

SYNTHESIS OF CARBAZOLE ALKALOIDS BY CYCLIZATION OF β -KETOSULFOXIDES

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Because an substituent can be introduced easilly at C-1 position, the synthesis of 2-hydroxycarbazoles from indole-3-propionic acid through the acid-catalyzed cyclization of β -ketosulfoxides is now tried to extend for the synthesis of carbazole alkaloids such as girinimbine, heptaphylline, murrayacine and mahanimbine.

On treatment with p-toluenesulfonic acid, β -ketosulfoxides I ($R = \text{Me}$, $R' = \text{Me}_2\text{C}=\text{CHCH}_2$) and II ($R = \text{Me}_2\text{CH}$, $R' = \text{Me}_2\text{C}=\text{CHCH}_2$) synthesized from methyl 3-(3-indole)-2-methyl-propionate cyclized to dihydrogirinimbine (III) though the yield was not satisfactory.

Oxidation of III with DDQ gave dihydromurrayacine (cycloheptaphylline), and not girinimbine.

Mahanimbine was also synthesized from a β -ketosulfoxide IV ($R = \text{Me}$, $R' = \text{H}$) via 2-hydroxy-3-methylcarbazole.

Variation of R' in β -ketosulfoxides may open a way for the synthesis of girinimbine without via oxidation process, and it is still in progress.

