

International Chemistry Olympiad

An Introduction

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International Chemistry Olympiad

First International Chemistry Olympiad
(IChO)

June 18 - 21, 1968

Prague, Czechoslovakia

Three teams (Czechoslovakia, Poland,
Hungary)

IChO Today

Period: 1st or 2nd week of July

Team: 4 students and 2 or 3 Teachers

Competition for an Individual, Participating students are from secondary or higher secondary level

Targeted towards **pre-university** students

Attract students towards the subject through challenging problems

No. of participating countries: about 68

Examinations -

Total: 100 points

Theoretical examination: 60 points

Practical examination: 40 points

Characteristic features of IChO

Preparatory Problems: a booklet of challenging problems in theoretical and experimental areas of chemistry— prepared by the country organising the IChO and can be downloaded and used for teaching and learning of chemistry



- Open system (w.r.t. papers, evaluation, rules & regulations, awards)



Characteristic features of IChO

- ❖ Platform for interactions among teachers
- ❖ Presents opportunities to compare standards of chemistry education at secondary level in different parts of world



Cultural Exchanges

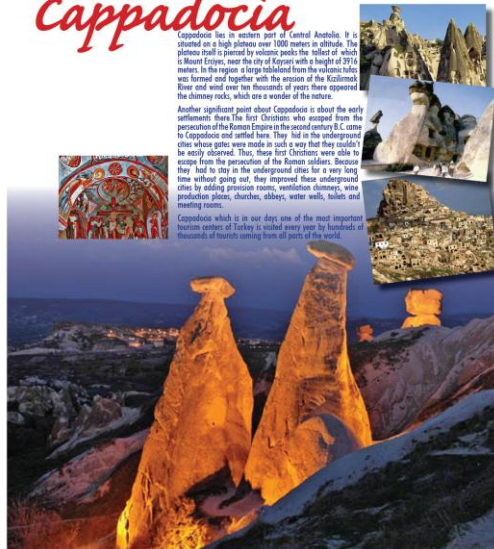
2011 Ankara, TURKEY
International Chemistry Olympiad
catalyzer
future through chemistry
no: 8 July 15, 2011

Cappadocia

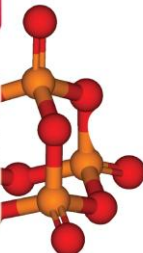
Cappadocia lies in western part of Central Anatolia. It is situated on a high plateau over 1000 meters in altitude. The plateau that is joined by volcanic peaks the tallest of which is Mount Erciyes, near the city of Kayseri with a height of 3916 meters. In the region a large hollowed from the volcanic tuffs was formed and together with the erosion of the Kizilirmak River and wind over the thousands of years there appeared the chimney rocks, which are a wonder of the nature.

Another significant point about Cappadocia is about the early settlements there. The first Christians who escaped from the persecution of the Roman Empire in the second century B.C. came to Cappadocia and settled here. They hid in the underground cities whose gates were made in such a way that they couldn't be easily observed. Thus, these first Christians were able to escape from the persecution of the Roman soldiers. Because they had to stay in the underground cities for a very long time without going out, they improved these underground cities by adding provision rooms, ventilation chimneys, wine production places, churches, schools, water wells, baths and meeting rooms.

Cappadocia which is in our days one of the most important tourism centers of Turkey is visited every year by hundreds of thousands of tourists coming from all parts of the world.



invention of phosphorus



Phosphorus was invented in 1866 by an alchemist named H. Brand by chance. H. Brand left human urine in a vessel for several months, and boiled and condensed the vapor produced. The condensed matter then became a paste. When night came and all were dark, the paste started glowing brightly. Since it glowed, the name phosphorus was given after the Greek word "light containing". Phosphorus later started to be produced from animal bones.

Strange as it may sound, R. Boyle had discovered, as early as in 1680, that when tree branches dipped in sulfur were rubbed against paper, the tree branch caught fire. However, because sulfur was expensive, he could not put this invention into practical use.

turkish cuisine

BÖREKS

Börek is the general name for salty pastries made from layers of handmade or ready dough. Depending on the filling, the shape and the type of cooking, several types exist in Turkish kitchens. To name some, çiğ börek (raw börek), kat böreği (arm börek), fındık kadayıfı (honey nap börek), gül böreği (rose börek), süzme böreği (squeezed börek), taze böreği (sweetened börek), acı börek (bitter börek) are cheese, mixed meat, spinach and potatoes.



FINCAN BÖREĞİ

SIGARA BÖREĞİ

SUNLESS TANNING CREAM

If you work too hard and cannot take holidays during summer or maybe you want to have a tanned skin in the middle of winter without solariums, then you can use sunless tanning cream which has a simple organic molecule as an active ingredient: Dihydroxyacetone.

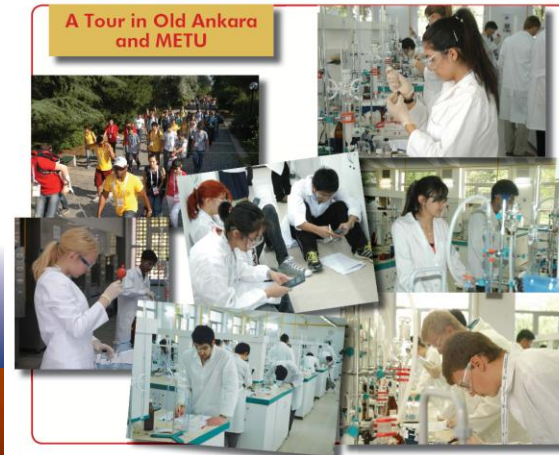
It is the smallest member of carbohydrate ketoses with three carbon atoms. It is produced from sugar cane and sugar beets or by the fermentation of glycerin. Sunless tanning creams contains between 1% and 15% of dihydroxyacetone.

How does it work? Not very complicated to understand for a chemistry fan: the carbonyl group of dihydroxy acetone reacts with the amino functional group on the amino acids of proteins on the dead skin and causes a color changes which we call tanning. This reaction is known as Maillard reaction [1]. Although there are some concerns and considerations, it is accepted as non-toxic and safe chemicals in many countries.

[1] Jung K, Seifert M, Herrling T, Fuchs J. Spectrochim Acta A Mol. Biomol. Spectrosc. 2008; 69, 1423. <http://www.ncbi.nlm.nih.gov/pubmed/18024196>

Photo: <http://www.sxc.hu/photo/249196> (used with the permission of photographer)

Dihydroxyacetone

OCC(=O)CO


Current Selection Procedure for Indian Team

Stage I: National Standard Examination in Chemistry (NSEC)

Number of centres: about 950+, across the country

Number of students : around 30,000

Nature of paper: **80 Multiple choice questions**

Syllabus: (CBSC class XI & XII)

Duration: 2 Hrs

Stage II: Indian National Chemistry Olympiad Examination (INChO) Theory

Number of centres:	15 across the country
Number of students:	Around 300 selected from NSEC
Nature of paper:	6-7 Challenging Problems (syllabus :CBSE ++)
Duration:	3Hrs

Stage III: Orientation cum Selection Camp

Number :	35 students selected from INChO (Theory)
Examinations:	Multiple Theoretical and Experimental Examinations (based on preparatory problems)
Duration:	8 -10 days
Place:	HBCSE

Stage IV: Pre-departure Training Camp (for Indian Team)

Duration: 14 days (as per the rules of IChO)

Place: HBCSE

(prior to departure of team for the forthcoming
IChO)

Stage V: Participation of Indian Team in IChO

Experimental examinations at OCS



Official website for International Chemistry
Olympiad - <http://www.icho.sk>



Information about Indian Olympiad programme
<http://www.hbcse.tifr.res.in/olympiads>

For queries about Indian Science Olympiad
programme write to

Prof. Anwesh Mazumdar, National Co-ord
Science Olympiads

E-mail: nc-olympiad@hbcse.tifr.res.in

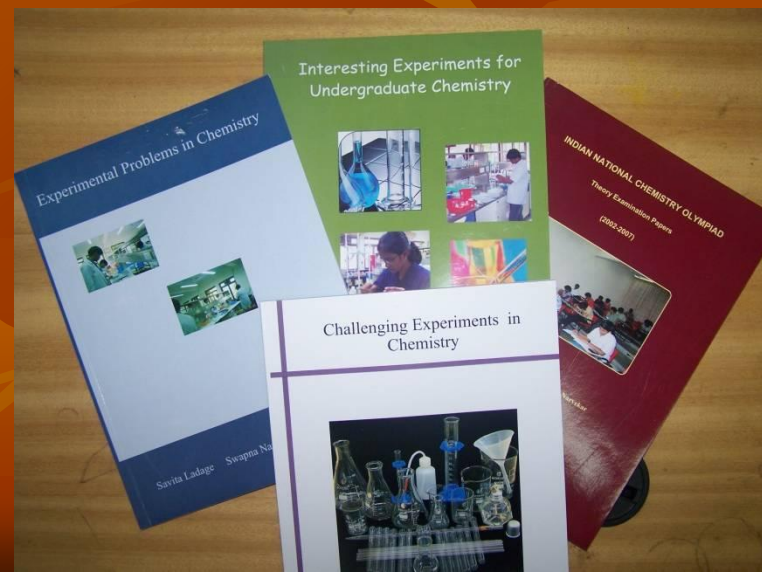


Contributions of INChO Programme

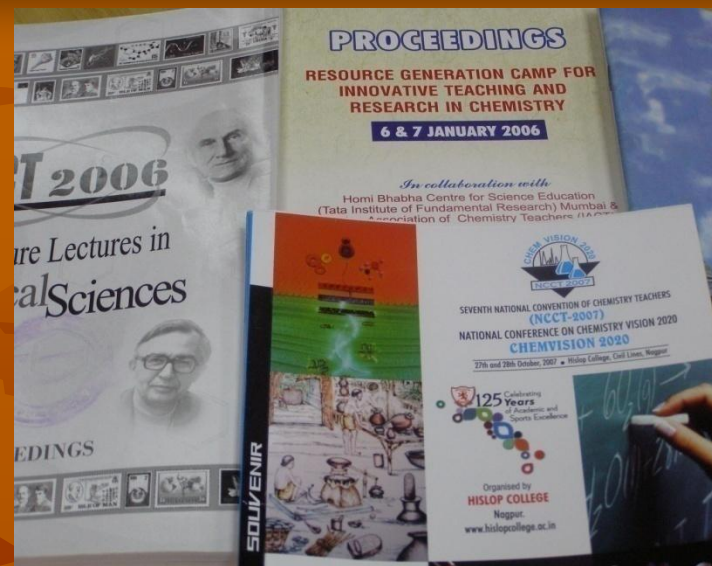
❖ Number of students : from 700 (in 1999) to 30,000 (in 2011)

spread across the country. But still confined more to urban areas of the country and has low participation of female students.

- ❖ Quality questions in different areas of chemistry (accessible to any student and teachers)
- ❖ Challenging Experimental problems - These experimental problems are considerably shaping the new major undergraduate initiatives within the country



Formation of Association of Chemistry Teachers



The association playing a key role in networking chemistry teachers across India through various activities. Currently the association has 950+ members, holds annual conventions, 6 zones across India, partially funds the seminars, workshops and conferences related to chemistry research and chemistry education.

IChO Theoretical syllabus

IChO Theoretical syllabus has excellent overlap with CBSE and IIT-JEE syllabi

Students from CBSE stream and preparing for IIT-JEE are better prepared for INChO (Theoretical) examination.

IChO questions

Cover different areas of chemistry

physical

Inorganic

Organic

analytical

(Core topics, Classical and advanced)

This is true for INChO Theoretical Examination

Characteristics of IChO Theoretical questions

Context and Thematic problems

Actual situations

Tests different interlinked concepts

Nature of answers

objective (calculations, equations, structures, completing mechanisms)

No prose answers

Importance of contextual problems

- Helps in developing Students' interest
- Brings importance of chemistry in daily life
- Interconnects chemistry to various issues
- Presents active situation for learning

Is it difficult to find context?

Bihar

- ☺ Archeological buildings (^{14}C dating)
- ☺ Litchi (Polyphenolic compounds –cover of the fruits)
- ☺ Chemistry of Arsenic in Ganges river basin
- ☺ Pyrite/Limestone production
- ☺ Steel production

Thus, today Indian Chemistry Olympiad programme is an educational activity that is on one hand nurturing talent (*excellence end*) and at the same time is equally concerned about chemistry teachers and chemistry education with in the country especially attertiary level (*equity end*).



Thank You !!!!

