Supplementary Material

Synthesis and heterocyclization of triterpenic 1,3-diketones

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$^1$H NMR 3β-hydroxy-28-(2-oxopropylidene)lup-20(29)-ene (13).
$^{13}$C NMR 3β-hydroxy-28-(2-oxopropylidene)lup-20(29)-ene (13)
$^1$H NMR 3β,28-dibenzoyloxy-30-oxo-30-(2-oxopropyl)lup-20(29)-ene (14)
$^{13}$C NMR 3β,28-dibenzoyloxy-30-oxo-30-(2-oxopropyl)lup-20(29)-ene (14)
$^1$H NMR 3β,28-diacetoxy-30-oxo-30-(2-oxopropyl)lup-20(29)-ene (15)
$^{13}$C NMR 3β,28-diacetoxy-30-oxo-30-(2-oxopropyl)lup-20(29)-ene (15)
$^1$H NMR 2-(1,3-dioxobut-1-yl)-19β,28-epoxyolean-1(2)-en-3-one (16)
$^{13}$C NMR 2-(1,3-dioxobut-1-yl)-19β,28-epoxyolean-1(2)-en-3-one (16)
$^1$H NMR 3β-hydroxy-28-(1-hydroxy-3-oxobut-1-enilidene)lup-20(29)-ene (17)
$^{13}$C NMR 3β-hydroxy-28-(1-hydroxy-3-oxobut-1-enilidene)lup-20(29)-ene (17)
$^{1}H$ NMR 3β,28-dibenzoyloxy-20-(3'-methyl-1H-pyrazol-5-yl)-30-norlup-20(29)-ene (18)
$^{13}$C NMR $3\beta, 28$-dibenzoyloxy-20-(3'-methyl-1H-pyrazol-5-yl)-30-norlup-20(29)-ene (18)
$^1$H NMR 19β,28-epoxy-2-(3'-methyl-1H-pyrazol-5-yl)-18αH-olean-1(2)en-3-one (19)
$^{13}$C NMR 19β,28-epoxy-2-(3'-methyl-1H-pyrazol-5-yl)-18αH-olean-1(2)en-3-one (19)

N-55-19
N-55-19 CDG3 30C 13C
\(^1\text{H NMR}\) 3\(\beta\)-hydroxy-28-[(1H-pyrazol-3'-yl)methylidene]lup-20(29)-ene (20)
$^{13}$C NMR 3β-hydroxy-28-[(1H-pyrazol-3′-y1)methylidene]lup-20(29)-ene (20)
$^1$H NMR 3β,28-dibenzoyloxy-20-(3′-methylisoxazol-5′-yl)-30-norlup-20(29)-ene (21)
$^{13}$C NMR 3β,28-dibenzoyloxy-20-(3′-methylisoxazol-5′-yl)-30-norlup-20(29)-ene (21)
$^{1}$H NMR 19β,28-epoxy-2-(3′-methylisoxazol-5′-yl)-18αH-olean-1(2)en-3-one (22)
$^{13}$C NMR 19β,28-epoxy-2-(3′-methylisoxazol-5′-yl)-18αH-olean-1(2)en-3-one (22)