

## A report on In-house Summer Research Program (Online)

**Name of the Mentors: Dr Hemantkumar S Chandak**

**and Dr Sanjio Zade (IISER, Kolkata)**

**Duration of the project: 05 July 2020 to 30 August 2020**

As per policy for promotion of Summer Research, online summer research program was conducted during the academic year 2019-20. Due to COVID -19 pandemic, it was conducted in an online mode. Students applications were invited in online mode by the IQAC.

29 students applied for summer research program under my mentorship. Out of which, 12 students were shortlisted based on their academic record and availability of IT infrastructure with them. Following students joined the program

Sr No.	Name of the student	Mobile No.	Class
1.	Roshani Tiwari	8668827611	MSc Chemistry
2.	Sanjivani Raut	8805041675	MSc Chemistry
3.	Bhargav Nitin Bhatti	9960455146	BSc I (PCM)
4.	Dhanshri Dilipappa Gadge	9022697779	BSc III (PCM)
5.	Ankita dipak kale	7420936485	MSc. Chemistry
6.	Ku.Vaishnavi.N.Fursule	8668223040	MSc 1year Chemistry
7.	Anmol Khanchandani	9579519520	MSc Chemistry
8.	Rutuja yadgire	8788450938	BSc 1 st (PCM)
9.	Sarika K. Bavane	9168698016	MSc Chemistry
10.	Neha Lakhani	9823664302	MSc Chemistry
11.	Payal Khade	9545720999	BSc 1 (CZM)
12.	Ku.Trupti Manohar Neman	8308928054	MSc Chemistry

The program was conducted in online mode. A WhatsApp group was prepared and two of my PhD students namely, Mohd. Ali and Abhijit Ingle were appointed as a group leader. The two areas identified for summer research were -

1. **Computational study of small Molecules using DFT calculations and**
2. **Understanding the chemical footprints in items of daily use.**

Students were given a choice to select the area of research. It is noteworthy to mention that I have tried to build a linkage with **Dr Sanjio Zade, IISER Kolkata** to conduct training session on the use of Gauss View and Gaussian software. Periodic virtual meetings with students were conducted on Zoom/ Google Meet platform. Dr Zade sir attended all the meetings The recorded videos of the training sessions were uploaded on YouTube and following links were shared with the students to get better insight of the topic.

1. <https://youtu.be/4jXUpORfLfi>
2. <https://youtu.be/70lrQJIRcLY>
3. <https://youtu.be/E6MGXpt4mYA>
4. <https://youtu.be/-8taKualpWE>

The students completed who have successfully completed project along with the link to their report is provided below.

Sr No.	Name of the student	Title of the project	Link to the report
1.	Roshani Tiwari	To study the chemical footprint of food products	<a href="https://tinyurl.com/roshanitiwari">https://tinyurl.com/roshanitiwari</a>
2.	Sanjivani Raut		
3.	Bhargav Nitin Bhatti	“Computational study of simple organic molecules using Density Functional Theory Calculations ”	<a href="https://tinyurl.com/bhargavbhatti">https://tinyurl.com/bhargavbhatti</a>
4.	Ankita Dipak Kale	“Understanding the chemical footprint in daily needs products”	<a href="https://tinyurl.com/ankitakale">https://tinyurl.com/ankitakale</a>
5.	Ku.Vaishnavi.N.Fursule	Understanding the chemical footprint in electronics and its related products	<a href="https://tinyurl.com/vaishnavifursule">https://tinyurl.com/vaishnavifursule</a>
6.	Anmol Khanchandani	“To study the chemical footprints of hair products”	<a href="https://tinyurl.com/anmolkhanchandani">https://tinyurl.com/anmolkhanchandani</a>
7.	Rutuja Yadgire	“Removing of Chemical footprints from stationery products”	<a href="https://tinyurl.com/rutujayadgire">https://tinyurl.com/rutujayadgire</a>
8.	Sarika K. Bavane	“To study the chemical footprints in body care products and understanding their side effects on human being.”	<a href="https://tinyurl.com/sarikabavane">https://tinyurl.com/sarikabavane</a>
9.	Neha Lakhani	1. “To study the chemical footprint of medicines sold over counter” 2. DFT study on the conformations of organic molecules	1. <a href="https://tinyurl.com/nehafotprints">https://tinyurl.com/nehafotprints</a> 2. <a href="https://tinyurl.com/nehadft">https://tinyurl.com/nehadft</a>
10.	Ku.Trupti Manohar Nemane	“Understanding chemical footprint in beauty product (Cosmetics)”	<a href="https://tinyurl.com/truptinemane">https://tinyurl.com/truptinemane</a>

Some of the significant outcomes of the project are:

1. Research aptitude among the student has been developed.
2. Students learned to search literature and write reports.
3. Students perspective about use of different items have been changed. They now look for the contents in the product, their effects and side effects before using any item.
4. They are showing willingness to work as ambassador for creating awareness among the society.

5. Their confidence level has been raised so that they can come up with new ideas and try new experiments.

Some of the glimpse highlighting the students activity during summer research are appended below:

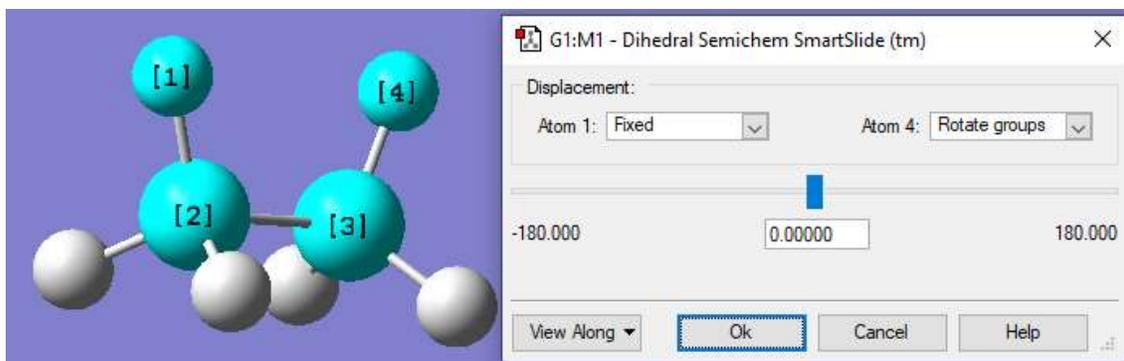


**1. Mouth wash prepared from Clove, Gauva leaves, Cinnamon and salt**  
(Student who prepared : Ankita D Kale)

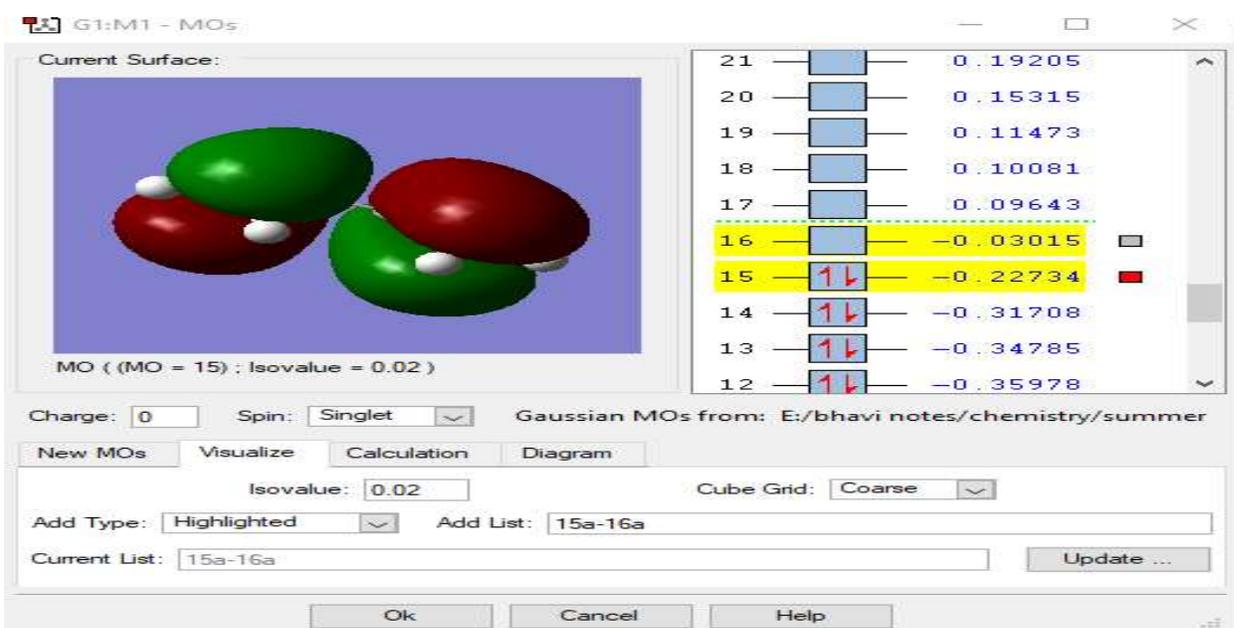


**2 Preparation of Neem soap**

(Student who prepared : Sarika Bavane)



### 3. Fixing Dihedral Angle



### 4. Visualization of FMO

*Handwritten signature: Chandak.*

Dr H S CHANDAK