The discovery that a photon could give all or part of its energy to an electron (photoelectric and Compton effect) had firmly established the quantum theory. The Raman Effect was an important step further. When monochromatic light was scattered by a transparent object, the scattered light was seen to possess, besides the original wavelength, both higher and lower wavelengths.

Why should light come out with increased energy? Because it can both give and take some energy from the molecule. Raman interpreted all aspects of this phenomenon. The molecules in an object can rotate around a fixed axis, and can also oscillate with respect to each other, that is, they have rotational and vibrational energy. The photon can both give and take from this energy, resulting in scattered light having lower or higher energy. An accurate measurement of these changes was now a powerful tool in the hands of physicists and chemists.

The Raman effect kept scientists of the next two generations busy. Many well-known scientists in India are his disciples. Raman also contributed substantially to acoustics and to the perception of colour by the human eye. He was awarded the Nobel Prize for Physics in 1930.

- Born on November 7, 1888 at Thirivanikkaval, Tamil Nadu, India.
- Studied in Presidency College in Madras and Passed BA examination in 1904 with Gold Medal in Physics.
- Completed MA from same college in 1907 with the highest distinction.
- Became the Honourary Secretary of the Indian Association for the Cultivation of Science in Calcutta in 1919.
- Accepted the offer of the Palit Chair of Physics at Calcutta University and served from 1917 to 1933.
- He was elected a Fellow of the Royal Society early in his career (1924), and was knighted in 1929.
- Founded and served as Editor of the Indian Journal of Physics in 1926.
- Awarded the Nobel Prize for Physics in 1930 for his work on the scattering of light and for the discovery of the effect named after him.
- Joined as Professor at the Indian Institute of Science, Bangalore in 1933 and served there till 1948.
- In 1948 opened the Raman Research Institute at Bangalore and served there as the Director.
- Awarded Bharat Ratna in 1954.
- Sponsored, established and served as the President of the Indian Academy of Sciences, Bangalore.
- Served as the President of the Current Science (India) journal of the Current Science Asssociation, Bangalore.
- Died on November 21, 1970.
Holi a festival of vibrant hues, heralds the advent of spring—literally as well as figuratively. Who has not noticed the riot of colours with which flowers bloom all about? Indeed, Holi is a festival of colours; joy and happiness. Nonetheless by using the artificial colours that are available in the markets, this festival of colors may turn sour and spoil your health. Most of the holi colors sold in the market are oxidized metals or industrial dyes mixed with engine oil. E.g.: -The Green colour available in the market is usually made from Copper Sulphate, purple is chromium iodide and silver is aluminum bromide. These chemicals are toxic and can cause skin allergies, eye irritation, blindness and much more. The hazard increases when these are mixed with oil and applied to the skin. By doing so these chemicals sneak easily through the skin pores into the body system. Not only these colours affect our health but they harm our environment too. When washed, they enter the rivers and the soil and increase pollution.

Due to the harmful effects of artificial chemical colours; environmentalists are now strongly advocating the use of natural colors. In earlier times, the flower of Harsingar used to be soaked in water all night to get a sweet fragrance and a brilliant mustard colour. The use of traditional flowers has quite vanished, giving way to synthetic dyes, available in the form of pigments. These natural holi colors are perfectly safe and do not cause any harm to skin or to the face. These cause rather little trouble if accidentally fall into our eyes while playing Holi.

Some easy steps for preparing natural colours at your home.

Green
Dry: Use mehendi / henna powder (not mixed with amla) separately or mix with equal quantity of any flour to attain a lovely green shade. Dry mehendi will not leave color on your face as it can be easily brushed off. Only mehendi mixed in water might leave a slight color on your face. Many people like smearing other person’s hair with colors. How about doing it with mehendi powder and saving a trip to the parlor..? Dry and finely powder the leaves of Gulmohur tree for a green colour. Crush the tender leaves of the Wheat plant to obtain a natural safe green Holi color.

Wet: Mix two teaspoons of mehendi in one litre of water. Stir well. Green color can also be obtained by mixing a fine paste of leaves like spinach / palak, coriander / dhaniya, mint / pudina, etc. in water.

<table>
<thead>
<tr>
<th>Color</th>
<th>Chemical Composition</th>
<th>Effect on health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Lead Oxide</td>
<td>Renal failure, Learning disability</td>
</tr>
<tr>
<td>Green</td>
<td>Copper Sulphate</td>
<td>Eye allergy, Temporary blindness</td>
</tr>
<tr>
<td>Purple</td>
<td>Chromium iodide</td>
<td>Bronchial asthnam akkergues</td>
</tr>
<tr>
<td>Silver</td>
<td>Aluminium Bromide</td>
<td>Carcinogenic</td>
</tr>
<tr>
<td>Red</td>
<td>Mercury Sulphite</td>
<td>Skin Cancer, Minamata, Mental retardation</td>
</tr>
</tbody>
</table>
**Saffron**

**Wet:** The Flame of the Forest (Butea monosperma), known as Tesu, Palash or Dhak in Indian languages, is the source of the wonderful, traditional color for Holi. The flowers are soaked overnight in water and can also be boiled to obtain a fragrant yellowish orange colored water. Legends say Lord Krishna used to play Holi with Tesu flowers. Boil flowers petals of Semul / Silk Cotton, (a red variety of Bombax ceiba) in water. Both Tesu and Semul bloom during February & March and are plenty during Holi. Collect and dry the stalks of Harashringar / Parijatak (Nyctanthes arbor-tristis) flowers during the early winter season. Soak them in water to get a pleasant orange color. Mix a pinch of sandalwood powder in 1 litre of water for an instant, beautiful and fragrant saffron color. Soak a few stalks of Saffron / Kesar in 2 table spoons of water. Leave for few hours and grind to make a fine paste. Dilute with water for desired color strength. Though expensive, it is excellent for the skin.

**Red**

**Dry:** Raktachandan or Lalchandan gives a beautiful red color. This can be used instead of Red gulal. After drying red hibiscus flowers in the shade powder it to make a lovely red color. To increase the bulk add any flour to it, in proportion to the vibrancy of the color you want to obtain. Sinduria (Annato) has a water chestnut shaped fruit, which contains lovely brick color red seeds. These yield both dry and wet colors.

**Wet:** Put two teaspoons of Red Sandalwood powder in five litres of water and boil. Dilute with 20 litres of water. Peels of Red Pomegranate boiled in water give red. Mix a pinch of lime powder (the one that we eat with our paan / betel leaves) in half a cup of water and add 2 table spoon of haldi (turmeric) powder in it. Mix it thoroughly. Use only after diluting with 10 litres of water. Buras (Rhododentron arboreum) known as Burans in the Garhwal hills and Brand in the Kumaon hills gives a lovely red color when soaked in water overnight. The Palita Madar / Pangri / Indian Coral tree (Erythrina indica), found commonly in coastal regions, has large red flowers. Soak the flowers in water overnight.

Boil wood of Madder Tree in water for a deep red. Red color can also be obtained from juice of tomatoes and carrots.

This can be diluted with sufficient quantity of water to remove the stickiness.

**Yellow**

**Dry:** Mix two teaspoons of haldi / turmeric powder with double the quantity of besan (gram flour). Haldi and besan are extremely healthy for our skin, and are also used widely as a ubtan while taking bath. You can use the ordinary haldi or “kasturi” haldi which is very fragrant and has enhanced therapeutic effects. Besan can be substituted by wheat / rice / arrowroot flour or talcum powder.

Flowers like Amaltas (Cassia fistula), Marigold / Gainda (Tagetus erecta), and Yellow Chrysanthemums yield different shades of yellow. Dry the petals of these flowers in shade and crush them to obtain a fine powder. Take appropriate quantity of the powder and mix it with besan or use separately.

Dry the rind of the Bael fruit (Aegle marmelos) and grind to obtain a yellow colored powder.

**Wet:** Add one teaspoon of haldi to two litres of water and stir well. This can be boiled to increase the concentration of color and further diluted. Soak 50 marigold flowers in 2 litres of water. Boil and leave overnight.

**Magenta**

**Wet:** Slice or grate one Beet root. Soak in 1 litre of water for a wonderful magenta. Leave overnight for a deeper shade. Dilute with water. Boil the peels of 10-15 onions in half litre of water for an orangish-pink color. Remove the peels before using to remove the smell.

**Blue**

**Dry:** Jacaranda flowers can be dried in the shade and ground to obtain a beautiful blue powder. The flowers bloom in summers. The blue Hibiscus (found in Kerala) can be dried and powdered.

**Wet:** Crush berries of the Indigo tree and add to water for desired color strength. In some Indigo species the leaves when boiled in water yield a rich blue.

Enjoy Holi safely yet with colours all around with your friends and family.

**G Biju Mohan**

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The International Union of Pure and Applied Physics has declared the year 2005 as the “World Year of Physics”. The General Assembly of the United Nations also declared 2005 as the “International Year of Physics”.

The year 2005 coincides with the 100\textsuperscript{th} anniversary of Albert Einstein’s “miraculous year” in which he published three important papers describing ideas that have influenced all of modern physics.

In 1905, Einstein wrote his three legendary papers on light quanta, Brownian motion and the special theory of relativity which provided the basis of three fundamental fields in physics. The first paper claimed that light must sometimes behave like a stream of particles with discrete energies, ‘quanta’. The second paper offered an experimental test for the theory of heat. The third paper addressed a central puzzle for physicists of the day – the Special Theory of Relativity.

The year 2005 also marks the century of the Golden Decade 1895 – 1905 in which momentous discoveries in physics were made, say, for example: X-rays in 1895, Radioactivity in 1896, the Electron in 1897, Quantum Theory in 1900 and explanation of photo electric effect and Relativity in 1905.

The World Year of Physics 2005 is a worldwide celebration of physics and its important in our everybody lives. Physics not only plays an important role in the development of science & technology but also has a tremendous impact on society. World Year of Physics aims to raise the worldwide awareness of physics and physical science.

Although physics has played a crucial and important role in our day-to-day activities, it is noted that the general public’s awareness of physics is decreasing. The number of physics students in high schools and university has dramatically declined over the past few years. One of the ways the public awareness of physics can be improved by publishing reviews of work that has taken place in the recent past in our labs and institutions. Currently, research activity in physics in our country cover a wide spectrum of topics; elementary particles physics, materials science, plasma research, solid state physics, fluid dynamics, nuclear physics, quantum phenomena and so on. The contributions of physics to other science would play a crucial role in solving global problems such as energy production, environmental protection and public health.

Number of events, conferences, festivals would be organized world over to celebrate the World Year of Physics. Like many organisations in India, Vigyan Prasar has also initiated number of activities to mark the World Year of Physics in collaboration with NCSTC and other agencies. Vigyan Prasar would bring out variety of software- publications, films, radio programme, T V programmes, CD-ROM, poster sets, slide shows and many other resource materials.

You can too organise an event in your community. There are no limits to what you can do for World Year of Physics 2005. Every event would help to raise the awareness of physics in our society. Physics is all around us, not just hidden in school classroom.

The themes of activities could be :-

- Promotion of public understanding of physics and physical sciences.
- Physics in Education.
- Physics as the basis of many other disciplines and incubators for newly emerging science & technology fields.
- The great challenge of physics for the 21\textsuperscript{st} century.
- Physics in developing countries and physics for development.
- Women in physics.
- The cultural heritage of physics, from the Egyptians and ancient Greek legacy to modern physics.

Ideas for activities:

- Exhibition on physics and its achievements
- Hold a physics day
- Physics Poster competition
- Touring lecture series
- Invite scientist in your area/school/club.
- Interaction with local industry, technology parks, research lab, science museums in your area.
- Science based programme on local TV channel
- Publication of physics news items in local newspapers, bulletin boards of schools, colleges, science clubs.

Kinkini Dasgupta Mishra
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Thermometer

**Things you require**
- Two white card board sheets, each (55x70cm).
- Meter Scale or Stick.
- Red crayon or colour pen/pencil chalk.
- Marking Pen.
- Transparent Tape.

**Procedure**

1. From one of the sheets of card board, cut a 35cm x 70cm strip and an 20cm x 70cm strip.
2. Colour the bulb on the large strip and one side of the narrower strip red. Figure
3. On the larger strip, draw a thermometer using the measurements shown in the diagram
4. Cut out an remove the 10cm x 55cm section above the thermometer bulb.
5. From the second sheet of card board, cut a 35cm x 70cm strip.
6. Cut a 25cm slit at 10 cm from the short edge of the strip. The slit should be centered horizontally.
7. Place the strip behind the thermometer and tape the edges of the two strips together.
8. Insert the narrow paper strip into the slit so that the red side shows through the cutout section of the thermometer.

Holding the poster, slowly pull the red strip down and observe its height at each temperature mark.

**Result**

In this experiment you find that moving of the red-coloured strip up and down makes the temperature reading on the thermometer increase and decrease.

**Why does it happen?**

A thermometer is an instrument used to measure temperature, which is a very important part of the weather. Temperature measures how hot a material is, which equals the average kinetic energy (energy of motion) of the molecules in the material. The higher the temperature of a material, the faster its molecules are moving around.

As molecules move faster, they move farther apart.

In a real thermometer, as the material in the bulb gets hotter, it expands and moves up the tube. As the material cools, its molecules move slower and move closer together, and the material moves down the thermometer tube. There are two scales for measuring temperature- the Farenheit scale and the Celsius scale. Weather forecasters use maximum-and-minimum thermometers which record the highest and lowest temperature over a given period.

A thermometer is standardized. This means that the different heights along the tube are marked so that the distance from one mark to the next represents a change of the same number of degrees in the temperature of the material.

Dr. T.V.Venkateswaran, Smita Nair, Chetna Yadav

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**To explore**

1. Our skin can also sense changes in temperature. take 3 bowls, number them. Fill into them water at different temperatures : Bowl 1-little warm, Bowl 2-Cool, Bowl 3-Icy cold. Put a finger into Bowl 1 and ask your friend to put in Bowl 3. After 30 seconds immediately place both of your fingers in Bowl 2. What is the difference in temperature you both observe?
पृष्ठी में मनुष्य कब प्रकट हुआ?

माना जाता है कि लगभग 400 करोड़ साल पहले पृथ्वी में जीवन की उत्पत्ति हुई थी। सूर्यालाम में जीवन का उदय कभी-कभी जीव के रूप में हुआ था। माना जाता है कि यह समय बीतता गया एकल-कोशिकाकृति जीव के रूप में हुआ था। गुरुत्व का उदय कब भारत में सांवधान हुआ। माना लेकिन जीवन की शुरुआत से आज तक की अवधि को एक साल है। आज इस साल को जीवन साल कहा जाता है। इस जीवन साल का एक दिन लगभग एक करोड़ सामान्य सालों के बराबर होगा। इस साल के अग्रता महने में रोशनी जीवन पैदा हुआ। सितंबर महने के आखिर में नरम शरीर (वाले प्राणियों का आगमन हुआ। इसी “जीवन साल” के नवम्बर मास के बीच में पहले मकर का विकास हुआ। नवम्बर महने के आखिर में जलमें में रहने वाले पौधे और उनके प्राणियों का विकास हुआ। दिसंबर के आर्कन ने सर्दी-नुकसान वर्चुअल जीवन पर रोशनी वाले प्राणियों का उदय हुआ। पहला ज्वालकोशिका दिसंबर के बीच में प्रकट हुआ और इसी महने के आखिरी सप्ताह शुरू होते ही सभी ज्वालकोशिका पृथ्वी पर विद्रोह हो गया। दिसंबर के रोशनी सप्ताह के बीच में पहली बार पक्षी को उड़ाने की कोशिश का प्रयास हुआ! गुरुत्व का “जीवन साल” के दिसंबर की तृतीय तारीख को शाम का प्रकट हुआ।

ब्रांड में कितने मोलिक बल काम करते हैं?

ब्रांड में हम भार किस्म के मोलिक बल काम करते हुए देखते हैं।
1. प्रबल नामिक बल
2. वित्तु चुमकीय बल
3. दुर्बल नामिक बल
4. गुरुत्वीय बल

इसमें से दोनों गुरुत्वीय और वित्तु-चुमकीय बल द्विभाजी बल है। प्रबल और दुर्बल नामिक बल निकट परस्पर भार बल है।

इस गुरुत्वीय बल भी है, जो सभी पक्षों के सूचना की चाहा में रखता है।

गुरुत्वीय बल ही तारीख को एक बड़ी रातें गलकिया बनाता है। गुरुत्वीय बल उन सबी कणों के बीच काम करता है जिनमें भार होता है। चाराम मोलिक बलों में से गुरुत्वीय बल सबसे कमजोर बल है।

वित्तु-चुमकीय बल एक ठोस पदार्थ को अपने आप विद्रोहजनों से रोकता है।

ह्य सभी कणों के बीच में काम करता है जिसमें वित्तु और चुमकीय आवेश (बाँध) हो।

वित्तु-चुमकीय बल, जो आर्कन के पावन जोड़कर बनता है जिसके द्वारा एक परमाणु में नामिक के बारों के प्रवास को पकड़े रखता है।

इसके द्वारा एक परमाणु में नामिक के बारों के प्रवास को पकड़े रखता है।

प्रबल नामिक बल कंतल परमाणु में नामिक के अन्तर काम करता है।

इस बल नामिक के अंतर प्रजोन्म और न्यूट्रोन को एक साथ बाद के काम करता है।

दुर्बल नामिक बल मुक्तकणों के बीच में काम करता है और कुछ नामिक बल के अंतर करता है।
अब इसे रोक कर चित्र को एक्टिवकॉक विश्लेषण में पुनरूत्थान। सभी वाहीनी गोले उसके प्राकार पूर्व की लागन अंतिम चित्र को पाइया एक बार फिर से अपनी विश्लेषण वर्तक लेगा और इस बार वह वर्तक वाहीनी अंतिम चित्र की विश्लेषण में पुनरूत्थान आएगा। पहले की आकृति भी वृत्ताकार है, जब गोले भी वृत्ताकार है, किंतु यह सिर्फ इसके बिजली का हिस्सा और रिसाव का अंतर है कि दृष्टिकोन के कारण वाही व्यक्तियों को विश्लेषण में पुनरूत्थान उत्तर आएगा।

**अंकुर यादव**

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**विकल्प विनाशकली श्रेणी – 104 के सही उत्तर**

विकल्प यूज में अक्षरों अन विकल्प दो दर्शन पूछे थे: (1) ठोसक में हम कौनसे व्यक्ति थे? (2) सदियों के दिनों में, निर्बन्धन द्वारा बाहर निकली गई बाय, हमें विश्लेषण करना है? सही उत्तर बटनों के बाद तीन विकल्पों को विकल्प प्रमाण की पुस्तक के प्लेस में रखो। जी रहा है।

**ठोसक में हम कौनसे व्यक्ति थे?**

शरीर में कंपन (निर्भर वनोजेन्सिस) तब होता है जब हमारी जीवनमात्र वास्तविकता में तारी एक समानांतर तर के ओर बढ़ जाता है या 37.1 डिग्री सेंटिग्रेज (निर्धारित विनियम) के समानांतर तर के नीचे चला जाता है। बाहर में शरीर के कामों, जीवलाय वालीता का अधिक संकुचन है, जो कि जी रहे समय के ठोसक में शरीर के तांत्रिकी को स्थिर रखता है। इस दौरान दोलन कर रही मौसेस बी में संकुचन 10 से 20 दोलन प्रति सेकेंड की दर से होता है। पहले यह कम्पन गति अनिवार्यता होती है। लेकिन कुछ ही समय में मौसेस बी के छोटे-छोटे समुद्र अलग-अलग गति से कमन करने लगते है। इस विनाशकली गति के काम के दौरान, इससे जुड़े भागों में समान संतुलित नहीं रह पाती।

**सदियों के दिनों में, निर्बन्धन द्वारा बाहर निकली गई बाय, हमें विश्लेषण करना है?**

सदियों के दिनों में निर्बन्धन द्वारा बाहर निकली गई बाय, अंत बाहर के कारण हमें विश्लेषण करना है। फेफड़ों से बाहर निकली बाय में कुछः जल बाय और कार्बन डाइआक्साइड होता है। इस बाय का तांत्रिकी 40° सेंटिग्रेज होता है, जबकि वाहीनी बायवाय का तांत्रिकी 10° डिग्री सेंटिग्रेज या ओर कम होता है। जल बायगौर्ण के समान जल बाय नहीं था। समय बायण भी जल बाय को न पकड़ सकते। अंतिम जल बाय नहीं करने के लिए बायण नहीं जल बाय दूसरा में बदल जाता है। उस तांत्रिकी, जिस पर बायण में नीचे समाप्त नहीं करना है, अंतिम बायण कहलाता है। यदि सामान्य आर्द्रता 100 प्रतिशत है, तो अंतिम बायण यातायातीय तांत्रिकी के तांत्रिकी करता है। इस प्रकार ठोसक के दिनों में निर्बन्धन द्वारा बाहर निकली बाय 40° सेंटिग्रेज से 10 डिग्री सेंटिग्रेज या इससे कम तांत्रिकी कर तक बदल हो जाता है, जिसे कि अंतिम बायण से कम लेकिन हिमालय से अधिक है। अंतिम नहीं-नहीं जल बाय में तैरते से बायण हमें विश्लेषण पूर्वत है।

**निर्बन्धन को बाहर निकली गई बाय, हमें विश्लेषण करना है?**

VDIPNET NEWS
FABRUARY 2005

nk Kapoor @ vigyanprasar.com
Today every one of us wishes to remain young throughout the life and many of us spend a lot to maintain our body young and glamorous. This desire of human being attracted the researchers to discover chemicals and herbs which can at least delay aging and helps in maintaining shining wrinkle free skin with disease free healthy body and antioxidants proved to be the most effective anti-aging agent at present worldwide, which delays onset of aging to keep us young & healthy throughout the life.

At present antioxidants are of interest to both food scientists and health professionals, antioxidants are substances when present in food or in body at low concentration retards or prevents undesirable oxidation of substrates thus such compounds that inhibits unwanted oxidation of substance by free radicals are called Antioxidants, both natural and synthetic antioxidants are in a great demand as they are widely used in food, pharma, cosmetics and nutraceutical industries worldwide. At present about 600 chemicals are in the list of antioxidants and many more are under research. Today BHA, BHT, PG & TBHQ are most widely used as synthetic antioxidants whereas extracts of herbs like rosemary, Sage, Green Tea leaves & wheat grass are used as natural antioxidants. However, Tocopherol (Vitamin E), Ascorbic Acid (Vitamin C), Carotenoids, Flavonoids, Polyphenols & Tannins are also very popular GRAS (Generally Regarded as Safe) approved natural antioxidants whereas Butylated Hydroxy anisole (BHA) has been removed from the GRAS list due to its carcinogenic potential. Fresh fruits, vegetable oils seeds and spices are best natural sources of natural antioxidants.

Antioxidants & Food Industries

Antioxidants are widely used in fats/oil industries and allied food products containing lipids in considerable amount like potato chips, butter, fried foods, biscuits and other snack foods. Antioxidants application in fat/oil based food products delays or prevents onset of undesirable off rancid flavour in them that decreases food quality (rancidity). As we know fats and oils are triglycerides of saturated & unsaturated fatty acids and polyunsaturated fats are very prone to oxidation in presence of free oxygen, this self oxidation is termed as autoxidation of lipids (fats). The auto-oxidation of lipids is initiated by free radicals present in foods and free radical are also produced by decomposition of hydroperoxides which is a byproduct of lipid oxidation reaction, thus this initiates a chain reaction to produce undesirable chemicals to develop off flavour in fats/oil and allied food products. Ascorbic acid, isoascorbic acid and citric acid are the substance which are used to enhance the activity of antioxidants and are called Synergists. Thus, role of antioxidants in fats & oil based food industries is remarkable. Today one cannot aspect for quality food products without antioxidants especially from fats & oil based industries.

Antioxidants also plays very important role in fruit & vegetable processing industries as they inactivate peroxidase and phenolase enzymes in fruit & vegetables to prevent them from browning when they are in direct contact with oxygen. Ascorbic acid, Citric acid and Ethylenediamine tetra acetic acid (EDTA) are major anti-browning antioxidants used in fruit/vegetables industries for quality processed fruit & vegetable products.

Antioxidants as Anti-aging

As we know oxygen burns carbohydrate (glucose molecule) in mitochondria of cell to release energy together with production of carbon dioxide & water as byproduct (respiration). This is the most significant mechanism of life process produces small amount of unstable oxygen molecules as intermediate product that leaks out of the mitochondria of cell instead of being covert into water and carbon dioxide. These unstable oxygen molecules are called free radicals e.g. super-oxide and hydrogen peroxide. These free radicals causes damage to cell membrane, proteins and nucleic acid along with alteration in intra and inter cellular environment which finally results in promoting aging, cardiovascular diseases, cancer, high blood pressure, impaired skin, memory loss etc. Free radicals induces change in polypeptide chain of proteins resulting in cross linkage to form insoluble polymers which is the root cause of aging and presence of antioxidants inhibits degenerative polymerization to delay aging and promote healthy wrinkle free glowing skin. Antioxidant Vitamin E & extract of Elloe-Vera are used by nearly all cosmetic industries in their almost all kinds of products for skin and hair care.

Free radicals also causes great damage to blood vessels causing cardiovascular diseases like Atherosclerosis.
विटामिन सी किन पदार्थों में है?

क्या लेना है?
- कांच का ग्लास, स्टार्च, टिचर आयोजित, नींबू अथवा संतरा।

क्या करना है?
- कांच के ग्लास को आधा पानी से भरना है।
- उसमें बोझ चावल का मांड (स्टार्च) डालकर हिलाना है।
- अब टिचर आयोजित की कुछ बूंदें डालनी हैं।
- चोल का रंग नींबू हो जाता है।
- अब उसमें संतरे अथवा नींबू का रस खालकर हिलाना है।

क्या बताना है?
- नीले रंग के चोल का कौन-सा रंग बना है?

क्या करना है?
नींबू में उपस्थित विटामिन ‘‘सी’’ आयोजित से किया करने लोगों को रंगीन कर देता है।

क्या याद रखना है?
- विटामिन ‘‘सी’’, आयोजित से स्टार्च में बने नीले रंग का रंगीन कर देता है।

स्रोत: ग्लास से कुछ और खेल, प्रकाशक: विश्वन प्रसार

Contd. from page 8
(hardening of blood vessel), high blood pressure, heart attack etc. The best way to avoid these cardiovascular diseases is to increase antioxidants in our diet which neutralizes harmful free radicals. Free radicals also attacks nucleic acids by modifying their structure & changing their genetic code causing mutagenic & carcinogenic disorders resulting cancer, thus antioxidants also works as anti-carcinogenic agents by scavenging free radicals to protect us from cancer.

Thus we have seen that by including natural antioxidants in our diet in adequate amount does not only delay aging but also protect us from various diseases. Therefore, we should intake natural antioxidants for our longevity. Fresh green vegetables & fruits are the best sources of natural antioxidants; other natural antioxidant compounds are Ascorbic acid, Vitamin E (Tocopherols) & Betacarotene (Vitamin A) etc. Some herbs like Rosemary, Sage, Green tea leaves are very commonly used as herbal source of natural antioxidants, Zinc and Selenium minerals also promotes formation of free radicals to retard aging..

M.K. Bajpai
guddu_bajpai@rediffmail.com
Welcome new VIPNETians

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Bihar
845437

Golangadia Primary
School Science Club
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H/+Po-Golangadia Kaptipada
Post Office- Golangadia
Dist:-Mayurbhanj
Orissa
757040

Vikash Science Club
Place-Therubali
Post Office-Therubali
Dist: Rayagada
Orissa
765018

Briage Science Club
Place-Therubali
Post Office-Therubali
Dist: Rayagada
Orissa
765018

Bundelkand Vigyan Club
C/o Shri. P.L. Tiwari
C-26, I.G.F.R.I.
Gwalior Road,
Dist:-Jhansi, Post Office- Jhansi
Uttar Pradesh
204003

Jyoti Mahila Mandal
At-Goilkana, P.O.
Hatamuniguda
Via-Muniguda,
Dist: Rayagada
Orissa
752054

Anchalika Harijan Mahila
Urniyan Parisad
At Plot No. 570, Baramunda
Harijan Sahi, Bhubaneswar
P.O.- Baramunda,
Bhubaneswar
Dist:- Khurda
Orissa
751003

Basudev Multi Purpose
Mahila Samiti
Place- At Plot No. 475
Jamujhari
Post Office- Dandi
Chhtabar
Dist:- Khurda
Orissa - 752054

Talent Gali Razia Begum
Science Club
Add-4083 Gali Razia
Begum, Hauz Quazi
Delhi - 110 006
P.O.- Hauz Quazi
Dist:- Sadar
Delhi - 110006

Talent Kaliyan Science
Club
Add-1893, Gali, Koliyan,
Suwalan, Jama-Masjid
Delhi - 110006

Pathani Samanta Science
Club
Place-Jaya Durga High
School, Narla Road
Post Office- Narla Road
Dist:- Kalahandi
Orissa - 766110

Pathani Samanta Science
Club
Place-Jaya Durga High
School, Narla Road
Post Office- Narla Road
Dist:- Kalahandi
Orissa - 766110

Kaushik Girls Inter
Collage
Add- Mohammad Pur Lala,
Meerut Cantt.
Uttar Pradesh

K.V.U.& R. D. Society
Konnagar: P.O.-Ghatal
Dist: Paschim Medinipur
West Bengal - 721212

Samanta Science Club
Place:- Block colony Kotpad
Post Office- Kotpad
Dist:- Kalahandi
Orissa - 766023

Bighneswar Science Club
(CRDC-40)
Place:- Chikana
Post Office-Chikana Via-
Birighapur
Dist: Jaipur
Orissa

Pathani Sanani Science
Club (CRDC-38)
Place-Tikabali
P.O.- Tikabali
Dist: Phulbani (Kandhamal)
Orissa

Biraja Science Club
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Birighapur
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Dist: Jaipur
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Kalpana Chawala
Science Club
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Kalony, Jaisalmer
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Suneeta Science Club
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P.O. Sarvodaya Ashram
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Uttar Pradesh - 207001

Prabhakar Science Club
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Tota Ka Tal, Loha Mandi
Agra-2
Uttar Pradesh

Jigyasa Science Club
41/31-A, K.K.S. Hostel
Tota Ka Tal, Loha Mandi
Agra-2
Uttar Pradesh

New age Children
Science Club
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P.O. Dumara
Dist:- Sitamarhi
Bihar - 843301

Nankargaon High School
Science Club
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P.O.- Dhantola Bazar
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Assam - 783372

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Science Club
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Gali Naal Bandan
Shahganj Chowk
Ajmeri Gate
Dist:- Sadar Pahadh Ganj
Delhi - 110006

Talent Happy Club
1586, Gali Badi Peepal Wali
Pahavi Bhoja
Baga ar0
Delhi - 110026

Talent children Zone Club
1427, Bazar Chitli Qabar
Jama Masjid
Delhi
110006

HT & CTC Talent Club
1381 I1rd floor, Pahari Iml
Jama Masjid
Delhi
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Islamia Talent Club
Islamia Middle School,
Pahari Bhoja,
Bazar Chitli Qabar Jama
Masjid
Delhi
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Talent-Orien Public
School Club
Sarak Prem Narayan,
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Talent-Ideal Science Club
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Qutubuddin,
Kali Masjid
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110006
Holi is most colourful festival of our country, marks the farewell to winter and welcome to spring season. Holi matches the riot of colours of spring in full bloom and traditionally was played by making colours from the flowers blooming at that time and even herbs etc. The fragrant natural colours also had therapeutic value and were beneficial for our skin and health. The ingredients of Gulal were purposely chosen for their emollient qualities, which were far from today’s toxic colours. In Vrindavan Holi was and is still played with actual flower petals chosen for their fragrance and colour such as Rajnigandha and rose. But nowadays, most of the holi colours sold in the market are oxidized metals or industrial dye mixed with engine oil. The green colour comes from copper sulphate, purple is chromium iodide, silver is aluminium bromide, black is lead oxide and shiny colours are results of powdered glass being added to the colours. All these colour are toxic and can results in any thing from skin allergies to cancer, eye irritation to blindness…. and much more.

Development Alternatives, non profit organization are running a CLEAN (Community Led Environment Action Network programme)-India programme in over 40 cities in India along with NGO network partners and Schools on various issue of environment concerned. The school student under CLEAN India programme creates the pressure group on community to ignore the use of synthetic colour. We conduct the workshop in schools and trained students on household recipe of natural colour and Students conduct the rally, door to door campaign in market and colonies and distribute the pamphlets depicted the harmful effect of synthetic colour and benefits of natural colours.

The natural holi colour is not only eco friendly but create livelihood also. The women member of self Help Group of Tikamgarh district prepare the natural holi gulal and create the seasonal employment for themselves in TARAgam campus, Orchha. The packaging material of gulal is made of recycled hand made paper which is bind with Kalawa. The women prepare three types of herbal gulal such as Red from Red sandal, Tesu flower, Rose petal, Yellow from Termic powder, Marigold petals and green from Mehndi leaves, Rajnigandha flower petals, harshringar, pudina etc.

Dr Anand Kumar Rai
Science Highlights

Members of Arya Bhatt Vigyan Club, Mauje, Ramgarwha, East Champaran, Bihar, collected donation for tsunami victims

Science Research Club, Banda, U.P. organised a Science Model Training Workshop with rural school children

Students of H.A.P.S., Hamirpur (H.P.) won prizes in 'Science Exhibition' organized by SCERT, Solan under the theme 'Recent trends in Science and Technology'

Eco Friendly Club, A.M.H.S. School, Thiruninravur, TN participated in Air Pollution Awareness Program and Tsunami rally-environmental procession

Nature Science Club, Nisarg Vigyan Mandal, Nagpur organised an Environmental Awareness Program-'Pradushan Mukt Maharashtra-2005' during December 2004

If you want to know more about Vigyan Prasar, its publications & software, besides the next moves of VIPNET Science Clubs, please write to us at the address given below:

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C-24, Qutab Institutional Area,
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