Supporting Information

For

DOUBLE MICHAEL ADDITION OF OXINDOLES TO DIENONES CATALYZED BY TBAB: AN EFFICIENT ROUTE TO SPIROCYCLIC OXINDOLES

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1H NMR and 13C NMR spectra of the compounds
Ethyl-2’,4-dioxo-2,6-diphenylspiro[cyclohexane-1,3’-indoline]-1’-carboxylate (3a) \(^1\)H NMR

Ethyl-2’,4-dioxo-2,6-diphenylspiro[cyclohexane-1,3’-indoline]-1’-carboxylate (3a) \(^{13}\)C NMR
Ethyl-2',4-dioxo-2,6-dip-tolyspiro[cyclohexane-1,3'-indoline]-1'-carboxylate(3b) $^1$H NMR

Ethyl-2',4-dioxo-2,6-dip-tolyspiro[cyclohexane-1,3'-indoline]-1'-carboxylate(3b) $^{13}$C NMR
Ethyl-2,6-bis(4-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3c) $^1$H NMR

Ethyl-2,6-bis(4-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3c) $^{13}$C NMR
Ethyl-2,6-bis(4-fluorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3d)

$^1$H NMR

$^{13}$C NMR
Ethyl-2,6-bis(4-chlorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3e)

$^1$H NMR

$^{13}$C NMR
Ethyl-2,6-bis(4-bromophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3f)

$^1$H NMR

$^{13}$C NMR
Ethyl-2,6-bis(4-nitrophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3g)

$^{1}H$ NMR

$^{13}C$ NMR
Ethyl-2,6-bis(2-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3i)

$^1$H NMR

Ethyl-2,6-bis(2-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3i)

$^{13}$C NMR
Ethyl-2,6-bis(2-chlorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3j)

$^1$H NMR

Ethyl-2,6-bis(2-chlorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3j)

$^{13}$C NMR
Ethyl-2,6-bis(3-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3k) $^1$H NMR

Ethyl-2,6-bis(3-methoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3k) $^{13}$C NMR
Ethyl-2,6-bis(2,4-dichlorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3l) \(^1\)H NMR

![NMR Spectrum](image1)

Ethyl-2,6-bis(2,4-dichlorophenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3l) \(^13\)C NMR

![NMR Spectrum](image2)
Ethyl-2,6-bis(3,4-dimethoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3m) \(^{1}H\) NMR

[Image of an NMR spectrum]

Ethyl-2,6-bis(3,4-dimethoxyphenyl)-2',4-dioxospiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3m) \(^{13}C\) NMR

[Image of an NMR spectrum]
Ethyl-2,6-di(furan-2-yl)-2’,4-dioxospiro[cyclohexane-1,3’-indoline]-1’-carboxylate (3n) $^1$H NMR

Ethyl-2,6-di(furan-2-yl)-2’,4-dioxospiro[cyclohexane-1,3’-indoline]-1’-carboxylate (3n) $^{13}$C NMR
Ethyl-2',4-dioxo-2-phenyl-6-p-tolylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3o) $^1$H NMR

Ethyl-2',4-dioxo-2-phenyl-6-p-tolylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3o) $^{13}$C NMR
Ethyl-2-(4-chlorophenyl)-2',4-dioxo-6-phenylspiro[cyclohexane-1, 3'-indoline]-1'-carboxylate (3p) $^1$H NMR

Ethyl-2-(4-chlorophenyl)-2',4-dioxo-6-phenylspiro[cyclohexane-1, 3'-indoline]-1'-carboxylate (3p) $^{13}$C NMR
Ethyl-2-(4-bromophenyl)-2',4-dioxo-6-phenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3q) $^1$H NMR

[Image of $^1$H NMR spectrum]

Ethyl-2-(4-bromophenyl)-2',4-dioxo-6-phenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3q) $^{13}$C NMR

[Image of $^{13}$C NMR spectrum]
Ethyl-5'-bromo-2',4-dioxo-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3r)

$^{1}$H NMR

Ethyl-5'-bromo-2',4-dioxo-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3r)

$^{13}$C NMR
1'-acetyl-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-2',4-dione (3s) $^1$H NMR

1'-acetyl-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-2',4-dione (3s) $^{13}$C NMR
Tert-butyl-2',4-dioxo-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3t) $^1$H NMR

Tert-butyl-2',4-dioxo-2,6-diphenylspiro[cyclohexane-1,3'-indoline]-1'-carboxylate (3t) $^{13}$C NMR