[7,0]-*meta*cyclophanes from biaryl coupling/macrocyclisation

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The biaryl structural motif is a predominant feature in many pharmaceutically relevant and biologically active compounds. As a result, for over a century organic chemists have sought to develop new and more efficient aryl-aryl bond-forming methods [(1)].
Cyclophanic natural products comprise an intriguing class of structurally diverse compounds. As inherent for all cyclic compounds regardless of their origin, macrocyclization is naturally the most decisive step, which defines the overall efficiency of the synthetic pathway. Especially in small cyclophanic molecules, this key step constitutes an even greater challenge. Due to the strain imparted by the macrocyclic system, free rotation of the benzene ring(s) is often restricted depending on both the constitution of the tether and the aromatic portions [(2)].
Among cyclophanic natural products, the diarylheptanoids are a structurally sub-class with their scaffold consisting of two benzene rings tethered by an oxygenated aliphatic heptyl chain. In this work we reported different metal catalysed approaches to obtain the biaryl motif of myricanol, a natural [7,0]-*meta*cyclophane with very important and recently discovered biological activities [(3),(4),(5),(6)]. (**Figure 1**)

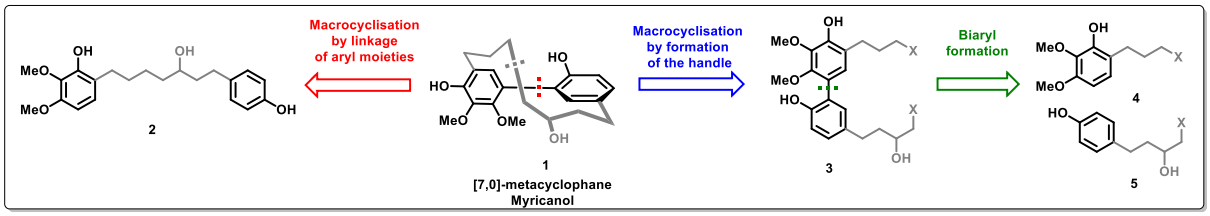

Figure 1

The desired product **1**could be obtained from the functionalized linear diarylheptanoid **2** by Suzuki domino process (macrocyclisation by linkage of aryl moieties) or could be synthesized from ring closing metathesis of product **3** which derived from a biaryl coupling of fragments **4** and **5**.

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