste. HE (Z), YI (S), HU (W), TANG (Y), WANG (R), (Institution of Chemical Engineering, Sichuan University, Chengdu-611065, China and National Engineering Laboratory for Clean Technology of Leather Manufacture,Wangjiang Campus, Section No. : 24 of Southern Yichuan, Sichuan Province, Chengdu 610065, China). (J. Soc. Leather Technol. Chem.; 99, 2; 2015, Mar.-Apr.; 51-7).

Describes the synthesis of a novel superabsorbent polymers by grafting the alkaline hydrolysis product of leather waste(LW) to a copolymer of acrylic acid(AA) and acrylamide(AM)(PLW-g-(AA-co-AM) with microwave method assistance. Examined the morphology of the samples by scanning electron microscopy(SEM). Explored the various factors which may affect the water absorption of such a superabsorbent polymer during preparation through a single factor experiment. The results showed that the optimum technological conditions of synthesizing PLW-g-(AA-co-AM) such as dosage of LW15 wt. of total monomer mass, cross-linking agent 0.06 wt. % of monomer mass, neutralization degree 75%, AA:AM=6:1, initiator 0.6 wt. % of monomer mass. According to this procedure, the PLW-g-(AA-co-AM) with a water-absorbency of191.5 g/g and salt-absorbency of 94.4g/g was obtained. The product was used as adsorbent for urea, the urea load rate reached 87.76% when the concentration of urea was 10g/L. Meanwhile, the release of urea from the loaded PLW-g-(AA-co-AM) in deionized water exhibited specific release properties. (46 Ref.; 8 Fig.; 1 Scheme).

49.15137

Assessment of carbon contribution to the East Kolkata Wetland Ecosystem(Ramsar Site : 1208) by leather producing units of the Calcutta Leather Complex-Part 1. PAL (S),

CHATTOPADHYAY (B), MUKHOPADHYAY (SK), (Department of Conservation Biology, Durgapur Government College, Jawahar Lal Nehru Road, Amarabati Colony, Durgapur-713 214, West Bengal State, India andGovernment College of Engineeringand Leather Technology, LB-Block, Eastern Metropolitan Bypass, Sector-III, Salt Lake City,Kolkata-700 098, India). (J. Soc. Leather Technol. Chem.; 99, 1; 2015, Jan.-Feb.;1-7).

Attempted the provision of a comprehensive computation of carbon input by raw hides-skins and different chemicals; and carbon output by various solid and liquid waste from the leather industry in the context of addition of carbon to East Kolkata Wetland(EKW) ecosystem.The calculations are based on the conventional operations of nine tanneries of which three produce bag leather, three gloves and three shoe uppers.The amount of carbon that enters into the leather industry depends upon the selection of raw hides and skins, percentage of chemicals used and purity of chemicals. The carbon value changes depending on the tannery specific finishingrecipe, spray types and number of coats in case of bag leather and shoe upper manufacturing units. Besides this the carbon value also changes with the customer's requirements. Mechanical operations and the binding of chemicals with hides and skins whereas the carbon value of solid and liquid waste changes depending upon the carbon input.The analysis of large samples from nine selected tanneries has permitted the authors to calculate that 396.1±11.67 kg carbon are present in one ton raw cattle hides or skins. The processing of this ton cattle raw hides and skins results in 65.54±13.06 kg carbon being incorporated with chemicals and from which 32.75±16.37 kg of carbon are discharged in the EKW(East Kolkata Wetland) area through different solid and liquid wastes. The tannery agglomerates at the Calcutta Tannery Complex at Bantala, Kolkata are situated on the boundary of EKW, a Ramstar site and so this work is thought to be important to assess the carbon-budget of the EKW ecosystem. (34 Ref.; 3 Tab.).

49.15138

Assessment of carbon contribution to the East Kolkata Wetland Ecosystem(Ramsar Site : 1208) by leather producing units of the Calcutta Leather Complex-Part 2. PAL (S), CHATTOPADHYAY (B), MUKHOPADHYAY (SK), (Department of Conservation Biology, Durgapur Government College, Durgapur-713 214, West Bengal State, India and Government College of Engineering, Government College of Engineering and Leather Technology, LB-Block, Eastern Metropolitan Bypass, Sector-III, Salt Lake City, Kolkata-700 098, India). (J. Soc. Leather Technol. Chem.; 99, 2; 2015, Mar.-Apr.; 70-9).

Attempted for the provision of a comprehensive computation of carbon input by raw hides-skins and different chemicals and carbon output by various solid and liquid waste from the leather industry in the context of addition of carbon to East Kolkata Wetland(EKW) ecosystem. The calculations are based on the conventional operations of nine tanneries of which three produce bag leather, three gloves and three shoe uppers. The amount of carbon that enters into the leather industry depends upon the selection of raw hides and skins, percentage of chemicals and purity of chemicals. The carbon value changes depending on the tannery specific finishing recipe, spray types and number of coats in case of bag leather and shoe upper manufacturing units. Besides this the carbon value also changes with the customer's required finish.Whereas the carbon value of solid and liquid waste changes depending upon the carbon impact, mechanical operations and the binding of chemicals with hides and skins. The analysis of large samples from nine selected tanneries has permitted the authors to calculate that 396.1±11.67 kg carbon are present in one ton raw cattle hides or skins. The processing of this one ton cattle hides and skins results in 65.54±13.06 kg carbon being incorporated with chemicals and from which 320.75±16.37 kg carbon are discharged in EKW urea through different solid and liquid wastes. The tannery agglomerates at the Calcutta Tannery Complex at Bantala, Kolkata are situated on the boundary of the 6KW, aRamsar site and so this work is thought to be important to assess the carbon-budget of the EKW ecosystem. (9 Fig.).

49.15139

Tanneries waste-Description of the tanning-process. BAJPAI (D), (M/s. Bureau Veritas Consumer Products India Private Limited, No. : C-19, Sector 7, Noida-201 301, Uttar Pradesh State, India). (Leather News India; 6, 6; 2015, Jun.; 64-6).

Presents a flow diagram of the tanning process. Hides are a by-product of slaughter activities and can be processed into a wide range of end products. The tanning process is different for each product and the kind and amount of waste produced may vary enormously. (1 Tab.).

49.15140

Recent trends in chemical process technology. JOSHI (A), (Chem. Wkly.; 60, 42;2015, May, 26; 203-6).
Presented in a conference on the latest developments in mixing, process intensification, drying, filtration, flow reactors and wastewater utilization.

49.15141

Adsorption kinetics of collagen fiber toward Cr(**III**). WANG (X), ZHANG (F), QIANG (T), XI (Y), (Key Laboratory of Chemistry and Technology for Light Chemical Industry, Ministry of Education, Shaanxi University of Science and Technology, No.: 6, Xuefu Road, Weiyang District, Xi'an City, 710021 Shaanxi Province, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 1; 2015, Jan.-Feb.; 39-46).

Collagen fiber is used to stimulate the chrome tanning of pickled hide. Analyzed the adsorption properties of collagen fiber toward Cr(**III**) under different conditions. Studied the adsorption kinetics of the collagen fiber toward Cr(**III**). Describes the employment of the Langrange pseudo-first-order kinetic model, pseudo-second-order kinetic model and intra-particle diffusion model to study the adsorption kinetics behavior and also of the fourier-transform (FT-IR), Scanning Electron Microscopy-Energy Disperse Spectroscopy (SEM-EDS), X-ray Diffraction(XRD), Thermogravimetric analysis(TGA) and ion distributor analysis(IDA) to characterize the difference between collagen fiber and chromium(**III**) loaded collagen fiber. (19 Ref.; 2 Tab.; 15 Fig.).

49.15142

Identification and metabolic activities of bacterial species belonging to the *Enterobacteriaceae* on salted cattle hides and sheep skins. ULUSOY (K), BIRBIR (M), (Marmara

University,Faculty of Science and Letters, Department of Biology, Goztepe-Yerle°kesi, Kadikôy-Istanbul 34722, Turkey). (J. Am. Leather Chem. Assoc.; 110, 6; 2015, Jun.; 186-98).

This study results showed that all hide and skin samples contained a variety of bacteria belonging to the *Enterobacteriaceae*and their common presence on the samples may be mostly a result offaecal contamination. There is also a possibility that these microorganisms were introduced onto the hides and skins from soil, water, feed and the environment. Different species belonging to the genera of *CedeceamCitrobacter, Enterobacter, Escherichia, Ewingella, Klebsiella, Proteus, Raoultella, Serratia*and *Yersinia,* which may cause health risks for humans and deterioration of hides, were isolated from salted cattle hides and sheep skins. Most of these microorganisms have potential to degrade macromolecules on the hides and skins and use monomers of these macromolecules. Each of the hide and skin samples contained proteolytic and lipolytic*Enterobacteriaceae.* Therefore, effective treatments should be applied during preservation of hides and skins to kill these microorganisms. In addition, the results obtained from this study emphasize that cattle hide and sheep skin should be cleared with effective applications to remove these bacteria before the slaughter. The animals should be washed and brushed regularly with sensitizers, organic acid solutions such as acetic and lactic acids, chlorinated water or warm water. Ozonated and electrolyzed oxidizing waters can be used to reduce *Enterobacteriaceae* counts on the hides. These strategies are necessary to improve the leather's commercial value and consequently, the industry's financial viability. (33 Ref.;5 Tab.).

WOOL TECHNOLOGY

49.15143

Recovery of chromium**(III)** ions from aqueous solution by carboxylate functionalized wool fibers. YIN (Z, CHEN (B), CHEN (M), HU (S), CHENG (H), (National Engineering Laboratory for Clean Technology of Leather Manufacture, Sichuan University, Wangjiang Campus, Section No. : 24 of Southern Yichuan, Chengdu 610065, Sichuan Province, China and Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Chengdu 610065, Sichuan Province, China). (J. Soc. Leather Technol. Chem.; 99, 3; 2015, May-Jun.;101-6).

Describes the wool fibers that have been applied for recovery of heavy metal ions which are equivalent to the use of one waste to clean-up of another. A carboxylate functionalized wool fiber Poly(acrylic acid)-grafting-wool(PAA-g-wool) was prepared by grafting poly(acrylic acid) onto the surface of wool fiber in the presence of potassium permanganate and oxalic acid as a redox initiator system. The graft percentage was 80.2%. The PAA-g-wool absorbent was applied to absorb chromium(**III**) from aqueous solutions in a batch-wise manner. The optimum *p*H for recovery of chromium(**III**) by PAA-g-wool was found to be 6.0. Kinetic studies show that the sorption process agrees with the pseudo-second-order kinetic model, with the coordination coefficient(R^2) more than 0.99. Well defined the adsorption equilibrium of chromium(**III**) by the Langmuir isotherm equation and the adsorption capacity was found to be 95.78 mg/g calculated by the Langmuir isotherm equation. The adsorption capacity of PAA-g-Wool to chromium ions was still maintained at

90% after recycling for 5 times. The PAA-g-Wool could recover 97.1% of chromium(**III**) ions in the tannery wastewater. (40 Ref.; 4 Tab.; 9 Fig.).

TANNERY. ENVIRONMENTAL ASPECTS

49.15144

Building blocks to smart critics : Everyday chemistry. SHENOY (S), (M/s. DowAgroSciences India Limited, 1st Floor, Block B, Gate 02, Godrej/IT Park, Godrej Business District, Pirojshanagar, Vikhroli, Mumbai-400 079, India). (Chem. Wkly.; 60, 37; 2015, Apr., 21; 183-84).

Examines the ways in which the chemicals can contribute to each one of these and make them not just economically viable, but also environmentally sustainable.

49.15145

Simultaneous determination of N-methyl-2-pyrrolidone(NMP) and N-Ethyl-2-pyrrolidone (NEP) in leather by gas chromatography-mass spectrometry. SANG (J), YU (L), XIE (S), ZHANG (F), ZHANG (X), LIN (W), (Department of Biomass and Leather Engineering, Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Wangjiang Campus, No. : 24 of Southern Section 1, Yichuan Campus, Chengdu 610065, Sichuan Province, China). (J. Soc. Leather Technol. Chem.; 99, 3; 2015, May-Jun.; 13-8).
N-Alkyl-2-pyrrolidones such as N-methyl- and N-ethyl-2-pyrrolidene(NMP and NEP) are widely used as solvents in leather finishing agents. However, NMP and NEP were identified as reproductive toxicants. Moreover, NMP has been listed in the Candidate List of Substances of Very High Concern(SVHC) by European Chemicals Agency. Herein, describes a simple and rapid gas chromatography-mass spectrometry method for the simultaneous determination of NMP and NEP in leather samples. Investigated comparatively and optimized the extraction solvent for enhancing the extraction efficiency of NMP and NEP in samples. The linear range of both NMP and NEP were between 0.5 and 100 mg L^{-1} with regression coefficients(R^2) of 0.999 under optimal extraction and GC-MS conditions. The linear range of both NMP and NEP were between 0.5 and 100 mg L^{-1} with regression coefficients(R^2) of 0.999 under optimal extraction and GC-MS conditions. The Relative Standard Deviation(R,S.D) for ten replicans of analysis was 2.6% and 2.8% for NMP and NEP, respectively and the limit of detection(LOD) for NMP and NEP were both 0.1 mg/kg. The mean recoveries were 94.8%-105.6% and 98.5%-105.2% for NMP and NEP, respectively in leather samples. The proposed method has been proved to be applicable for the simultaneous determination of the target NMP and NEP in leather samples. (22 Ref.; 3 Tab.; 5 Fig.).

49.15146

Carbon footprint and toxicity indicators of alternative chrome-free tanning in China. XU (X), BAQUERO (G), PUIG (R), SHI (J), SANG (J), LIN (W), (Department of Biomass and Leather Engineering, Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University,Wangjiang Campus, No. : 24 of Southern Section 1, Yichuan Campus, Chengdu 610065, Sichuan Province, China). (J. Am. Leather Chem. Assoc.; 110, 5; 2015, May; 130-7).

Analyses the environmental performance of a newly developed chromium-free tanning process compared to the conventional one, in China, from a life cycle perspective. Evaluated both processes by using carbon footprint, energy consumption and toxicity indicators. Chromium-free tanning process has been found to significantly reduce the considered impact categories compared to conventional tanning. Calculated the impact contribution of each process step, with the tanning step being the major contributor. Results show that the production of chemicals used in the tanning process, have a significant effect on the impacts evaluated. Some of these chemicals have been substituted with similar ones(used as proxies) when no manufacturing-data was available in the databases. Thus, it is important for future and more precise Life Cycle Assessment (LCA) studies to develop databases on the specific chemicals used. This study is a first estimation of the impacts and will help on the decision of expanding time and efforts on developing and optimizing the new technology. The results show that it is interesting to use this LCA methodology to environmentally evaluate new research processes and products, before industrial scaling and implementing them, to optimize research time and efforts towards the most environmentally promising products and processes. (19 Ref.; 10 Fig.).

LEATHER PRODUCTS

FOOTWEAR

49.15147

Chemical reaction. BRIDGE (P), HUDSON (A), (M/s. SGS, Headquarters, 1 Place des Alpes, P.O. Box No. : 2152, 1211 Geneva 1, Switzerland). (Leather Int'l; 217, 4847; 2015, Jan./Feb.; 44-6).

Presents a selection of training material and the latest trends covering critical areas of the leather and footwear industries. (3 Photos).

49.15148

Chlorosulphonatedpolyethylene : Properties & applications. MAJUMDAR (S), (No. : H-701, Neel PadmKunj, Vaishali, Opposite to Dabur Chawk, Ghaziabad-201 012, Uttar Pradesh State, India). (Chem. Wkly.; 60, 36; 2015, Apr., 14; 209-10).

Describes the chloronosulphonated polyethylene that forms when polyethylene results in solution with both chlorine and Sulphur dioxide into a vulcanizable elastomer called chlorosulphonatedpolyethylene(CSPE, CSM), popularly known under the tradename Hypalon. There could be number of grades of this polymer depending on the –CI and –SO_2CI groups present in the polymer backbone. The elastomer is noted for its resistance to chemicals, temperature extremes and ultraviolet light. It is suitable for continuous use up toabout 150°Centigrade and intermillent use up to some 30°Centigrade above this temperature. The development, history and the properties as well as the applications of this elastomer in various fields such as the linens and covers for portable water reservoirs and the variety of protective and decorative coatings; industrial products such as hose, rolls, seals, gaskets, diaphragms and lining for chemical processing equipment; adhesives, coated fabrics, flexible magnetic binders; insulation, shoe-soles, seals etc. (2 Ref.; 1 Tab.; 1 Photo).

LEATHERGOODS

49.15149

To be trusted.MOHAN (N), AGARWAL (R), (Footwear and Leather Garments Division, M/s. Tata International,Palayakkaran Street, KalaimagalNagar, Ekkatuthangal, Chennai-600 032, India). (Leather Int'l; 217, 4847; 2015, Jan./Feb.; 22-3). Discusses the sustainable thrust to push inclusive growth and the company's driving vision.(2 Tab.; 1 Fig.).

TOOLS AND EQUIPMENTS

49.15150

In vitro SPF testing by a robot to solve the problem of irreproducibility. LUTZ (DA), (M/s. Helioscreen Laboratory, No. : 44 Rue Leon Blum, 60100 Creil, France). (Chem. Wkly.; 60. 37; 2015, Apr., 21; 216-8).

All cosmetics or pharmaceutical products on the market claiming sun protection must claim an index of protection on the packaging. Sun Protection Factor(SPF), is the universally most popular among all the existing claims all over the world. The industry must proceed to some specific tests keeping with the local regulation to do such claim. Sunscreen protection had been initially performed with the *in vivo* method. The aim of this test was previously just to estimate the extra time than people who applied some scream could stay under the sun without burning. It is a very long, non-ethical and expensive test an there is a great variability between and sometimes within laboratories. Recently a French laboratory has developed and proposed a 'robot' that ensures consistency when performing this *in vitro* Ultraviolet protection tests. This complicated proposal is needed in order to get the same thickness of the product in every part of the substrate as the mathematic law between the absorption value and concentration of filter depends on the path length for achieving reliable results. (5 Fig.; 1 Photo).

MEDICAL AND VETERINARY SCIENCE

49.15151

Primary packaging : Enhanced safety features for sensitive drugs. (Chem.Wkly; 60, 35; 2015, Apr., 7; 217-8). Presents the various innovations in the field of pharma packaging. (2 Photos).

SUBJECT INDEX

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