Supporting information

A Domino Synthetic Strategy for Tetrahydrothiopyran Derivatives from Benzaldehydes, 2-Acetylfuran/2-Acetylthiophene and Sodium Sulfide

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$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3aa
$^1$H NMR (500 MHz, DMSO-$d_6$) of compound 3ab
$^{13}$C NMR (125 MHz, DMSO-$d$) of compound 3ab
$^1$H NMR (500 MHz, DMSO-$d_6$) of compound 3ac
$^{13}$C NMR (125 MHz, DMSO-$d$) of compound 3ac
$\textsuperscript{1}H$ NMR (500 MHz, CDCl$_3$) of compound 3ad
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ad
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3ae
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ae
$^1$H NMR (400 MHz, CDCl$_3$) of compound 3af
$^{13}$C NMR (100 MHz, CDCl$_3$) of compound 3af
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3ag
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ag
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3ah
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ah
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3ai
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ai
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3aj
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3aj
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3ak
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3ak
$^{1}$H NMR (500 MHz, CDCl$_3$) of compound 3al
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3al
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3am
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3am
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3an
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3an
\(^1\)H NMR (500 MHz, CDCl\(_3\)) of compound 3ba
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound $3ba$
$^{1}$H NMR (500 MHz, DMSO-$d_6$) of compound 3bb
$^{13}$C NMR (125 MHz, DMSO-$d$) of compound 3bb
$^1$H NMR (500 MHz, DMSO-$d_6$) of compound 3bc
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$^1$H NMR (500 MHz, CDCl$_3$) of compound 3be
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$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bf
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bf
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bg
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bg
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bh
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bh
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bi
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bi
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bj
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bj
$^{1}$H NMR (400 MHz, CDCl$_3$) of compound 3bk
$^{13}$C NMR (100 MHz, CDCl$_3$) of compound 3bk
$^1$H NMR (500 MHz, CDCl$_3$) of compound 3bl
$^{13}$C NMR (125 MHz, CDCl$_3$) of compound 3bl
$^1$H NMR (400 MHz, CDCl$_3$) of compound 3bm
$^{13}$C NMR (100 MHz, CDCl$_3$) of compound 3bm
$^1$H NMR (400 MHz, CDCl$_3$) of intermediate I of compound 3aa
HR-ESI-MS of compound 3aa

HR-ESI-MS of compound 3ab

HR-ESI-MS of compound 3ac
HR-ESI-MS of compound 3ad

HR-ESI-MS of compound 3ae

HR-ESI-MS of compound 3af

HR-ESI-MS of compound 3ag
HR-ESI-MS of compound 3ah

HR-ESI-MS of compound 3ai

HR-ESI-MS of compound 3aj
HR-ESI-MS of compound 3ak

HR-ESI-MS of compound 3al

HR-ESI-MS of compound 3am

HR-ESI-MS of compound 3an
HR-ESI-MS of compound 3ba

HR-ESI-MS of compound 3bb

HR-ESI-MS of compound 3bc
HR-ESI-MS of compound 3bc

HR-ESI-MS of compound 3be

HR-ESI-MS of compound 3bf

HR-ESI-MS of compound 3bg
HR-ESI-MS of compound 3bh

HR-ESI-MS of compound 3bi

HR-ESI-MS of compound 3bj

HR-ESI-MS of compound 3bk
HR-ESI-MS of compound 3bl

HR-ESI-MS of compound 3bm
**OPTEP drawing of compound 3aa and 3bh**

Single-crystal X-ray diffraction data was collected at room temperature on a Bruker SMART APEX II (λ = 0.71073 Å). The crystal structures were solved by direct method of SHELXS-2014 and refined by full-matrix least-squares techniques using the SHELXL-2014 program.

Crystal data and OPTEP drawing of compound **3aa** (CCDC 2006752):

![Figure S1. Crystal and molecular structure of 3aa.](image)

Crystal data:

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