S43-6 Chemistry in the synthesis of polycyclic nitrogen containing natural products-failure is a stepping-stone to success

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A total synthesis of novel polycyclic biological active indole alkaloids is one of challenging theme in pharmaceutical sciences. I would like to introduce our contribution for the total synthesis of novel polycyclic biological active indole alkaloids, such as paspalicine, madindoline, and neoxoline. For the synthesis of madindoline, we have succeeded the total synthesis of madindoline by new asymmetric oxidative ring closer of tryptophol to 3a-hydroxyfuroindoline as a key reaction. For the synthesis of neoxaline, we have developed the synthetic method for the indole spiroaminal framework by transamination from furoindoline to diaminal, followed by tungstate-catalyzed oxidation to the nitrone**,** which easily cyclizes to the indoline spiroaminal framework. We have developed new synthetic methods for novel polycyclic biological active indole alkaloids.