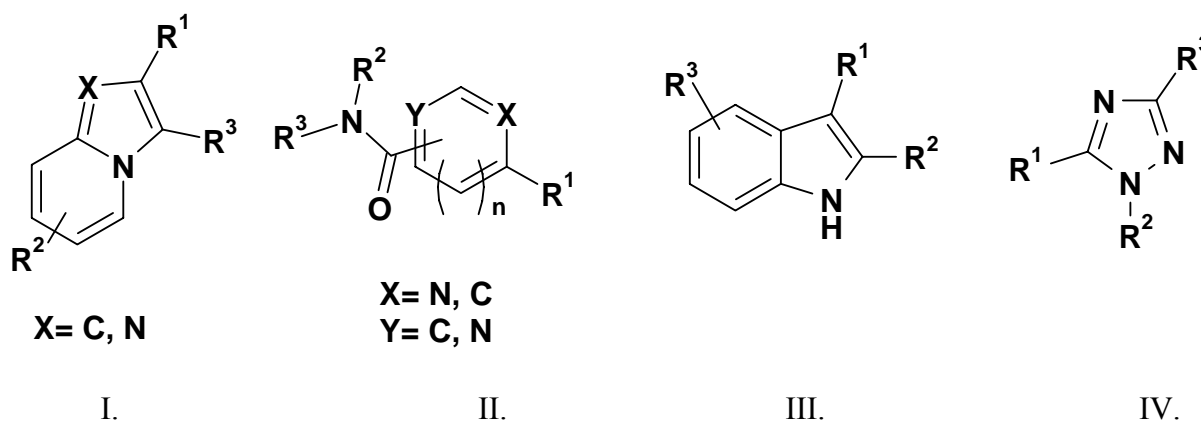


CASE STUDIES IN MICROWAVE ASSISTED HIGH-THROUGHPUT PARALLEL SYNTHESIS. CHALLENGES AND ACHIEVEMENTS

Tamás Szommer, János Gerencsér, György Dormán, László Üрге, Michael Guaciario

ComGenex Inc., 7 Zahony utca, H-1031 Budapest, Hungary

In the recent years, the application of microwave assisted organic synthesis (MAOS) opened new avenues for the synthetic chemists. Exploiting the unique features of the microwave assisted heat transfer, special devices have been developed for different applications. Despite the various numbers of publications dealing with MAOS, its application in high-throughput parallel synthesis is still insignificant. Up to now the development of MAOS has reached a phase where soon it can revolutionize both the classical and high-throughput synthesis, opening new space for the scientific creativity.



In our talk we present specific examples of such multi-level integrated production lines where the MW instrument is linked with microfluidic tools (e.g. H-cube for continuous flow hydrogenation) and classical techniques. In the presentation we will discuss new as well as improved chemistries compared to conventional methods that resulted in interesting new structures in our medicinal chemistry programs. Combining the multimode and monomode devices with robotic support we could improve significantly our individual reaction success rate (e.g. in Suzuki-, Negishi-, Buchwald-Hartwig and thermal ring closure reactions etc.).