**THE SYNTHESIS OF octahydroindoloquinolizineS VIA IODINE-PROMOTED OXIDATION/BISHLER-NAPIERALSKI CYCLISATION SEQUENCE**

**OKTAHIDROINDOLOHINOLIZĪNU IEGŪŠANA JODA VEICINĀTAS OKSIDĒŠANAS/BIŠLERA-NAPIRAĻSKA REAKCIJU SEKVENCĒ**

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Octahydroindoloquinolizine is a common structural motif in corynanthe-type indole alkaloids. These natural products possess a broad scope of pharmacological activities. Members of this natural product family are known to be α1-adrenergic and opioid receptor antagonists as well as exhibit cytotoxicity in various cancer cell lines.

Octahydroindoloquinolizines are typically prepared *via* Bishler-Napieralski or Pictet-Spengler cyclization reactions. In course of our studies, we found that these transformations are often low yielding and sluggish on structurally complex substrates and alternative mild protocols are highly desirable. After an extensive screening of reaction conditions, we found that elemental iodine [1] is a good oxidant for the preparation of lactams **3** in good yields starting from the corresponding tertiary amines **1c**. These intermediates **3** were further subjected to mild Bishler-Napieralski cyclization conditions furnishing the target octahydroindoloquinolizines. Interestingly, in the unprotected **1a** or TBS-protected substrates **1b** indole ring tends to oxidize first leading to spirocycles **2**.

The mechanistic aspects of the developed reaction sequence as well as its application in the total syntheses of corynanthe-type indole alkaloids will be presented.



**Fig. 1.**  Octahydroindoloquinolizine preparation *via* iodine-promoted oxidation/ Bishler-Napieralski sequence

***References:***

[1] Griffiths, R. J., Burley, G. A., Talbot, E. P. A. *Org. Lett.* **2017**, *19*, 870-873.