

Abstract

The objective of this *Thesis* was to prepare dialkynenitriles **156** and **168** for the synthesis of aza[6]helicene **146** and **147** via intramolecular [2+2+2] co-cyclotrimerization. It was found that it is possible to use co-cycloisomerization of alkynedinitriles **182**, **187**, **192** and **195**, a reaction so far not described in the literature, for the preparation of dibenzodiazahelicenes **148** and **149** and dioxadiazahelicenes **150** and **151** possessing a pyridazine subunit. Moreover, alkynedinitriles **152**, **153**, **154** and **155** were synthesized to further study of this co-cycloisomerization reaction. The *Theoretical Part* outlines some representative examples of methods for the preparation of azahelicenes and azoniumhelicenes, current development of [2+2+2] cocyclotrimerization in the synthesis of pyridine derivatives and methods of pyridazine synthesis. The syntheses of dialkynenitriles **156** and **168**, diazahelicenes **148**, **149**, **150**, **151** and alkynedinitriles **152**, **153**, **154** and **155** are described in the section *Results and Discussion* and *Experimental Part*.