1,2-Sulfanyl Group Migration as Driving Force: New Approach to Pyrroles by Reaction of Allenylaldehydes with Amines

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$^1$H NMR and $^{13}$C NMR Spectra
2-Phenyl-2-(phenylthio)penta-3,4-dienal (1a)
2-(4-Chlorophenyl)-2-(phenylthio)penta-3,4-dienal (1b)
2-(3,4-Dichlorophenyl)-2-(phenylthio)penta-3,4-dienal (1c)
2-(4-Methoxyphenyl)-2-(phenylthio)penta-3,4-dienal (1d)
2-(1-Naphthyl)-2-(phenylthio)penta-3,4-dienal (1e)
2-(4-Bromophenyl)-2-(phenylthio)penta-3,4-dienal (1f)
2-(Benzylthio)-2-phenylpenta-3,4-dienal (1g)
3-Methyl-2-phenyl-2-(phenylthio)penta-3,4-dienal (1h)
5-Butyl-2-phenyl-2-(phenylthio)penta-3,4-dienal (1i)
2-Methyl-2-(phenylthio)penta-3,4-dienal (1j)
5-Methyl-1,3-diphenyl-2-(phenylthio)pyrrole (2a)
1-(4-Methylphenyl)-5-methyl-3-phenyl-2-(phenylthio) pyrrole (7a)
1-(4-Bromophenyl)-5-methyl-3-phenyl-2-(phenylthio)pyrrole (7b)
Pulse Sequence: s2pul
1-(4-Chlorophenyl)-5-methyl-3-phenyl-2-(phenylthio)pyrrole (7c)
1-(3-Methylphenyl)-5-methyl-3-phenyl-2-(phenylthio)pyrrole (7d)
1-Benzyl-5-methyl-3-phenyl-2-(phenylthio)pyrrole (7h)
1-Allyl-5-methyl-3-phenyl-2-(phenylthio)pyrrole (7j)
3-(4-Chlorophenyl)-5-methyl-1-phenyl-2-(phenylthio)pyrrole (2b)
3-(3,4-Dichlorophenyl)-5-methyl-1-phenyl-2-(phenylthio) pyrrole (2c)
3-(4-Methoxyphenyl)-5-methyl-1-phenyl-2-(phenylthio) pyrrole (2d)
5-Methyl-3-(1-naphthyl)-1-phenyl-2-(phenylthio) pyrrole (2e)
300 MHz
7-PB3-3-naph-pyro
Pulse Sequence: e2pul

![Chemical Structure](image)

![NMR Spectrum](image)
3-(4-Bromophenyl)-5-methyl-1-phenyl-2-(phenylthio)-1H-pyrrole (2f)
2-(Benzylthio)-5-methyl-1,3-diphenyl-pyrrole (2g)
4,5-Dimethyl-1, 3-diphenyl-2-(phenylthio)pyrrole (2h)
3,5-Dimethyl-1-phenyl-2-(phenylthio)pyrrole (2j)
300 MHz
8-P38-CH3 pyrrole
Pulse Sequence: s2pul
2-(3-Methoxyphenyl)-2-(benzylthio)penta-3,4-dienal (4)
2-(Benzyliothio)-3-(3-methoxyphenyl)-5-methyl-1-phenyl-pyrrole (5)