**Supplementary Material (ESI)**

**In(OTf)$_3$ catalyzed tandem aza-Piancatelli rearrangement/Michael reaction sequence for the synthesis of 3,4-dihydro-$2H$-benzo[b][1,4]thiazine and oxazine derivatives**

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1. Copies of $^1$H and $^{13}$C NMR spectra of products S2-S26

**Details about the X-crystallography:**

X-ray data for compounds AN45 were collected at room temperature using a Bruker Smart Apex CCD diffractometer with graphite monochromated MoK$_\alpha$ radiation ($\lambda=0.71073\text{Å}$) with $\omega$-scan method.\textsuperscript{1} Preliminary lattice parameters and orientation matrices were obtained from four sets of frames. Integration and scaling of intensity data were accomplished using SAINT program.\textsuperscript{1} The structures were solved by Direct Methods using SHELXS97\textsuperscript{2} and refinement was carried out by full-matrix least-squares technique using SHELXL97.\textsuperscript{2} Anisotropic displacement parameters were included for all non-hydrogen atoms. N-bound H atom was located in a difference Fourier density map and refined isotropically. All other H atoms were located in difference density maps, but were positioned geometrically and included as riding atoms, with C-H = 0.93 (aromatic), 0.96 (methyl) or 0.97 Å (methylene) and with $U_{	ext{iso}}$(H) = 1.5$U_{	ext{eq}}$(C) for the methyl groups and 1.2$U_{	ext{eq}}$(C) otherwise. The methyl groups were allowed to rotate but not to tip.


Figure caption: The molecular structure of ($3g$), with the atom-numbering scheme. Displacement ellipsoids are drawn at the 30% probability level.
$^1$HNMR Spectrum of Compound 3a.
$^{13}$C spectrum of compound 3a:
$^1$HNMR Spectrum of Compound 3b.
$^{13}$C spectrum of compound 3b:
$^1$HNMR Spectrum of Compound 3c.
$^{13}$C spectrum of compound 3c:
$^1$HNMR Spectrum of Compound 3d:
$^{13}$C spectrum of compound 3d:
$^{13}$C spectrum of compound 3e:
^1\text{HNMR Spectrum of Compound 3f:}
$^{13}$C spectrum of compound 3f:
$^1$HNMR Spectrum of Compound 3g:
$^{13}$C spectrum of compound 3g:

![Chemical Structure of 3g](image)
$^1$HNMR Spectrum of Compound 3h:
$^1$HNMR Spectrum of Compound 3i:
$^1$HNMR Spectrum of Compound 3j:
$^{13}$C spectrum of compound 3j:
$^1$HNMR Spectrum of Compound 3k:
$^{13}$C spectrum of compound 3k:
$^{1}$HNMR Spectrum of Compound 31:
$^{13}$C spectrum of compound 31:
$^1$HNMR Spectrum of Compound 3m:
$^{13}$C spectrum of compound 3m: