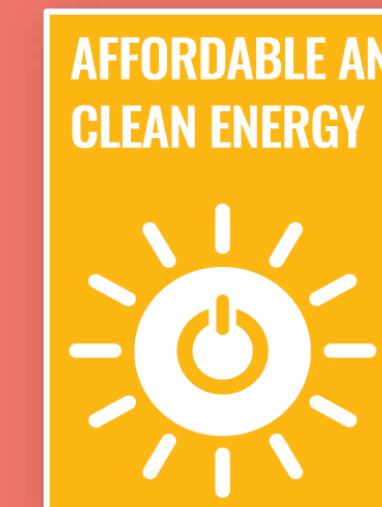




IIS (Deemed to be University), Jaipur

SYNTHESIS AND APPLICATION OF A NEW CLASS OF CROSS-CONJUGATED MESOMERIC BETAINES AS SEMICONDUCTING MATERIAL

Chandani Mathur ✉, Raakhi Gupta

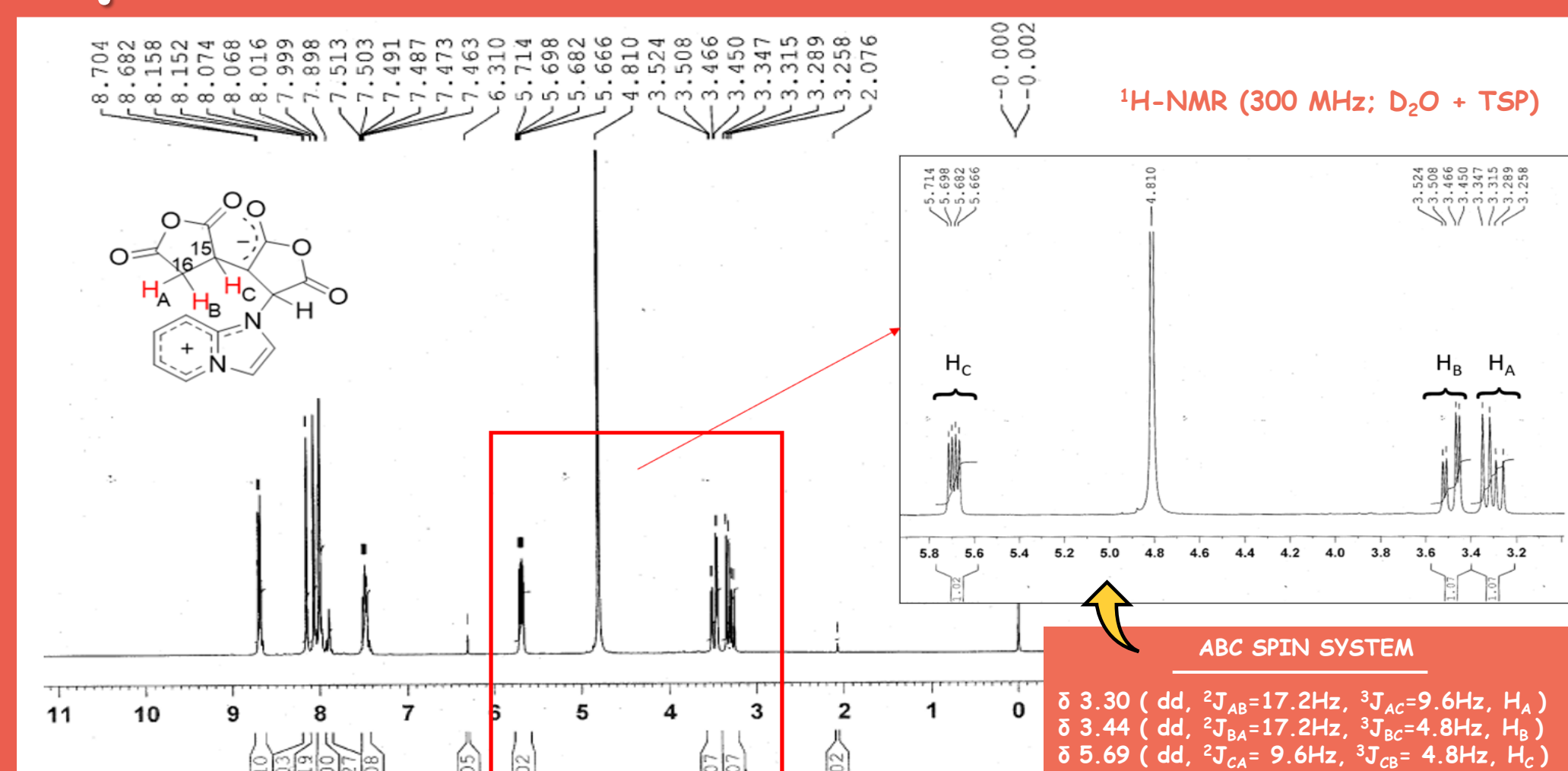
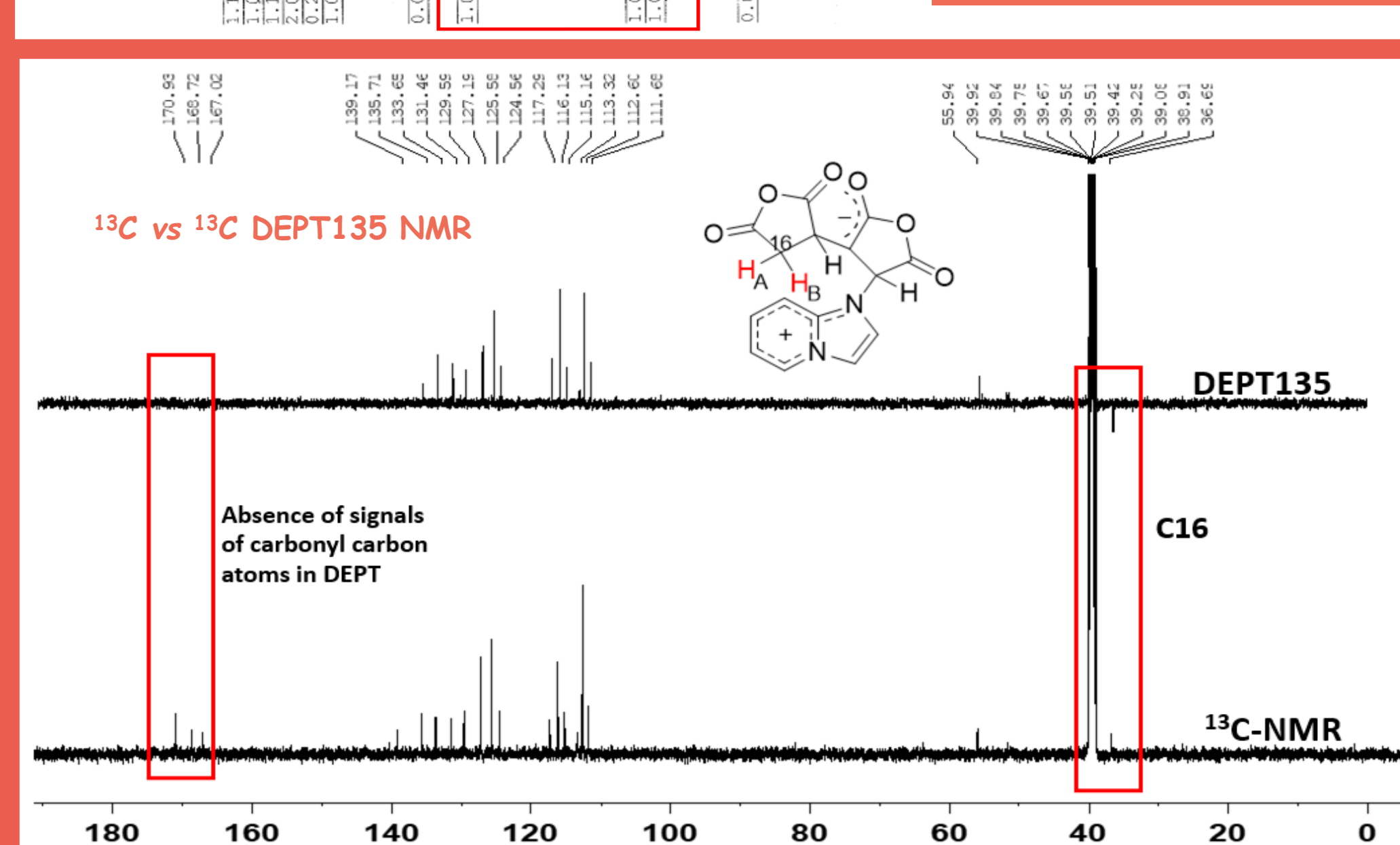
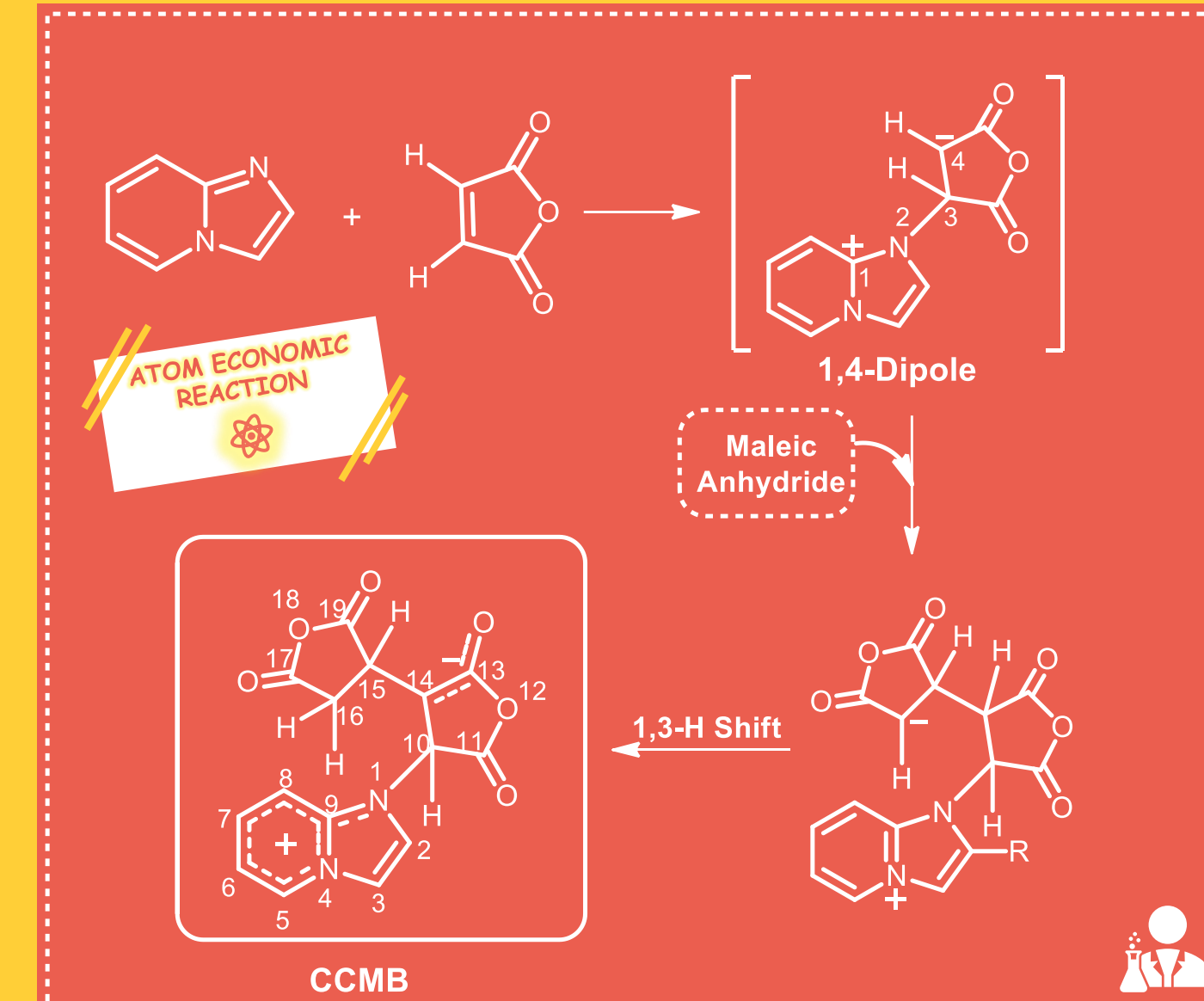


ABSTRACT

An atom-economic reaction ensued when a solution of maleic anhydride was added to a solution of imidazo[1,2-a]pyridine, resulting in the formation of a cross-conjugated mesomeric betaine (CCMB). The compound has been characterized by different spectral techniques. The SEM and BET analysis revealed the surface morphology to be of a droplet having a pore size of 5.14 nm while the physico-chemical investigation established the semiconducting and fluorescent properties of the compound which could enable its use as a gas sensor as well as a luminescent material.

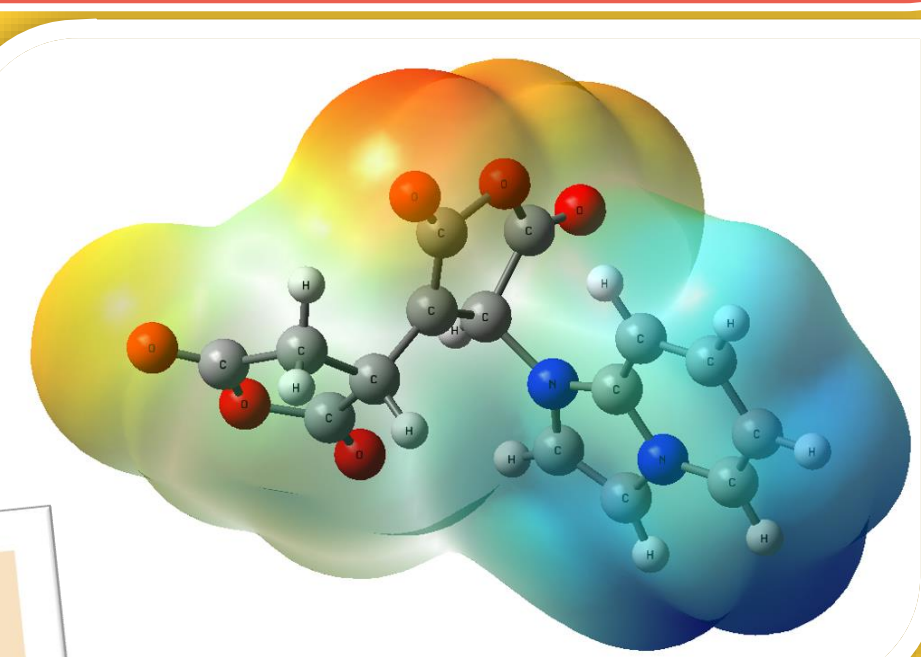
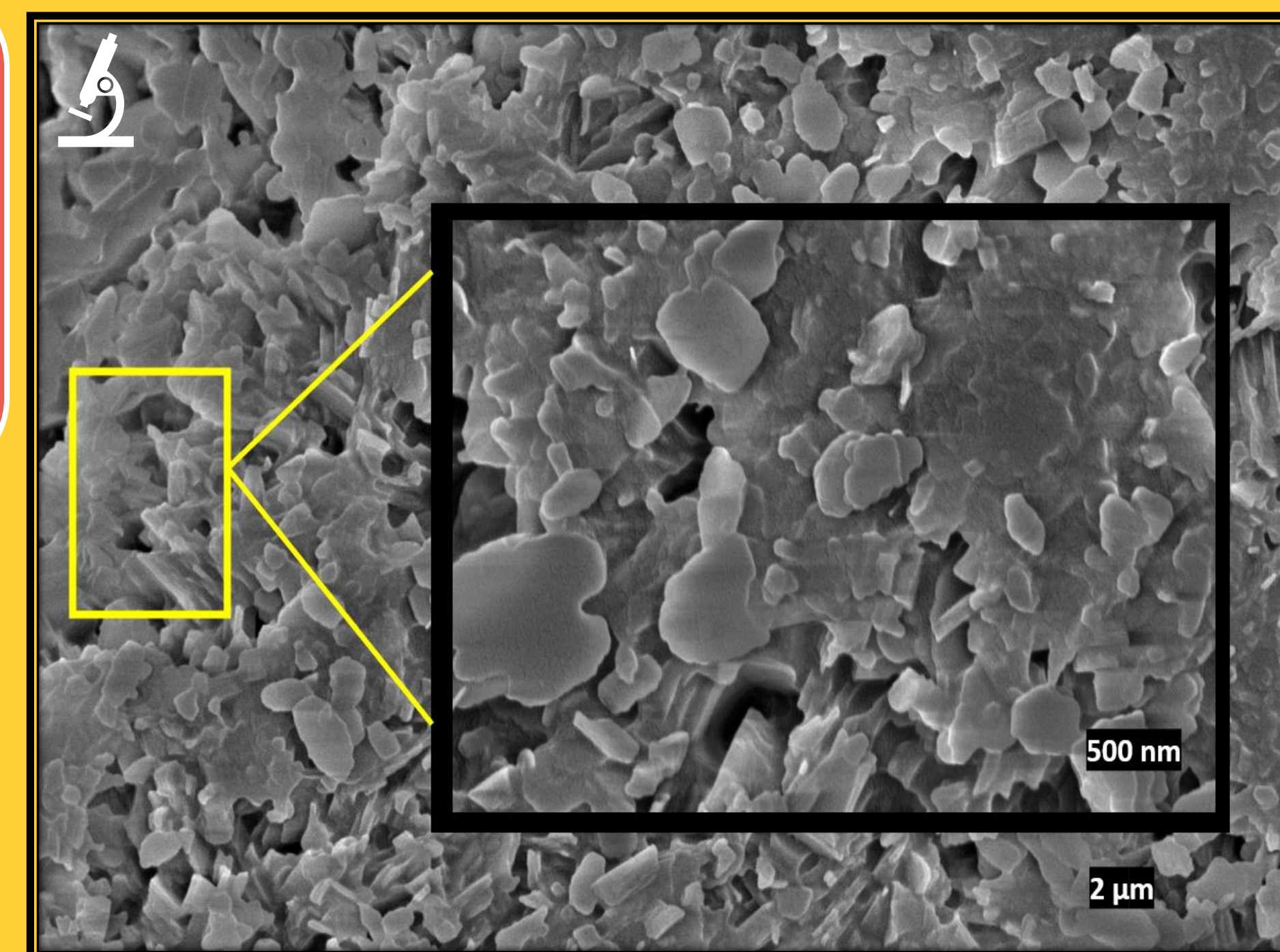
Mathur, C.; Gupta, R.; Bansal, R. K.; Salunkhe, D.B.; Gohad, S.W. *Arkivoc* 2022, (accepted for publication) <https://doi.org/10.24820/ark.5550190.p011.839>
Sharma, N.; Kour, M.; Gupta, R.; Bansal, R. K. *RSC Adv.* 2021, 11, 25296. <https://doi.org/10.1039/2f1ra03981d>

Spectral Characterization of CCMB



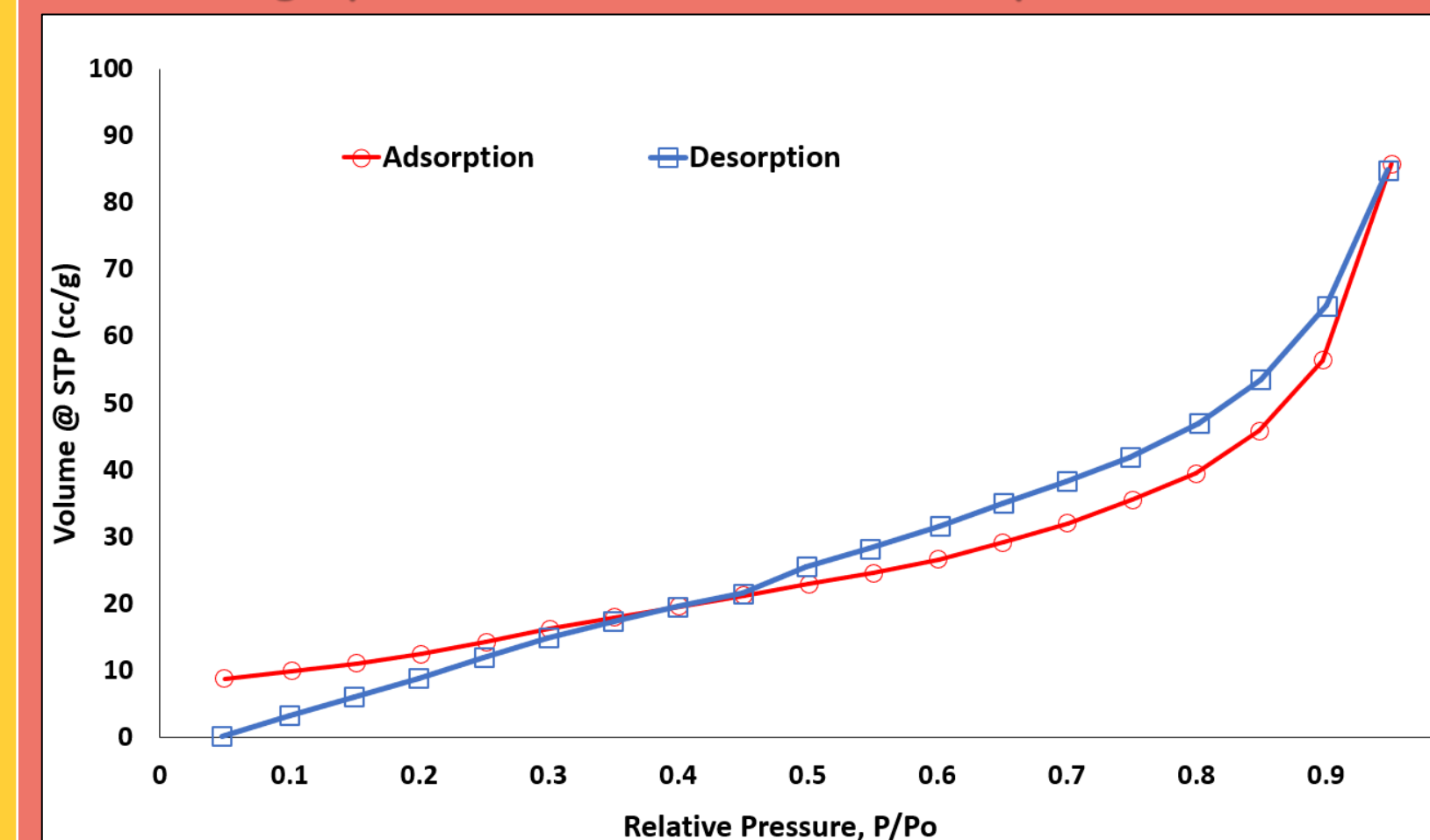
HIGHLIGHTS

- A new class of acyclic CCMBs
- formation of 1,4-dipole followed by facile attack on 2nd molecule of electrophile
- 1,3-H shift responsible for extra stability of final product

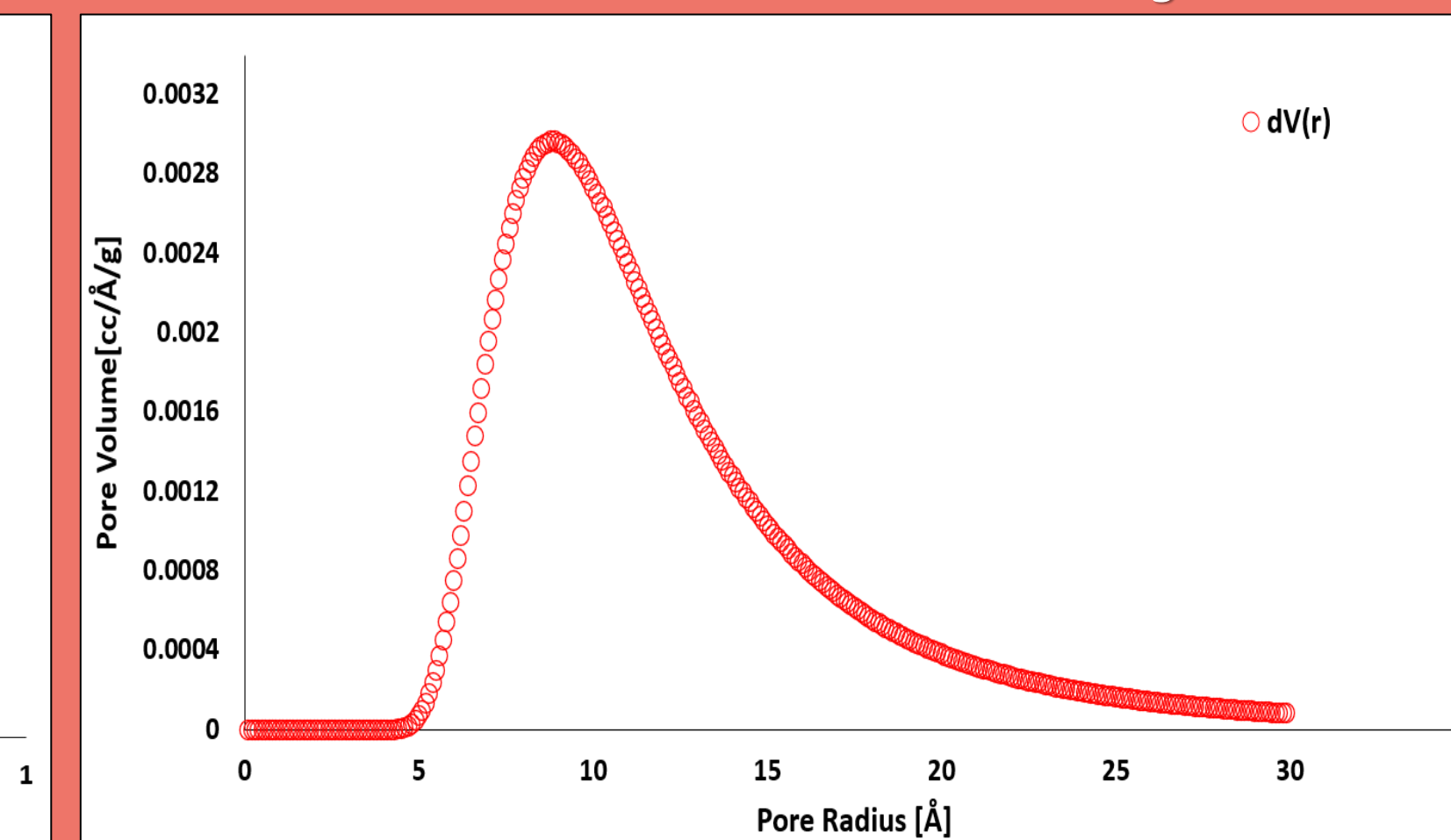


BET Adsorption Isotherm & DA Plot

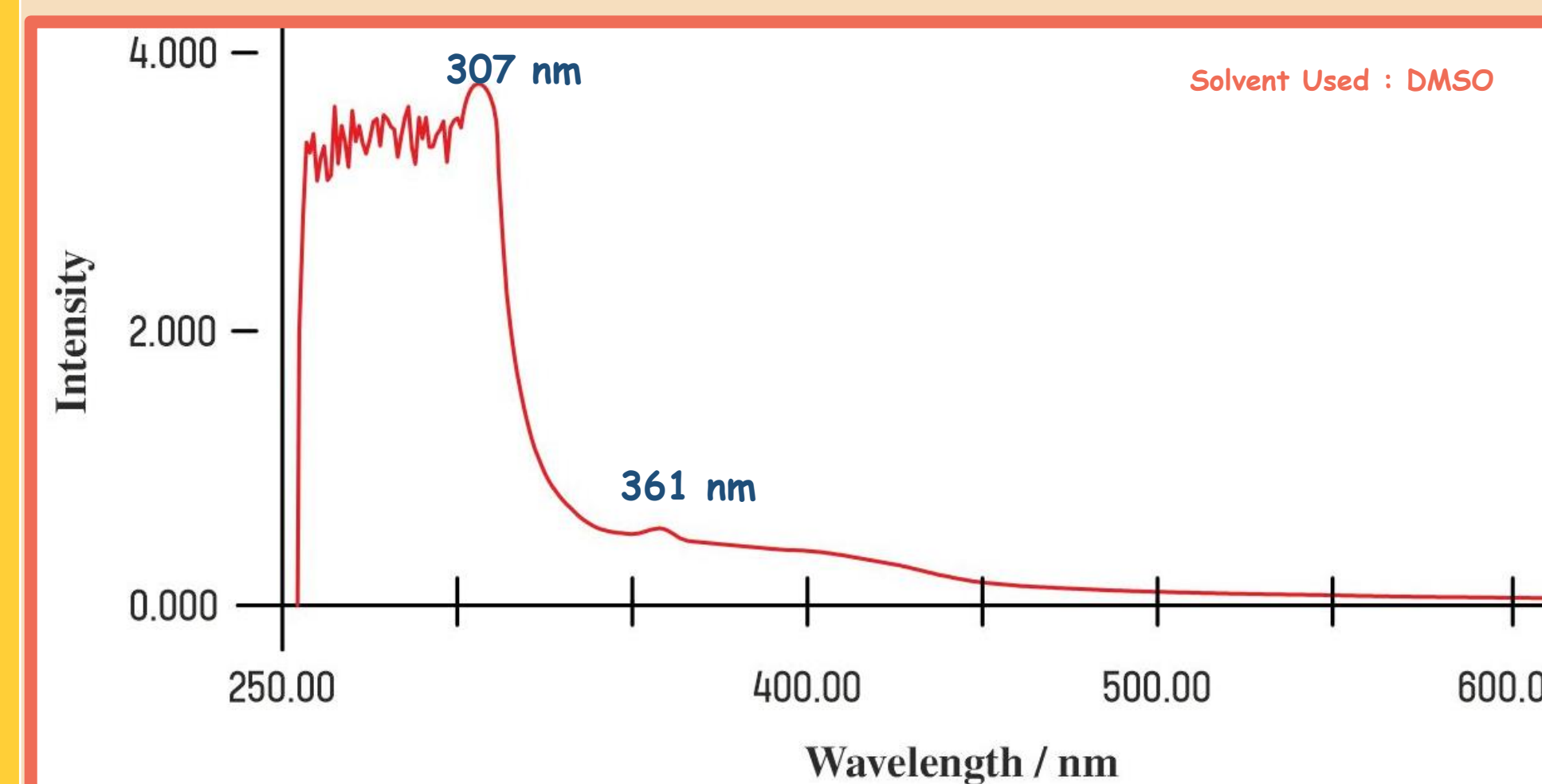
Average pore radius = 5.14 nm; Mesoporous surface



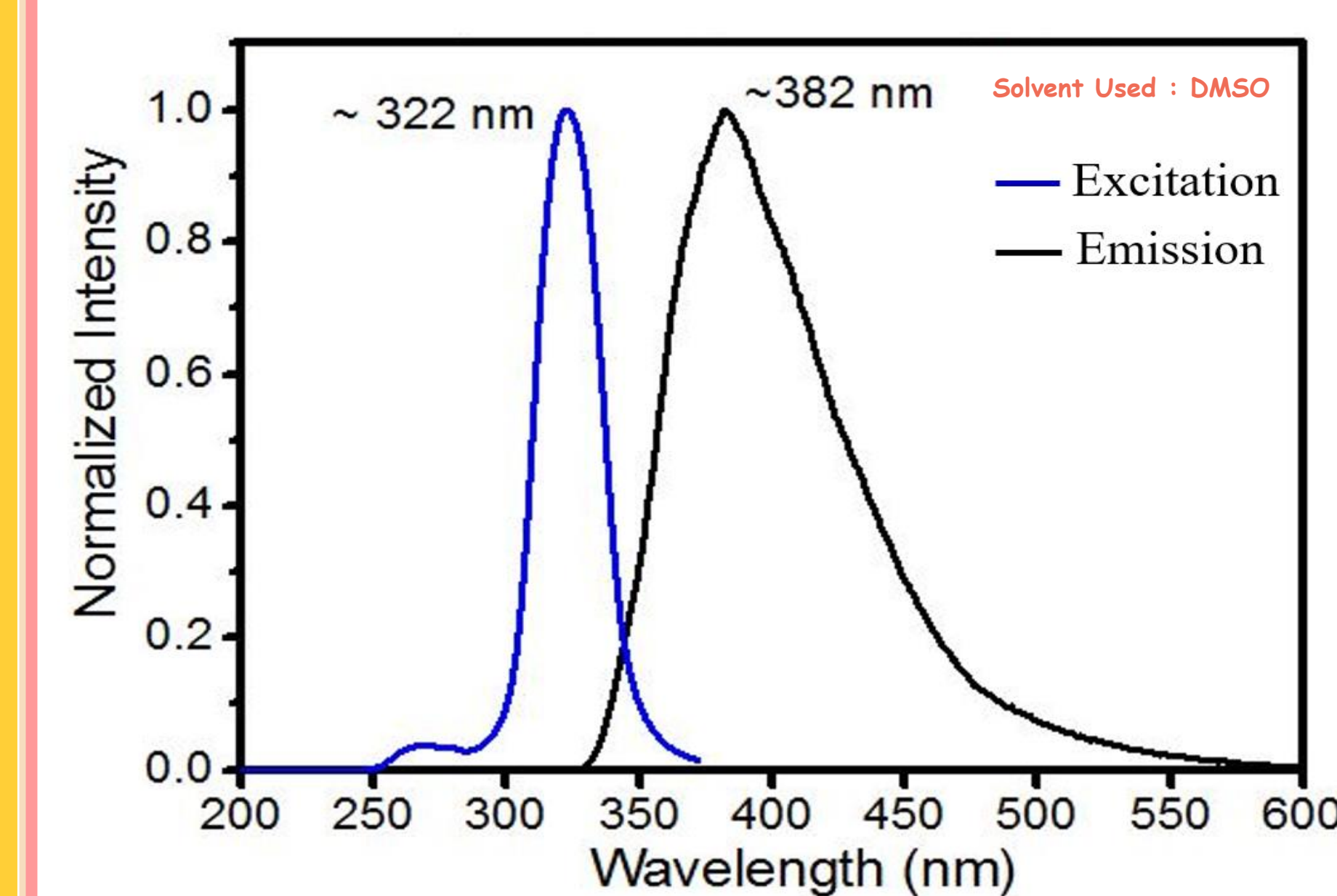
Surface Area = 51.635 m²/g



UV-Vis. Spectrum

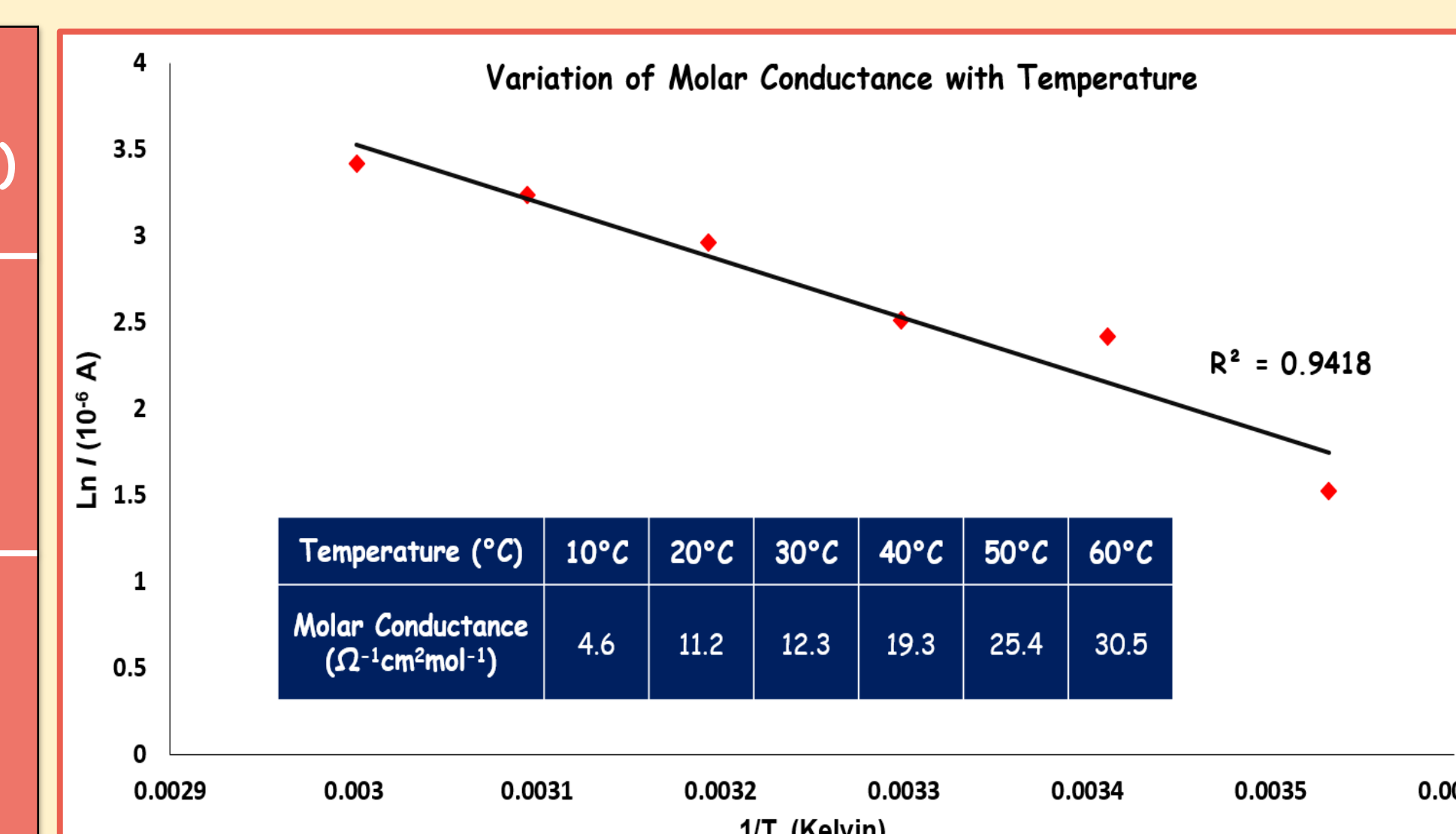
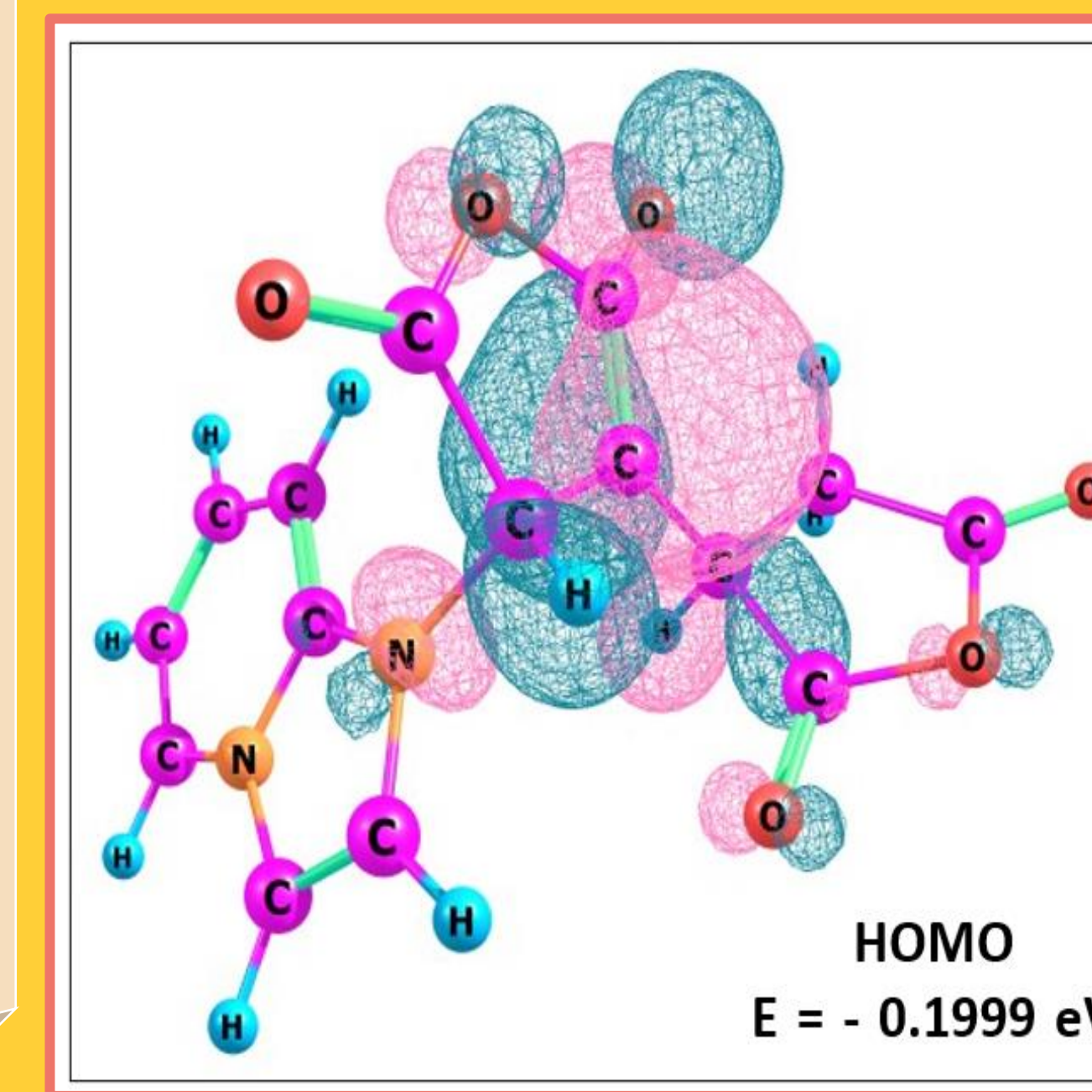
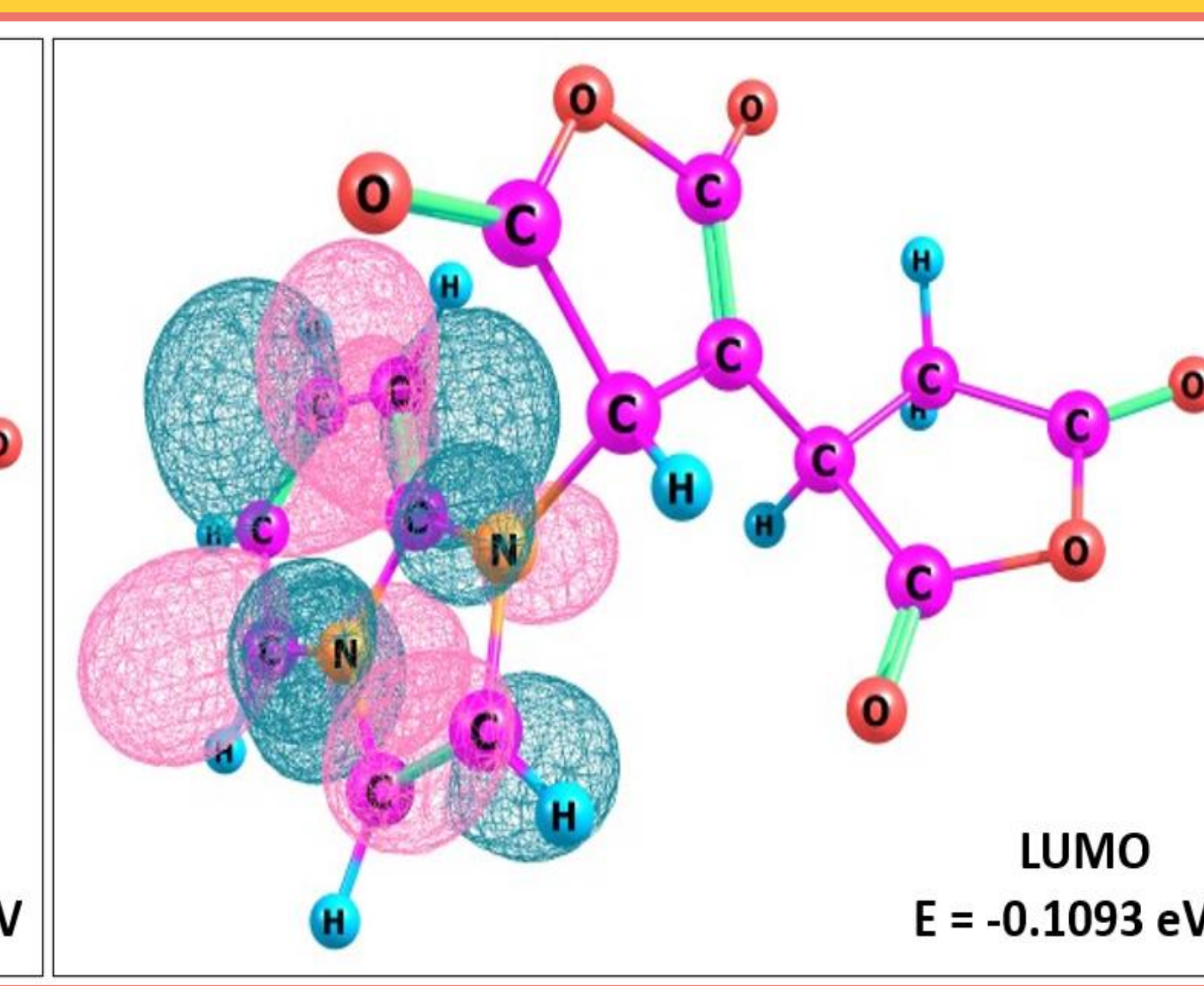
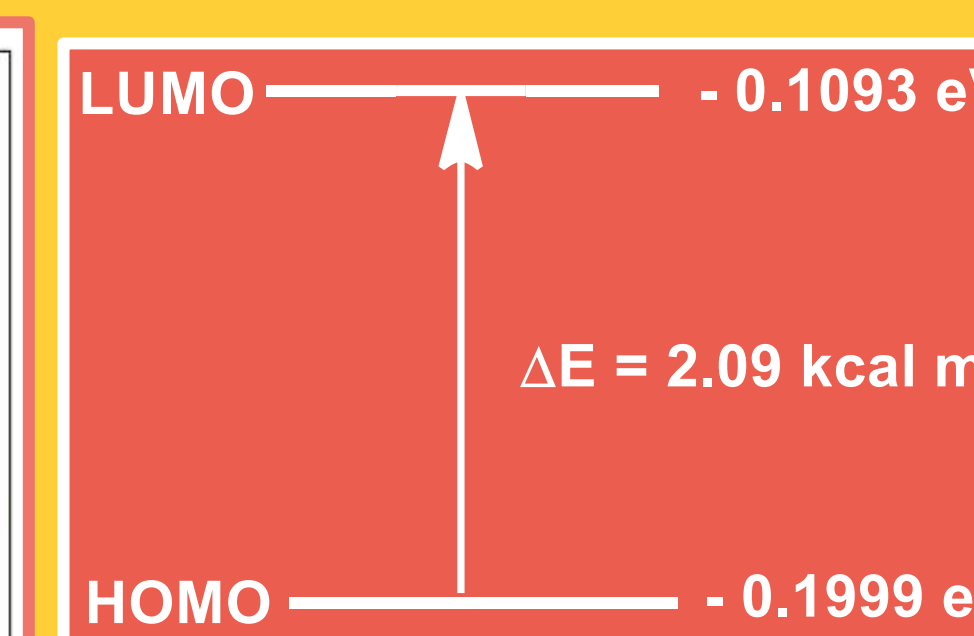


Fluorescence Spectrum



Dipole Moment & Molar Conductance Studies

Dipole Moment (at wB97XD/6-311+G(d,p))	X- axis	Y- axis	Z- axis	Total (Debye)
Ground State	12.8181	-7.1183	4.5861	15.36
Excited State	0.6524	-3.6045	-2.2565	4.30



Poster Code
cwcp2022.06f00d2