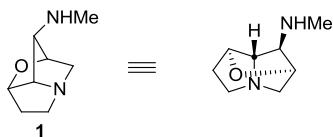
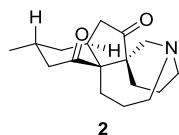


**Retrosynthesis**

Please provide a retrosynthesis for loline (1)

**Total synthesis of (+)-lycoflexine (2)**

*Lycopodium* alkaloids are a huge family of structurally related compounds with challenging structures and interesting biological activities, such as acetylcholinesterase inhibition. Lycoflexine (**2**) belongs to the class of fawcettimine-related alkaloids and was isolated in the early 1970s. Its structure consists of an exceptional tetracyclic carbon-nitrogen skeleton including a spiro-annulated six-membered ring and four stereogenic centres. To date, only one total synthesis has been reported by Ramharter and co-workers.

Give reagents and structures where missing and suggest reaction mechanisms.

