OP24. ISOQUINOLINE ALKALOIDS AS A PROMISING FRAMEWORK FOR CHEMICAL MODIFICATIONS TO ENHANCE BIOACTIVITY

Negar MAAFI[1]*, Lucie CAHLIKOVA[1], Daniela SUCHANKOVA[1]

[1]Department of Pharmacognosy and Pharmaceutical Botany, Faculty of Pharmacy inHradec Kralove, Charles University, Czech Republic

*Corresponding Author. E-mail: negarm@faf.cuni.cz

Investigation of natural products is not limited only to the discovery and isolation ofnovel bioactive compounds; but equally important, it would provide valuable lead molecules that can be modified chemically and serve as a template for the design of semi-synthetic potent molecules. Numerous medications have been developed or inspired by the chemical modification of their natural parent molecules, such as development of atracurium from tubocurarine and dextromethorphan from morphine.

Isoquinoline alkaloids are one of the largest groups of natural products that have beenknown as fruitful sources in the drug discovery. Some isoquinoline alkaloids, such asgalantamine and morphine, have found their place in therapy as naturally occurring molecules, and yet there are many other well-investigated isoquinoline alkaloids withpromising bioactivity profiles, providing a natural potent scaffold. Derivatization andpreparation of analogues of the natural isoquinoline-bearing alkaloids can be utilizednot only as a beneficial strategy for improving the potency of these complex structures but also to improve the toxicity or bioavailability profile of the molecule, whileavoiding the complicated and expensive total-synthesis procedure.

In this presentation, we will describe the perspective designed study for preparing semi-synthetic derivatives of a few selected potent isoquinoline alkaloids, which are available in natural sources in sufficient amounts, to enhance their targeted biologicalactivity. Moreover, the possible challenges of chemical modification of alkaloids will be discussed, and achieved results will be presented.

Keywords: Alkaloid, isoquinoline, pharmacological activity