Supplementary Material

Microwave-assisted synthesis of (2-butyl-5-nitrobenzo[b]furan-3-yl)-[4-(substituted ethynyl)phenyl]methanones

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$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-hydroxyphenyl)methanone (3)
$^1$H NMR of 4-(2-butyl-5-nitrobenzo[b]furan-3-carbonyl)phenyl trifluoromethanesulfonate (4)
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a):
$^{1}H$ NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)methanone (5b):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(phenylethynyl)phenyl)methanone (5c):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-propylphenyl)ethynyl)phenyl)-methanone (5d):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-fluorophenyl)ethynyl)phenyl)methanone (5e):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopropylethynyl)phenyl)methanone (5f):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopentylethynyl)phenyl)methanone (5g):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclohexylethynyl)phenyl) methanone (5h):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(hept-1-yn-1-yl)phenyl)methanone (5i):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-ethylphenyl)ethynyl)phenyl)methanone (5j):
$^1$H NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-ethynylphenyl)methanone (5k):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)-methanone (5b):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(phenylethynyl)phenyl)methanone (5c):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-propylphenyl)ethynyl)phenyl)-methanone (5d):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-fluorophenyl)ethynyl)phenyl)-methanone (5e):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopropylethynyl)phenyl)methanone (5f):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopentylethynyl)phenyl)methanone (5g):
$^{13}$C NMR of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(hept-1-yn-1-yl)phenyl)methanone (5i):
IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a):

![IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a)](image1)

IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)methanone (5b):

![IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)methanone (5b)](image2)
IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(phenylethynyl)phenyl)methanone (5c):

![IR spectrum of 5c](image)

IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-propylphenyl)ethynyl)phenyl)-methanone (5d):

![IR spectrum of 5d](image)
IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-fluorophenyl)ethynyl)phenyl)-methanone (5e):

IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclohexylethynyl)phenyl)methanone (5h):
IR spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-ethylphenyl)ethynyl)phenyl)methanone (5j):
MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a):

![MS Spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a)](image)

Chemical Formula: C_{29}H_{23}NO_{4}
Exact Mass: 437.16

MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)methanone (5b):

![MS Spectrum of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)methanone (5b)](image)

Chemical Formula: C_{22}H_{20}FNO_{4}
Exact Mass: 441.14
MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(phenylethynyl)phenyl)methanone (5c):

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Chemical Formula: C_{27}H_{21}NO_{4}
Exact Mass: 423.15
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MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-propylphenyl)ethynyl)phenyl)-methanone (5d):

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Chemical Formula: C_{30}H_{27}NO_{4}
Exact Mass: 465.19
```
MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-fluorophenyl)ethynyl)phenyl)methanone (5e):

![Chemical Structure and MS Spectrum]

Chemical Formula: $C_{27}H_{20}FNO_4$

Exact Mass: 441.14

MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopropylethynyl)phenyl)methanone (5f):

![Chemical Structure and MS Spectrum]

Chemical Formula: $C_{24}H_{21}NO_4$

Exact Mass: 387.15
MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclopentylethynyl)phenyl)methanone (5g):

Chemical Formula: C_{26}H_{26}NO_{4}
Exact Mass: 415.18

MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(cyclohexylethynyl)phenyl)methanone (5h):

Chemical Formula: C_{27}H_{27}NO_{4}
Exact Mass: 429.19
MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(hept-1-yn-1-yl)phenyl)methanone (5i):

MS Spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((4-ethylphenyl)ethynyl)phenyl)methanone (5j):
LCMS spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-(p-tolylethynyl)phenyl)methanone (5a):

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<th>Height (µV)</th>
<th>Area (µV*sec)</th>
<th>% Area</th>
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Match Plot

LCMS spectra of (2-butyl-5-nitrobenzo[b]furan-3-yl)(4-((2-fluorophenyl)ethynyl)phenyl)-methanone (5b):

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Match Plot