

Plenary Lecture
57th Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)
Recent Trends in Chemical Sciences (RTCS 2020)

New Directions in Synthesis of Biologically Important Heterocycles

H. Ila*
Professor of Chemistry
New Chemistry Unit, JNCASR Bangalore
(e-mail: hila@jncasr.ac.in)



Abstract:

‘Small molecule heterocycles’ play important role in both drug discovery and material science research providing one of the richest source of diversity, besides serving as rigid scaffolds for further display of a range of functionalities. Therefore, demands for design and development of new efficient synthetic strategies and high yield methods which will provide novel and diverse heterocyclic scaffolds bearing diverse functionalities from readily available precursors in high yield is increasing to accelerate drug discovery process.

The present lecture will focuss on our recent research, directed towards design and development of new, efficient and concise routes for biologically important heterocycles such as indoles, benzothiophenes, benzofurans, benzothiazoles substituted thiophenes, pyrazoles, isoxazoles imidazoles, oxazoles, bisoxazoles and thiazoles etc., involving transition metal catalyzed as well as transition metal free cross coupling and atom economy reactions such as C-H activation, domino reactions and multicomponent one-pot reactions, inventing new reactions leading to diverse heterocyclic scaffolds with broad range of functionalities from easily accessibly organosulfur building blocks. Some of our recent results involving bio-inspired synthesis of few of non-natural indole alkaloids using β -carboline derived enaminone precursors will also be presented.

Recent selected papers:

- (a) Review: Ila, H.; and Junjappa, H.; *Chimia*, **2013**, 67, 17.
- (b) Mary, P.; Balaji, G. L.; iniyavan, P.; Ila, H. *J. Org. Chem.* **2020**, 85 15422.
- (c) Kumar, Y.; Ila, H. *Org. Lett.* **2019**, 21, 7863.
- (d) Awadhani, A.; Iniyavan, P.; Acharya, A.; Gautam, V. *ACS Omega* **2019**, 4, 17910.
- (e) Vijay Kumar, S.; Acharya, A.; Ila, H.; *J. Org. Chem.* **2018**, 83, 6607.
- (f) Saraiah, B.; Gautam, V.; Acharya, A.; *ACS Omega*, **2018**, 3, 8355.
- (g) Yugandar, S.; Konda, S.; Ila, H.; *Org. Lett.* **2017**, 19, 1512.
- (h) Acharya, A.; Gautam, V.; Ila, H.; *J. Org. Chem.* **2017**, 82, 7290.
- (i) Saraiah, B.; Gautam, V.; Acharya, A.; Ila, H.; *Eur. J. Org. Chem.* **2017**, 5679.
- (j) Yugandar, S.; Konda, S.; Ila, H.; *J. Org. Chem.* **2016**, 81, 2035.

Plenary Lecture
57th Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)
Recent Trends in Chemical Sciences (RTCS 2020)

- (k) Yugandar, S.; Konda, S.; Parameshwarappa, G.; Ila, H.; *J. Org. Chem.* **2016**, *81*, 5606.
- (l) Acharya, A.; Vijay Kumar, S.; Ila, H.; *Chem. Eur. J.* **2015**, *21*, 17118.
- (m) Acharya, A.; Vijay Kumar, S.; Saraiah, B.; Ila, H.; *J. Org. Chem.* **2015**, *80*, 2884.
- (n) Acharya, A.; Parameshwarappa, G.; Saraiah, B.; *J. Org. Chem.* **2015**, *80*, 414.
- (o) Vijay Kumar, S.; Saraiah, B.; Parameshwarappa, G.; Ila, H.; *J. Org. Chem.* **2014**, *79*, 7961.