Dear Reader,

Innovation endows people with new resources to comfort their life. It is a prodigy, especially when it stands for the cause of the nature. In this issue of HiMedia News Letter, you could go through two such innovations from HiMedia.

First topic explain how 'HiDtect', a concept of 'rapid microbiology' helps the microbiologist to detect the organism within one to four hours.

Second topic details HiVeg peptones and its use in reduction of greenhouse gases.

Acceptability of our products has increased all over the world that is reflected in the number of citations that we receive in well reputed journals. A note on this topic and a collage of team HiMedia, who participated in Mumbai Marathon-2012 have also been included.

We wish that you enjoy this issue of HiMedia News Letter

Regards

Editor, HiMedia News Letter.

HiDtect & Rapid Microbiology

From animalcules to Maldi-TOF, microbiology has witnessed tremendous progress in the identification of microorganisms. Introduction of automation in this field has made the process more astute, faster and reliable. Rapid microbiology has become unavoidable in the area of clinical and industrial microbiology laboratories. This has helped in the faster diagnostics in clinical microbiology that in turn helped better service to the ailing patients. Industrial microbiology except Pharma sector has been vibrant in responding to these changes. Regulatory aspects have been a hurdle in the pharmaceutical industry to bring the change. Faster microbiology test results would provide better control and faster release of the product.

Some of the most important bacterial identification systems that exist today include Genotyping by Multi Loci Base Composition (MLBC) analysis using PCR and mass spectrometry, PCR and gene sequencing, Raman Spectroscopy, Growth-based carbohydrate utilization, Growth-based; biochemical utilization and antibiotic susceptibility, MALDI TOF mass spectrometry, Fourier Transform Infrared (FT-IR) Spectrometry, MLVA (Multi Locus VNTR Analysis), Ribotyping of DNA fragments, Detection of fatty acids (FAME), Fluorescent tagging of single molecules of genomic DNA, Growth-based; CO2 detection and selective growth, ATP bioluminescence, etc. The average time consumption for the identification of the organisms through these methodologies ranges from 2hrs to 3 days from pure cultures. However these are affordable only to a minority of the microbiologist majorly because of the price coefficient.

HiMedia has always believed in "Providing International Quality Culture Media at Affordable Prices to Microbiologists". HiDtectTM is the latest and economical range of diagnostic product for rapid detection of organisms. This helps in the direct identification of microorganisms from clinical, water, food and environmental samples.

In classical microbiology bacterial isolate is presumptively identified morphologically by staining methods and plating on diagnostic culture media. Elaborate biochemical tests are done for confirmation of

Excerpts

- Rapid detection of organisms is the need of the time
- Culture media based paper disks
- Color differentiation through chromogenic substrates
- Range of products
these isolates. These procedures are consuming, expensive and laborious. Hence, there is continuous looking for a technology that could aid in rapid, reliable, simple and economical diagnosis of the organisms all over the world.

HiDtectTM Rapid Identification Discs have been developed with these intentions.

Apart from the basic biochemical principles of bacteriology, HiDtect™ also used advanced chromophores to differentiate the organisms. It can detect metabolic activity as DNase activity of bacteria; useful for identification of pathogenic Staphylococci (DT004), identify pathogens causing UTI (DT011) and total coliforms (DT012 and DT013) also form part of HiDtect™ Rapid Identification Discs. On the basis of Lactose fermentation and Non lactose fermentation DT009 Discs detect Enterobacteriaceae and gram negative bacteria.

Ability to ferment sugars as Glucose (DT016), Lactose (DT017), Mannitol (DT018), Xylose (DT019), Sucrose (DT020) and characterization of organisms can be studied within 1-4 hours using these discs. Besides these the organisms can be detected from the environment (DT015), pathogens detected from foods (DT006- DT014) and microbial limit test organisms detected in pharmaceutical preparations using Universal Test Disc (DT005). Detection of *E. coli* from water and food samples can be done using DT006, DT007, DT008 discs. HiDtectTM UTI identification Disc (DT001) helps identify organisms causing urinary tract infections, HiDtect™ Bacillus Identification disc (DT011) is also available for differentiation and identification of Bacillus from mixed cultures.

**Testing method**

It involves routine inoculation and isolation techniques followed by replication and direct identification

**Step 1:** Inoculation, Isolation and Incubation of the organisms from sample on any of general purpose media such as Nutrient Agar, Soyabean Casein Digest Agar, Plate Count Agar, etc. Adopt any of surface plating methods such as; Spread Plate Method, Quadrant (four or five) streak pattern or T streak method so as to obtain isolated colonies from inoculums. Incubate at 35-37°C for 18-24 hours.

Check for bacterial growth

**Step II Replication and Identification**

Place the HiDtect™ Rapid Identification disc of choice (suspected organisms) on the surface of Agar plate. Perform this step for maximum of 30 seconds to 1 Min. Mark the corresponding orientation of paper. This is replication technique.

Incubate the replicated identification disc in empty sterile Petri dish at 35-37°C for 1-4 hours or if the desired paper disc can be placed on the dry lid of same plate & incubate in inverted position. If the lid has moisture wipe it with sterile cotton. Alternatively the disc may be kept for incubation on growth media at 35-37°C for 1-4 hours.

Observe for the development of color and interpret results

**Advantages:**

Economical & highly profitable

Convenient & user-friendly

Effortless testing reduces time & labour

Rapid & Reliable results in 1-4 hours Direct application without any preparations

Wide range of confirmation tests to meet the needs of microbiologists & pathologists

Permanent findings can be retained for further traceability.
HiMedia has been one of the most trusted brands in microbiology all over the world. Over the years, we have gained the attention and respect of the microbiologists from industry, academics and various other sectors of science. Our products on microbiology, plant tissue culture, animal tissue culture, molecular biology and various other ranges have been a matter of choice to the research community as well. With these products, research has been reliable, reproducible, valid, and relevant; that in turn helps the researchers to find logical conclusions to their studies. Moreover, these results are acceptable to the whole scientific community as well which in turn helps them publish their data.

Acceptability of HiMedia products can be identified through the number of citations that we receive in various high impact factor journals through various publishers such as Elsevier, CRC Press (Taylor & Francis), Springerlink, etc. This can also be accessed through their search tools such as Scicencedirect, Scopus, Pubmed etc. For the last five years, citations for HiMedia products have been more than double to its previous years and is growing exponentially. This has also been reflected by enlistment of HiMedia products in the 4th edition of “Handbook of Microbiological Media” by Ronald M. Atlas (CRC Press). HiMedia has been successfully implementing its quality objective to release new range of products every year to cater to the needs of the global scientific community.
Peptones are one of the most important ingredients of microbiological culture media. These are generally protein hydrolysates of animal tissues. It is roughly estimated that annually 17,00,000 Kg peptone is required to fulfill the culture media requirements all over the world. From a cow with an average weight of 500kg, a maximum of 30 Kg peptone is obtained. This peptone is obtained majorly from farmed cows for which an average 57,000 cows have to be slaughtered on a yearly basis. U.N. Food and Agriculture Organization released (2006) a report that “18% of the world’s man-made greenhouse-gas emission has been attributed towards farmed animals”; more than what’s produced by transportation. Livestock has taken an increasingly hard rap in recent times due to this huge release of greenhouse gas(s). This has also to be read with the facts that farmed animals are notoriously known to possess a high amount of antibiotics and growth hormones that has a direct impact on the environment. Green house-gas emission is estimated in terms of carbon footprints. Much of the carbon footprint of farmed animals comes from growing grain to feed the animals, which requires fossil-fuel-based fertilizers, pesticides and transportation. According to USFDA, 16-20 Kg of corn/wheat is required to produce 1Kg of beef. And, to produce one Kg of Beef Peptone, 80Kg of wheat will be required.

The world’s total carbon footprint stands to be 29,888,121,000 Metric tons, of which 5379861780 Metric tons is estimated to be due to 1.3 billion farmed animals. This means annually 23 metric tons of CO2 is liberated by single cattle. Beef production for bacterial culture media contributes 1.3 million metric tons of CO2 towards global warming. This is huge and is equivalent to the annual carbon footprint of Barbados Isalands. HiMedia R&D Team has developed a solution to this problem. HiVeg Peptones, a range of vegetable based peptones has replaced the need for using animal based peptones. Media based on these peptones namely HiVeg™ range of media and peptones has generated a huge demand globally among the environment conscious individuals. This has been a great success in scientific community as well. This is developed from vegetable sources such as wheat. Carbon footprint of 1 tonne of wheat is hardly 200kg. The amount of wheat required to produce 1kg beef will be sufficient enough to produce 20kg of vegetable peptones. A total of 8500tonne wheat can produce HiVeg peptone to suffice the need of whole world’s annual requirements that will hardly liberate 1.7 million Kg CO2 in place of 28,000 tonne Kg of CO2 required by animal peptones. HiVeg Peptones stands to be a major contribution of HiMedia on environmental attributes.

Comparison of animal and vegetable peptones on environmental attributes, considering that culture media requirements all over the world as 1.7×10^6 kg peptone/year

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<tr>
<th></th>
<th>Animal Peptones</th>
<th>HiVeg</th>
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<tbody>
<tr>
<td>1 Kg Of Beef/ Wheat</td>
<td>0.25 Kg Peptone</td>
<td>0.25kg Peptone</td>
</tr>
<tr>
<td>Water Requirement/ Kg Peptone</td>
<td>12,000 Litre</td>
<td>850 Litre (14 Times Less)</td>
</tr>
<tr>
<td>Grain Requirement/ Kg Peptone</td>
<td>64kg</td>
<td>4kg</td>
</tr>
<tr>
<td>Grain Equivalent For Annual Production Of Peptones</td>
<td>110×10^6 Kg Grains (Slaughter 57,000 Cows)</td>
<td>6.8×10^6 Kg Grains</td>
</tr>
<tr>
<td>Annual Carbon Foot Print</td>
<td>28 Million Kg Of CO2</td>
<td>1.7 Million Kg Of CO2</td>
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Mumbai Marathon-2013: Run for a cause:

HiMedia Laboratories participated in Mumbai Marathon- 2013. The fund raised through ‘run for a cause’ will be utilized for the educating rural children in different parts of India, in association with Isha Vidhya, Coimbatore.

HiMedia CEO (R) leading the team

Team HiMedia who participated in Mumbai Marathon-2013

Upcoming events

**ARABLAB 2013**

10 Mar 2013 - 13 Mar 2013
Dubai, UAE
Hall S2, Stand : 732

**ARABHEALTH 2013**

28 Jan 2013 - 31 Jan 2013
Dubai, UAE
Stand : MC35
HiMedia Laboratories

With a presence in more than 125 countries HiMedia is amongst the top three brands in microbiology in the world. HiMedia, a company established by professionals and technologists for manufacturing high quality culture media for microbiology has over the years created a rich portfolio of exemplar quality products.

HiMedia possesses world-class hi-tech know-how for manufacturing a complete range of chromogenic and HiVeg™ media products. We have the broadest range of Vegetable Hydrolysate based microbiology culture media (HiVeg™), in the world. This is due to our vertically integrated manufacturing that produces a comprehensive range of Plant and Animal based hydrolysates. Advanced products in the fields of Animal Cell Culture, Plant Tissue Culture and Molecular Biology came next as demands grew. With firm commitment to excellence in work Culture and products, HiMedia has its own in-house bulk raw materials manufacturing plant. This enables us to deliver consistent quality products that conform to ISO 9001:2008 and ISO 13485:2003 and WHO: GMP. The technical product-service package offered by HiMedia globally enables patrons to tap the expertise of HiMedia's Central Laboratory specific to their needs.

HiMedia Laboratories

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☐ Plant Tissue Culture
☐ Molecular Biology
☐ Animal Cell Culture
☐ X-Pert Teaching kits
☐ Chemicals

Please specify your area of work
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☐ Academics
☐ Industry
☐ Student
☐ Others (please specify)

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