

**Amino functionalized mesoporous silica decorated with iron oxide
nanoparticles as a magnetically recoverable nanoreactor for the synthesis of
new series of 2,4-diphenylpyrido[4,3-d]pyrimidines**

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General remarks

Melting points were recorded on a Buchi B-540 apparatus. IR spectra were recorded on an ABB Bomem Model FTLA200-100 instrument. ^1H and ^{13}C NMR spectra were measured on a Bruker DRX-300 spectrometer, at 300 and 75MHz, using TMS as an internal standard. Chemical shifts (δ) were reported relative to TMS, and coupling constants (J) were reported in hertz (Hz). Mass spectra were recorded on a Shimadzu QP 1100 EX mass spectrometer with 70-eV ionization potential. X-ray powder diffraction (XRD) was carried out on a Philips X'Pert diffractometer with $\text{CuK}\alpha$ radiation. The pore structure of the prepared catalyst was verified by the nitrogen sorption isotherm ([5.0.0.3] Belsorp, BEL Japan, Inc.).

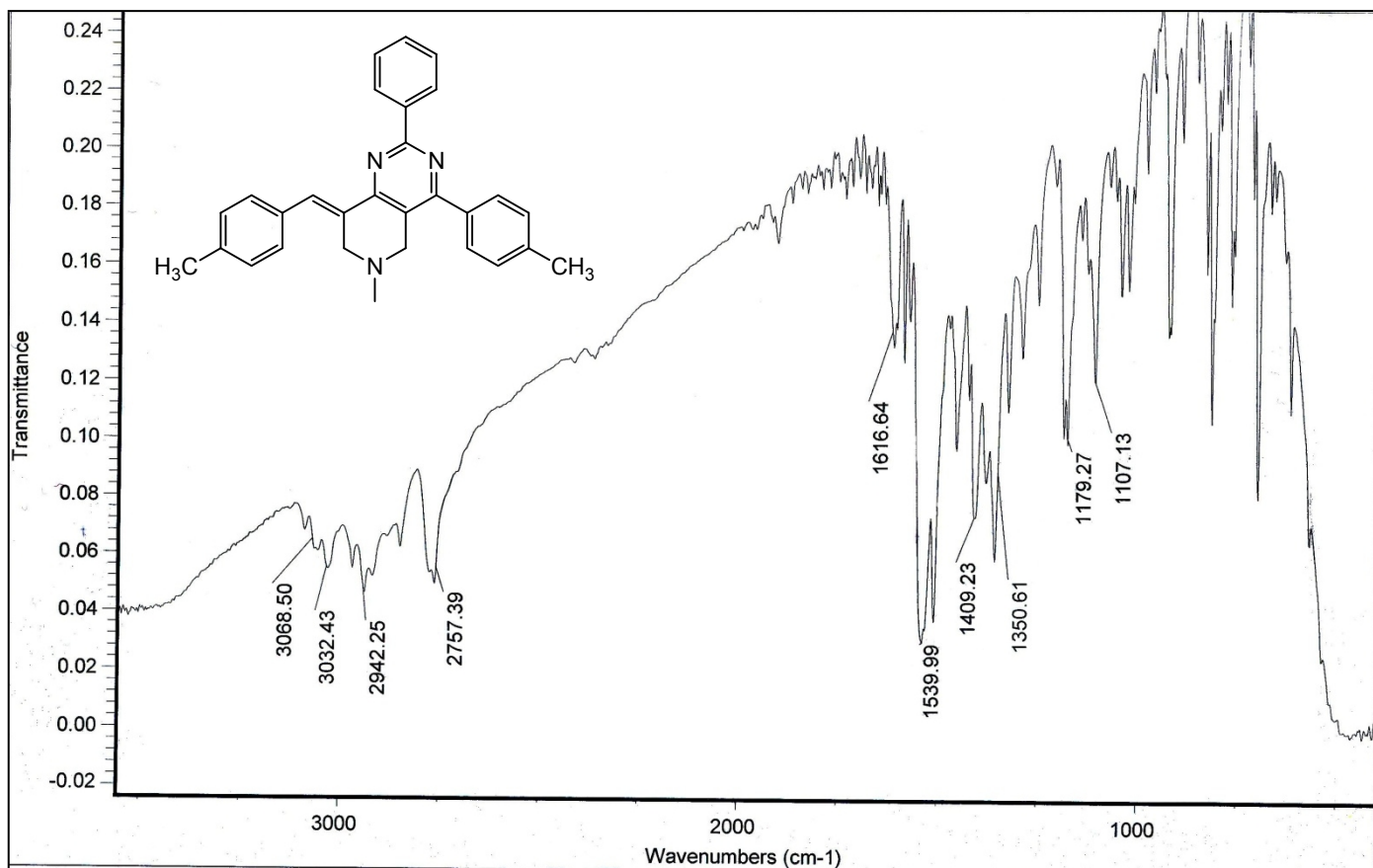


Fig S1: Ft-IR spectra of (E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3a)

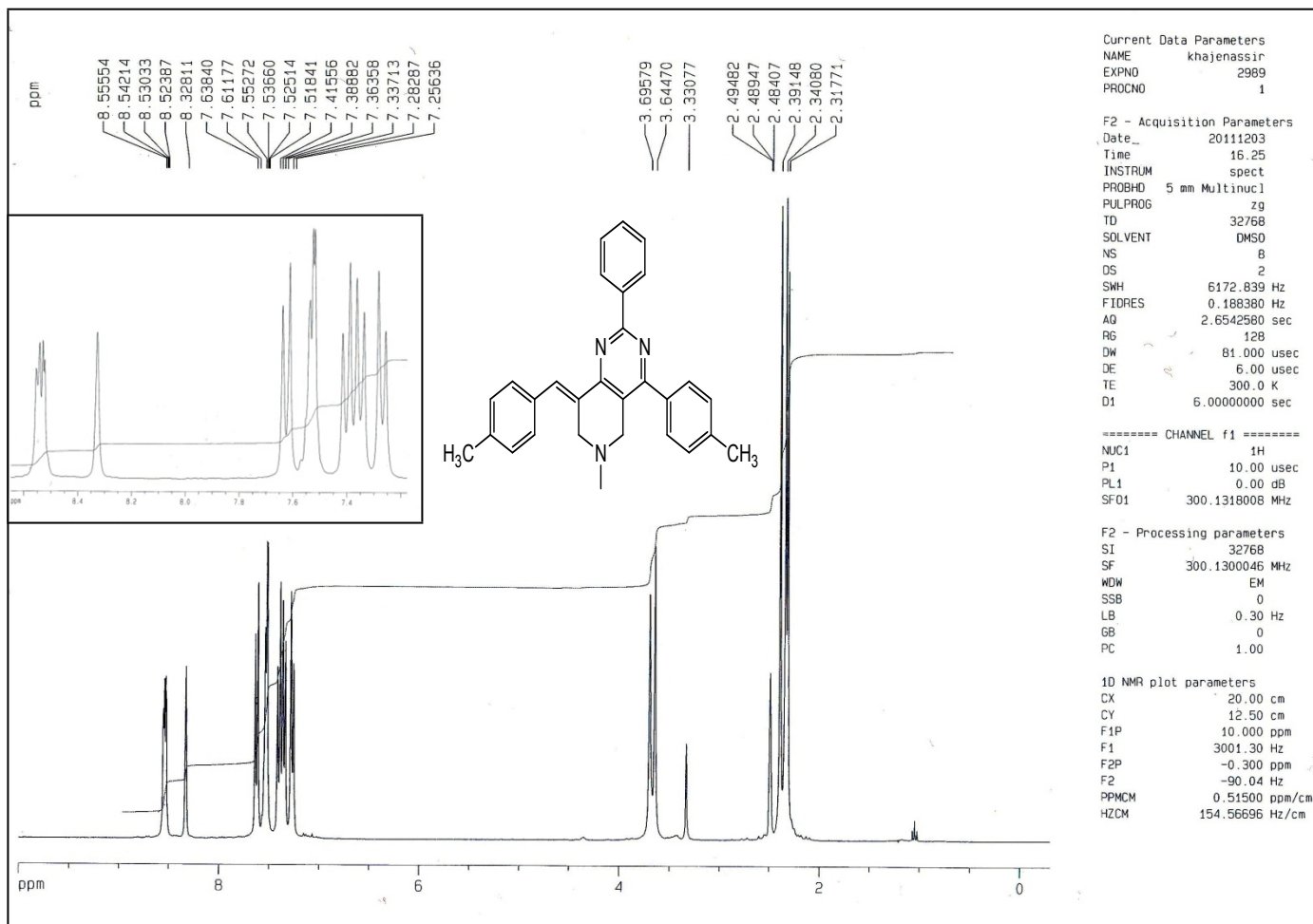


Fig S2: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3a)

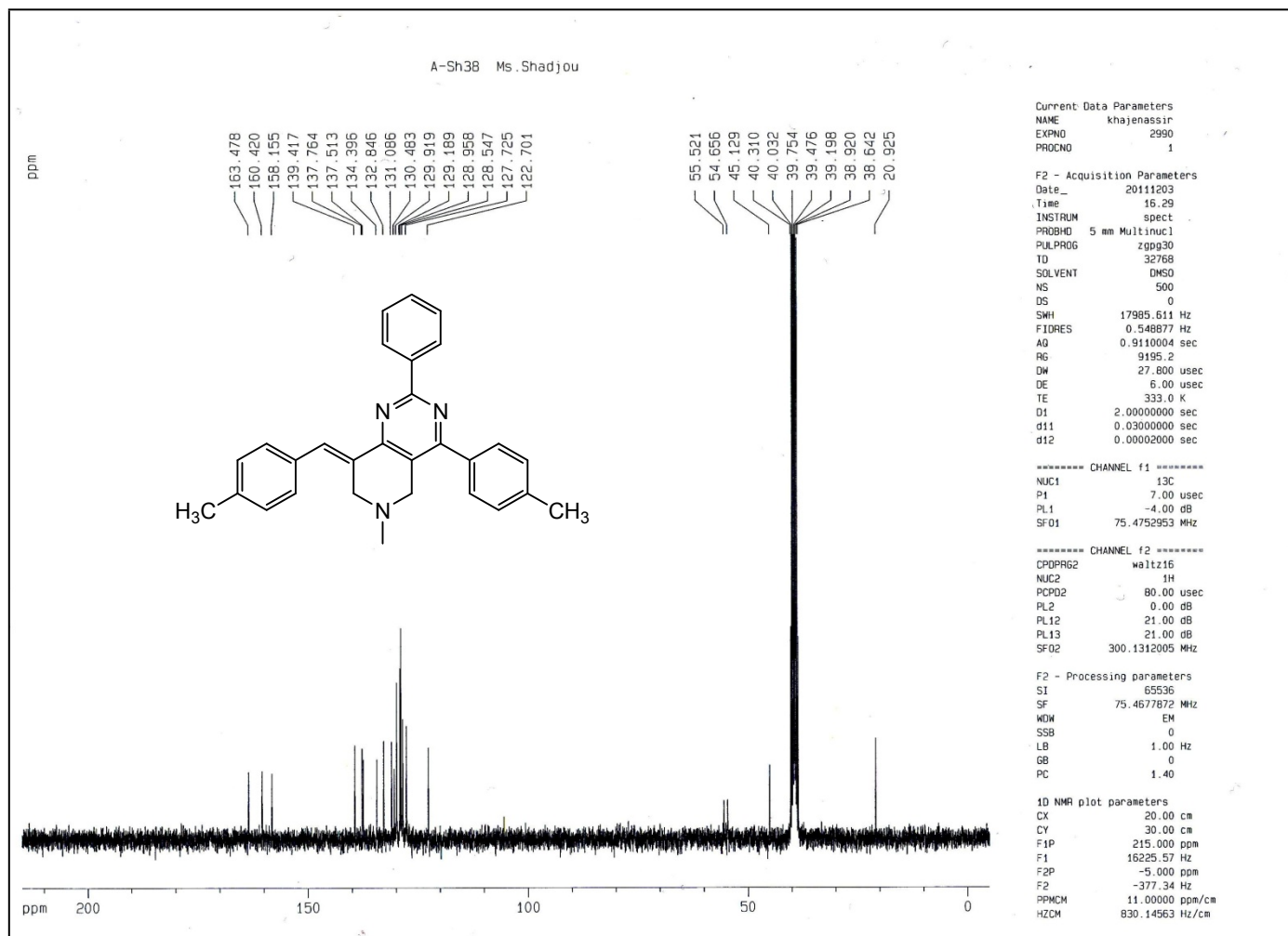


Fig S3: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3a)

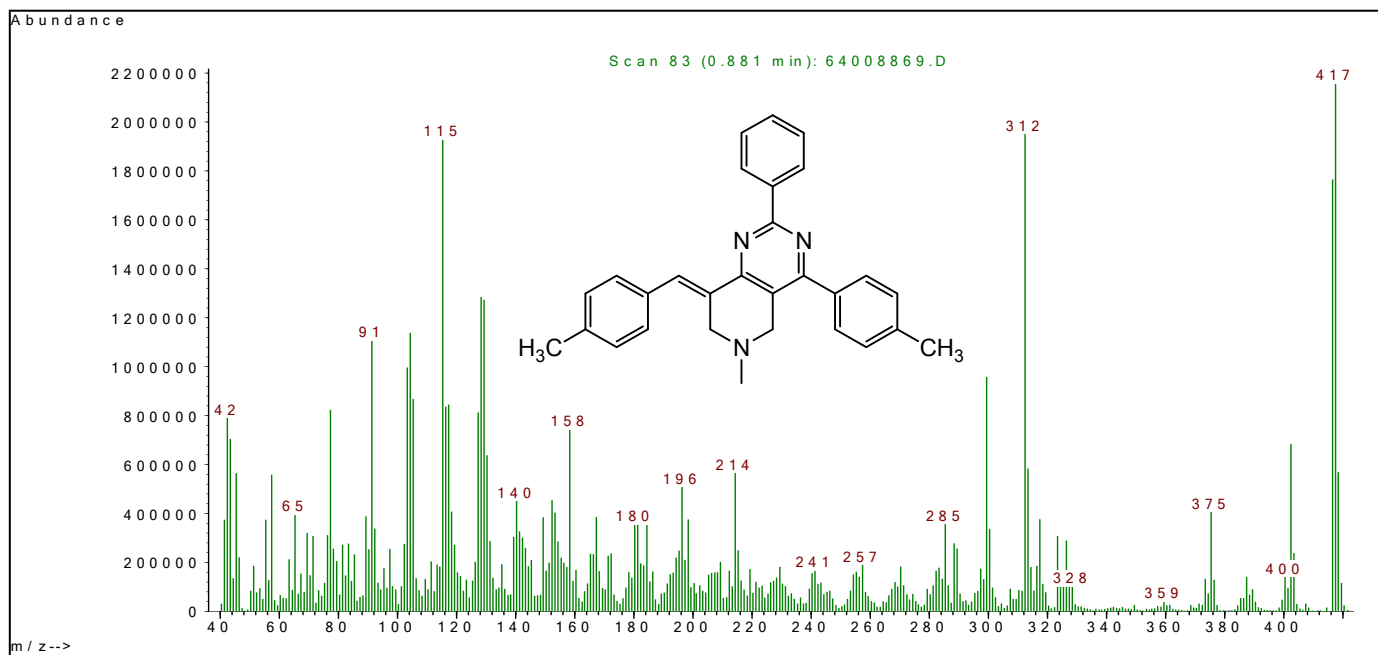


Fig S4: MS (EI) spectra of (E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3a)

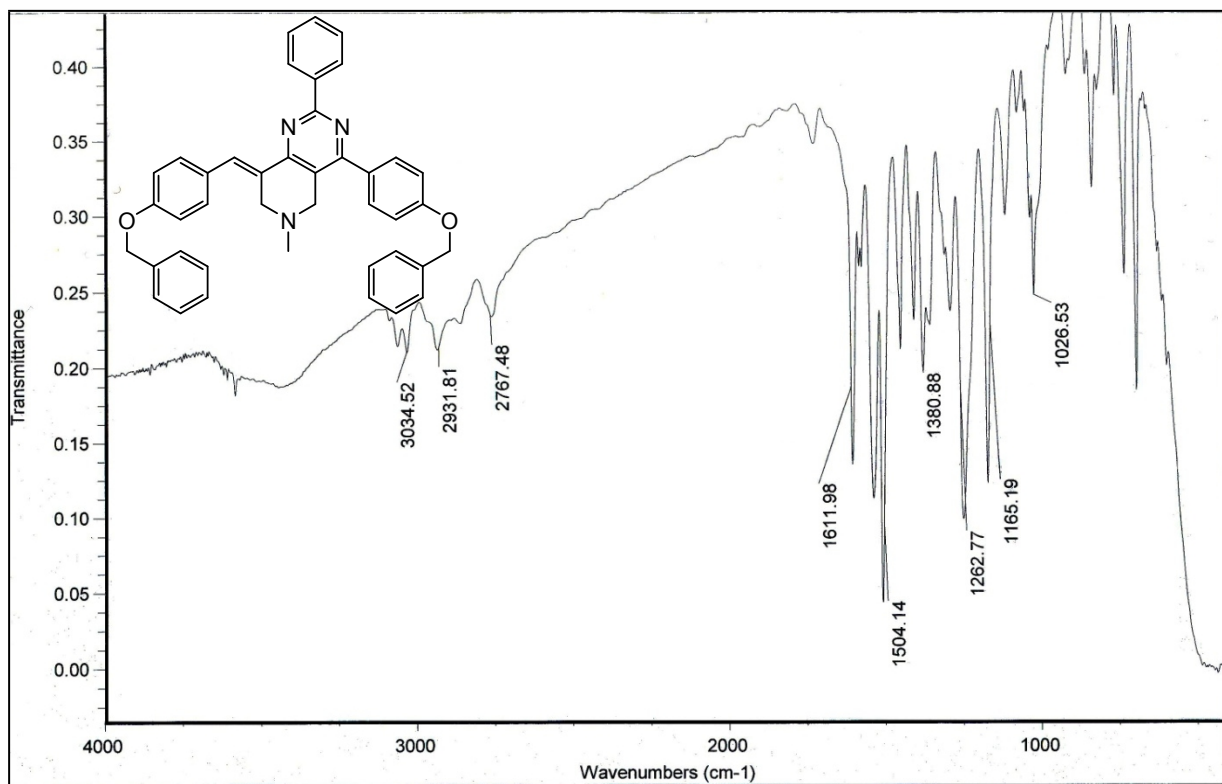


Fig S5: Ft-IR spectra of (E)-8-(4-(benzyloxy)benzylidene)-4-(4-(benzyloxy)phenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3b)

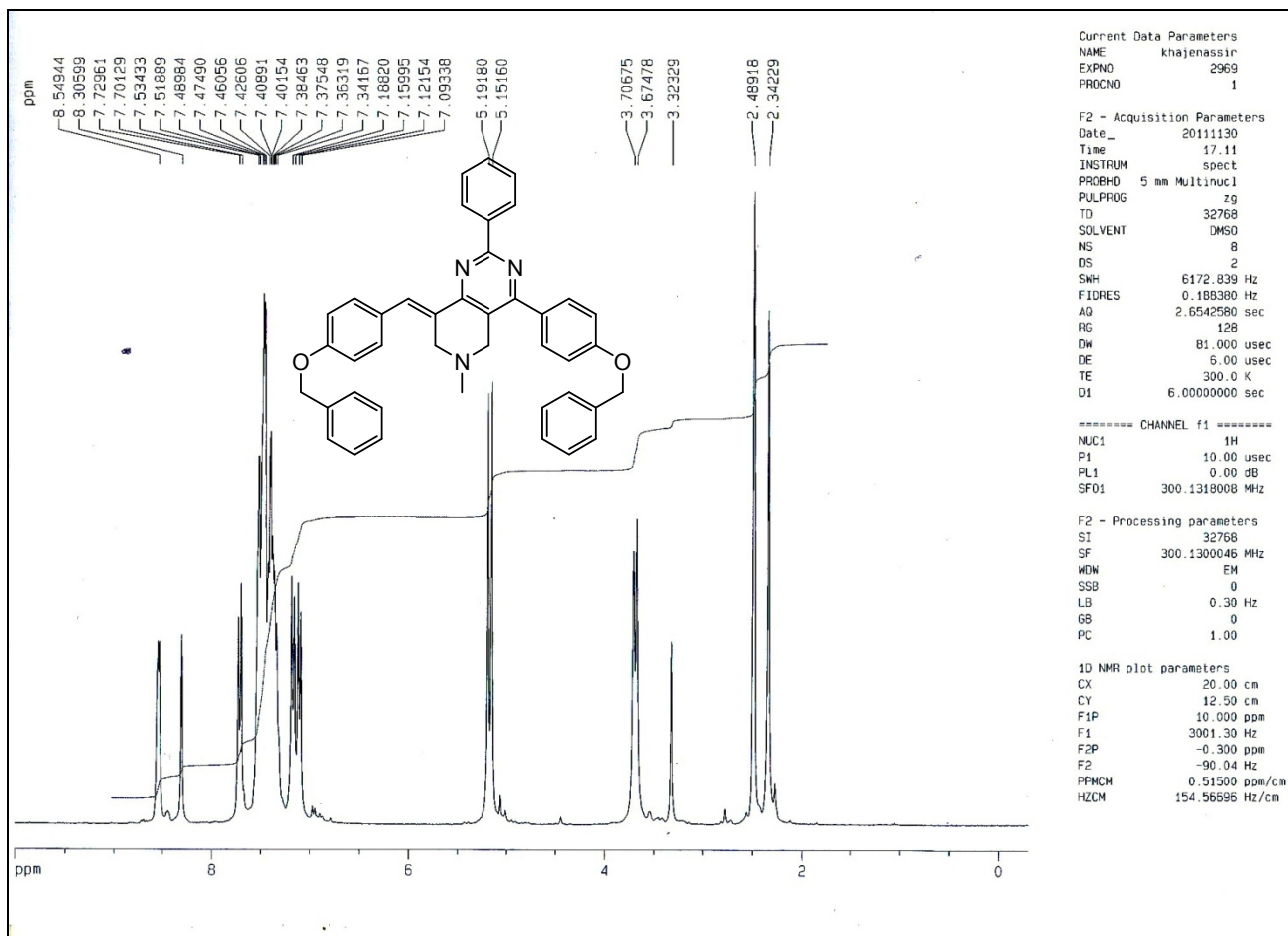


Fig S6: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-(benzyloxy)benzylidene)-4-(4-(benzyloxy)phenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3b)

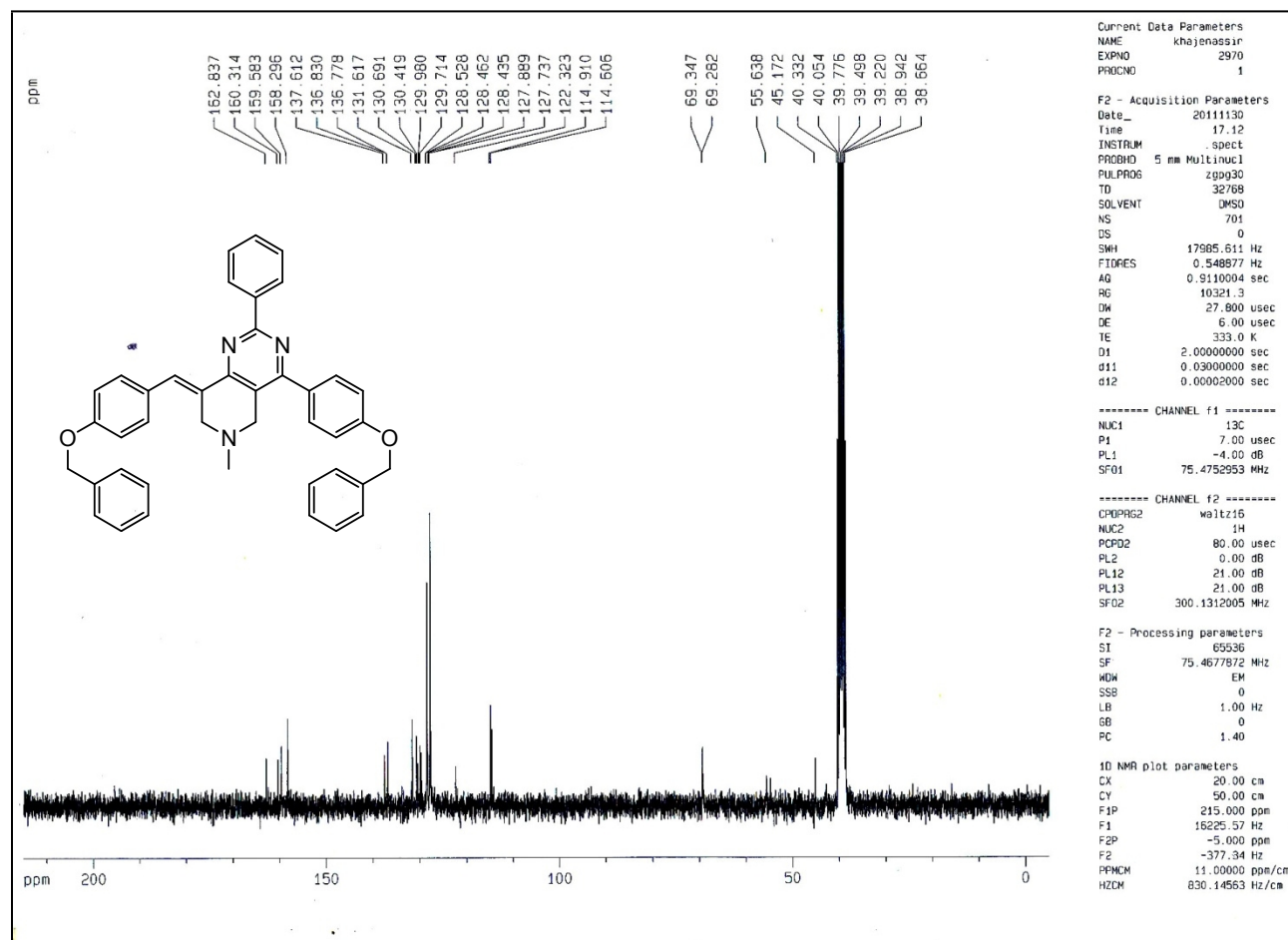


Fig S7: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-(benzyloxy)benzylidene)-4-(4-(benzyloxy)phenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3b)

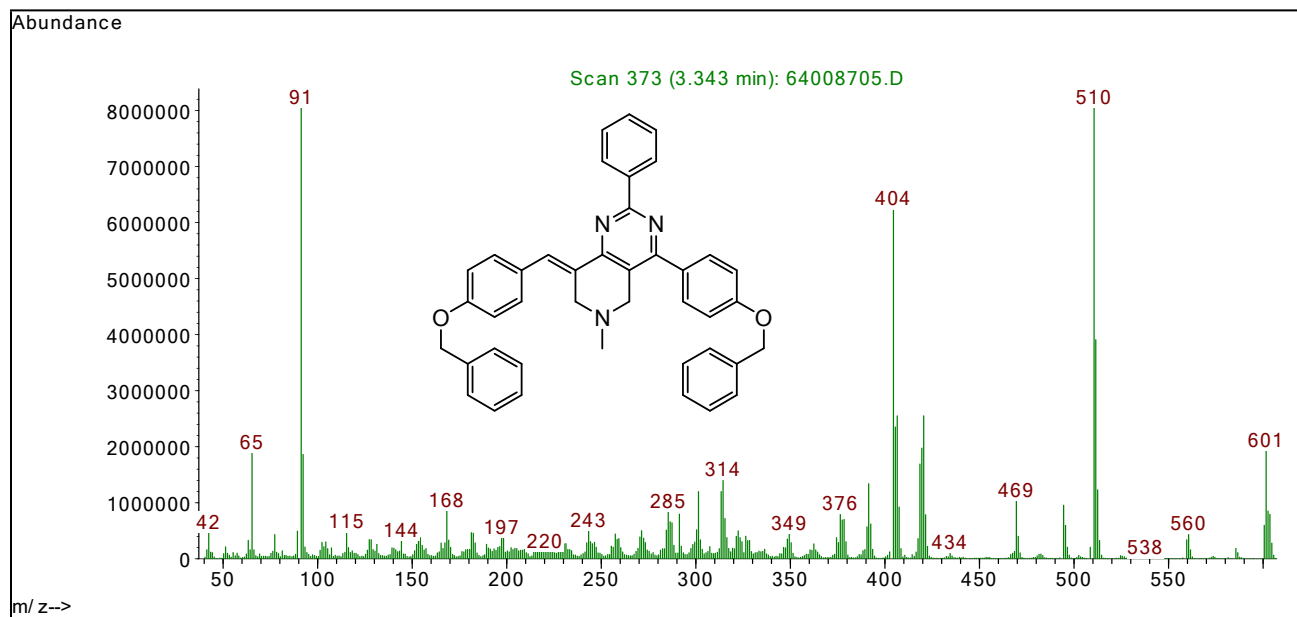


Fig S8: MS (EI) spectra of (E)-8-(4-(benzyloxy)benzylidene)-4-(4-(benzyloxy)phenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3b)

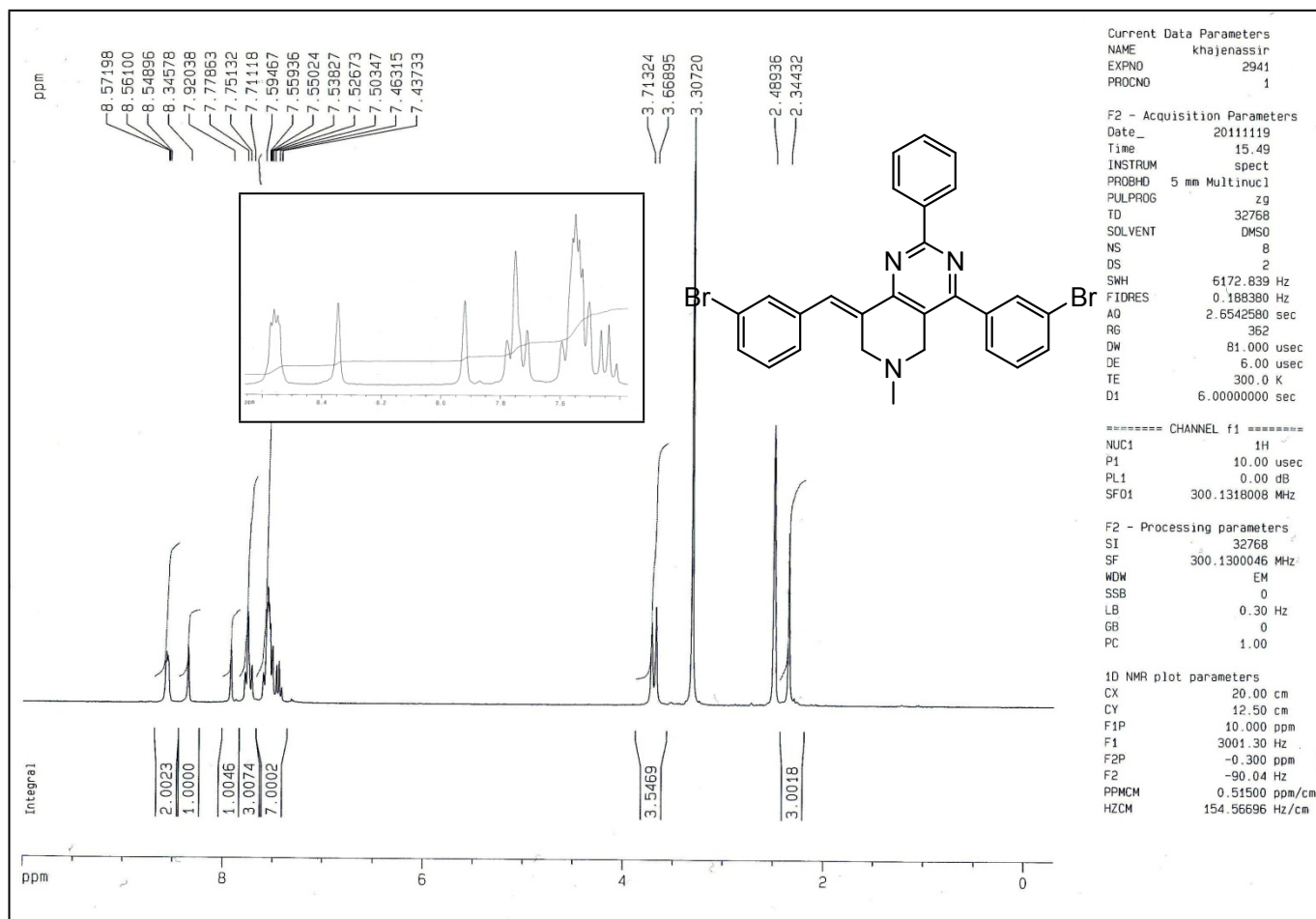


Fig S9: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(3-bromobenzylidene)-4-(3-bromophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3c)

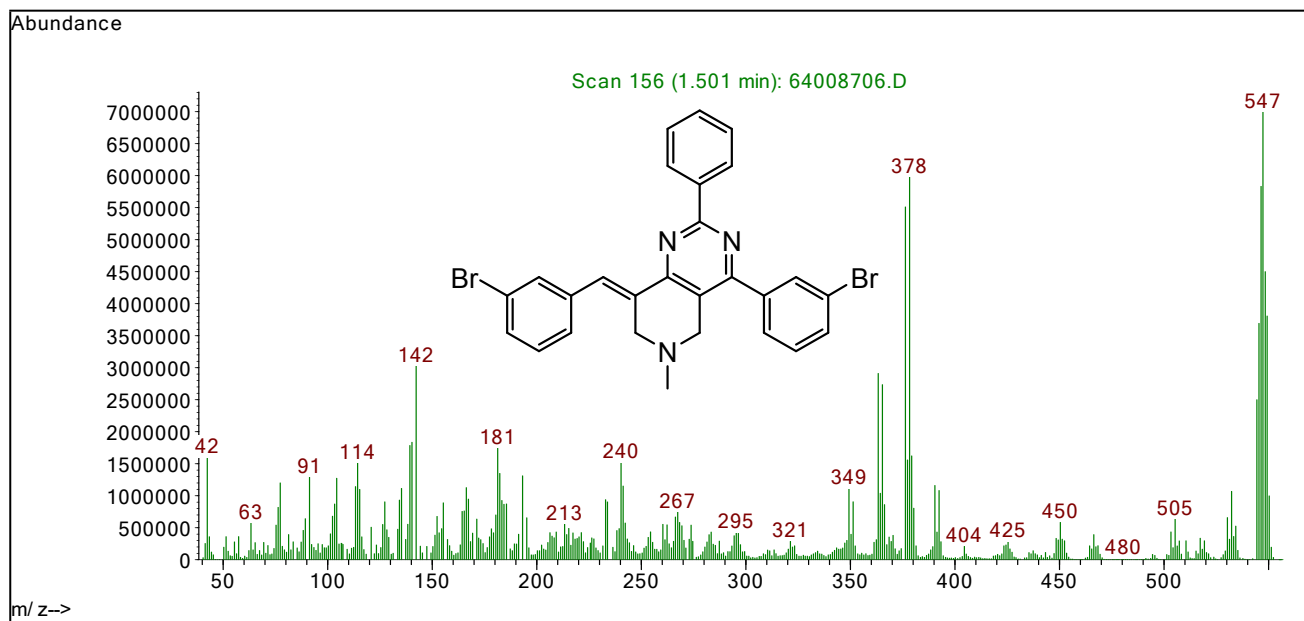


Fig S10: MS (EI) spectra of (E)-8-(3-bromobenzylidene)-4-(3-bromophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3c)

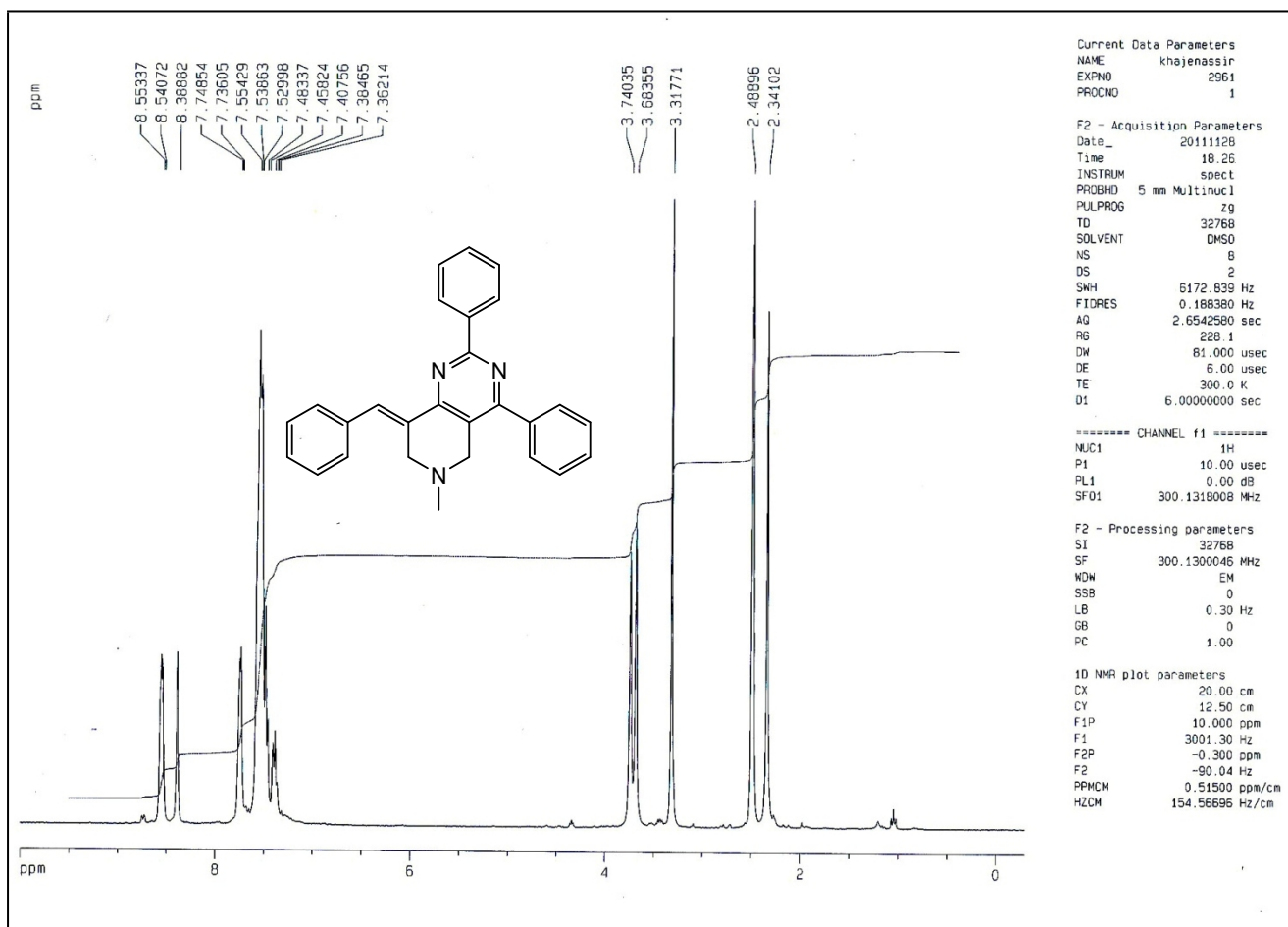


Fig S11: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-benzylidene-5,6,7,8-tetrahydro-6-methyl-2,4-diphenylpyrido[4,3-d]pyrimidine (3d)

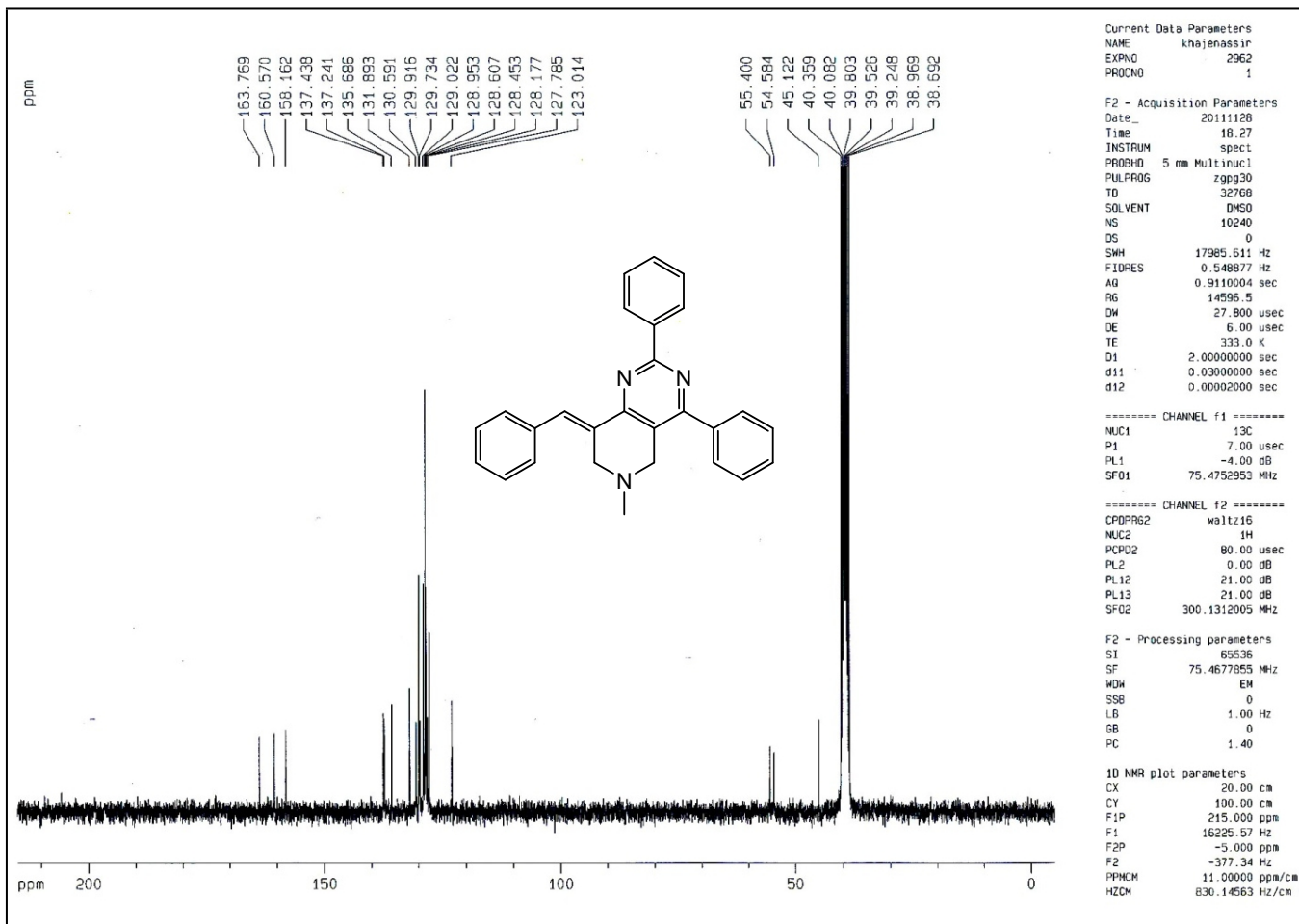


Fig S12: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-benzylidene-5,6,7,8-tetrahydro-6-methyl-2,4-diphenylpyrido[4,3-d]pyrimidine (3d)

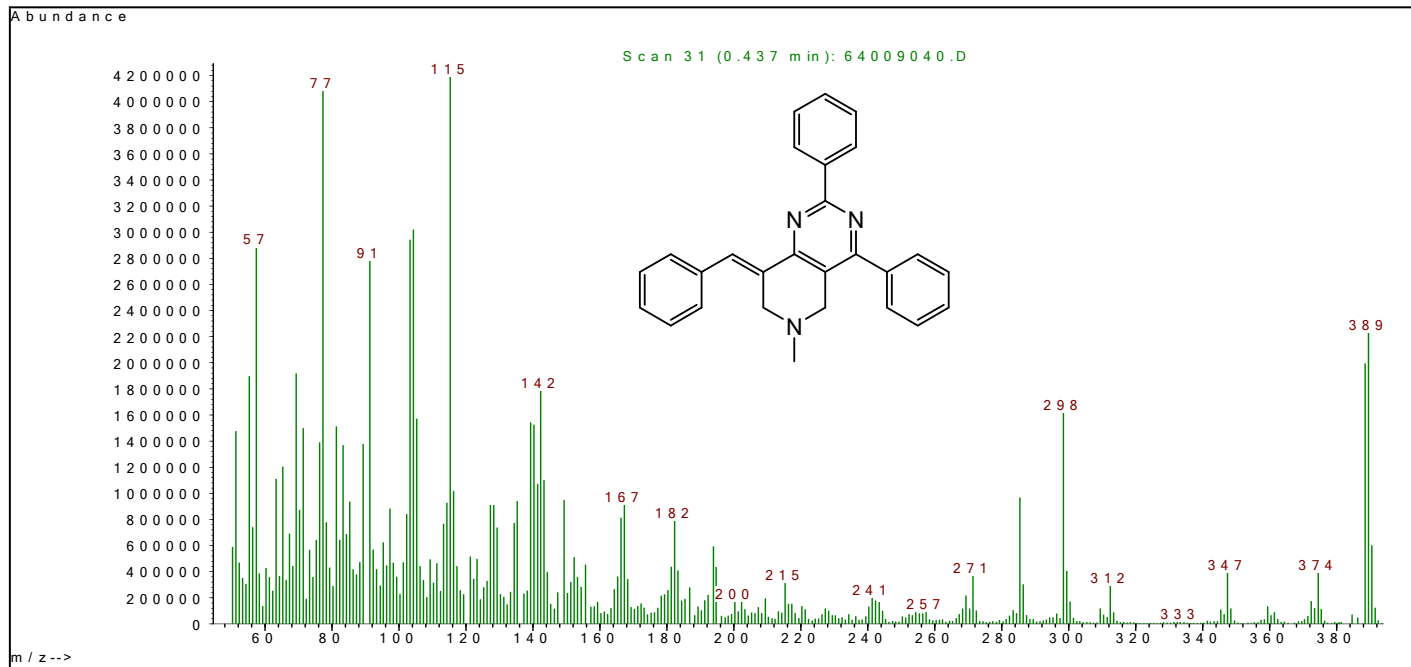


Fig S13: MS (EI) spectra of (E)-8-benzylidene-5,6,7,8-tetrahydro-6-methyl-2,4-diphenylpyrido[4,3-d]pyrimidine (3d)

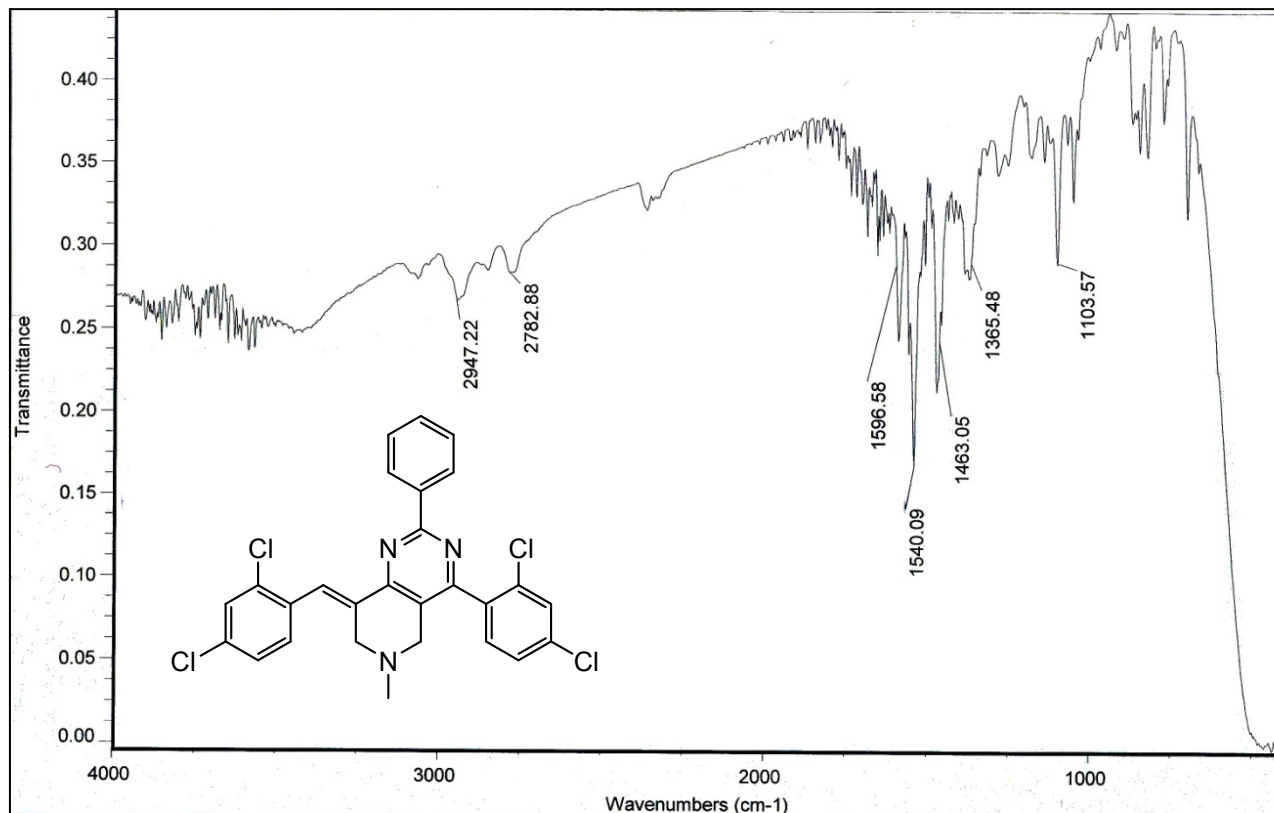


Fig S14: Ft-IR spectra of (E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3e)

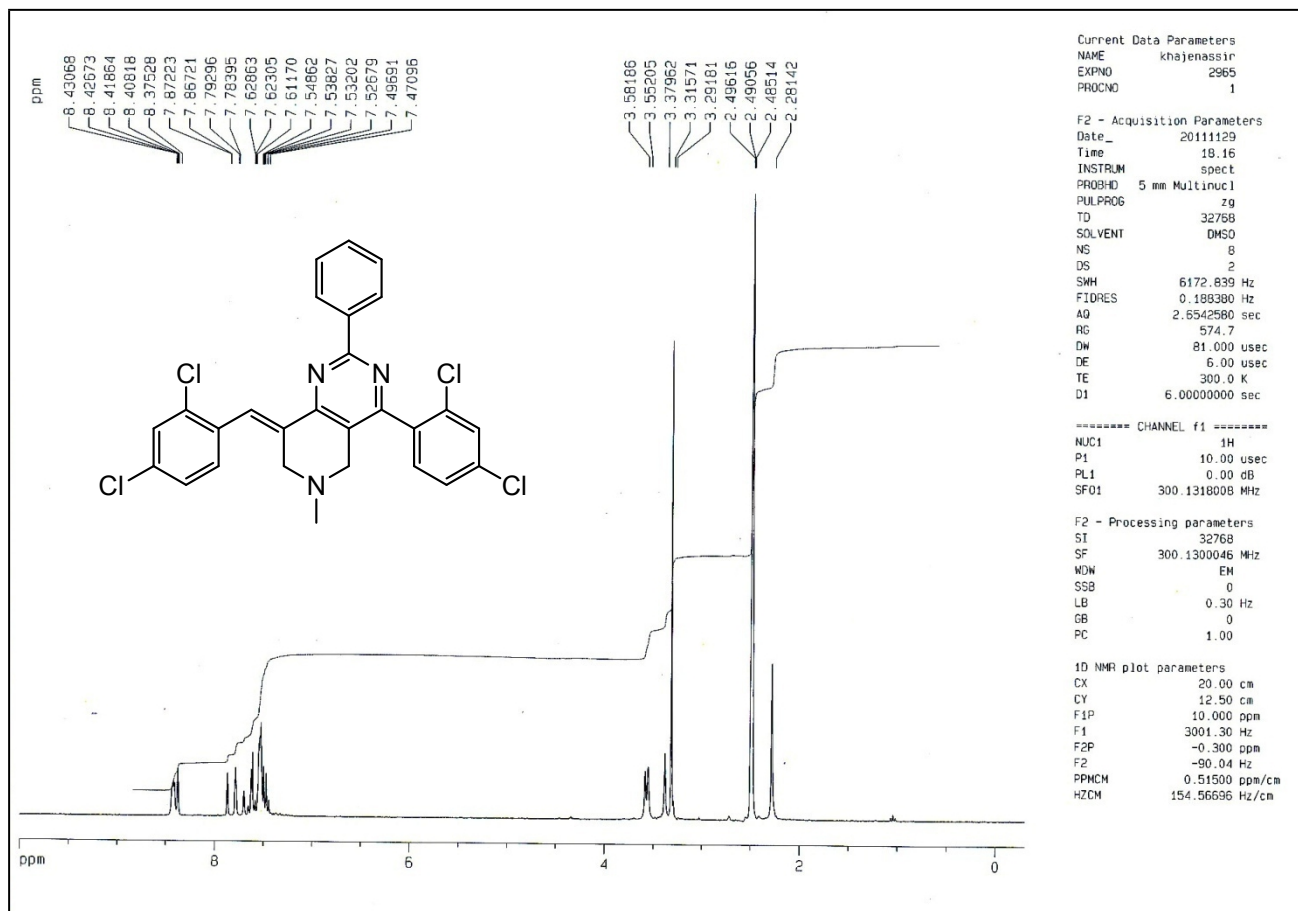


Fig S15: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3e)

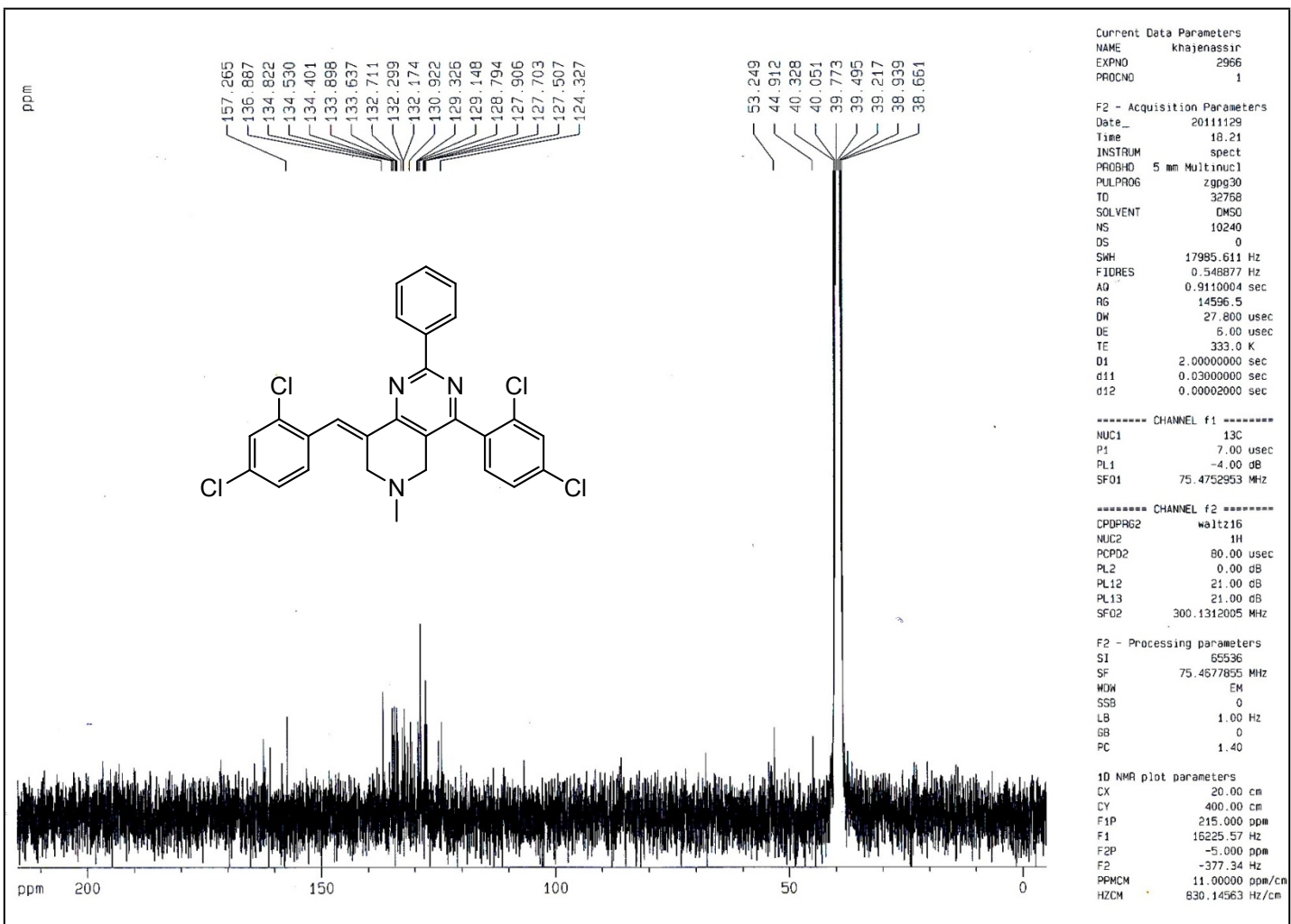


Fig S16: ^{13}C NMR (75 MHz, $\text{DMSO}-d_6$) spectra of (E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3e)

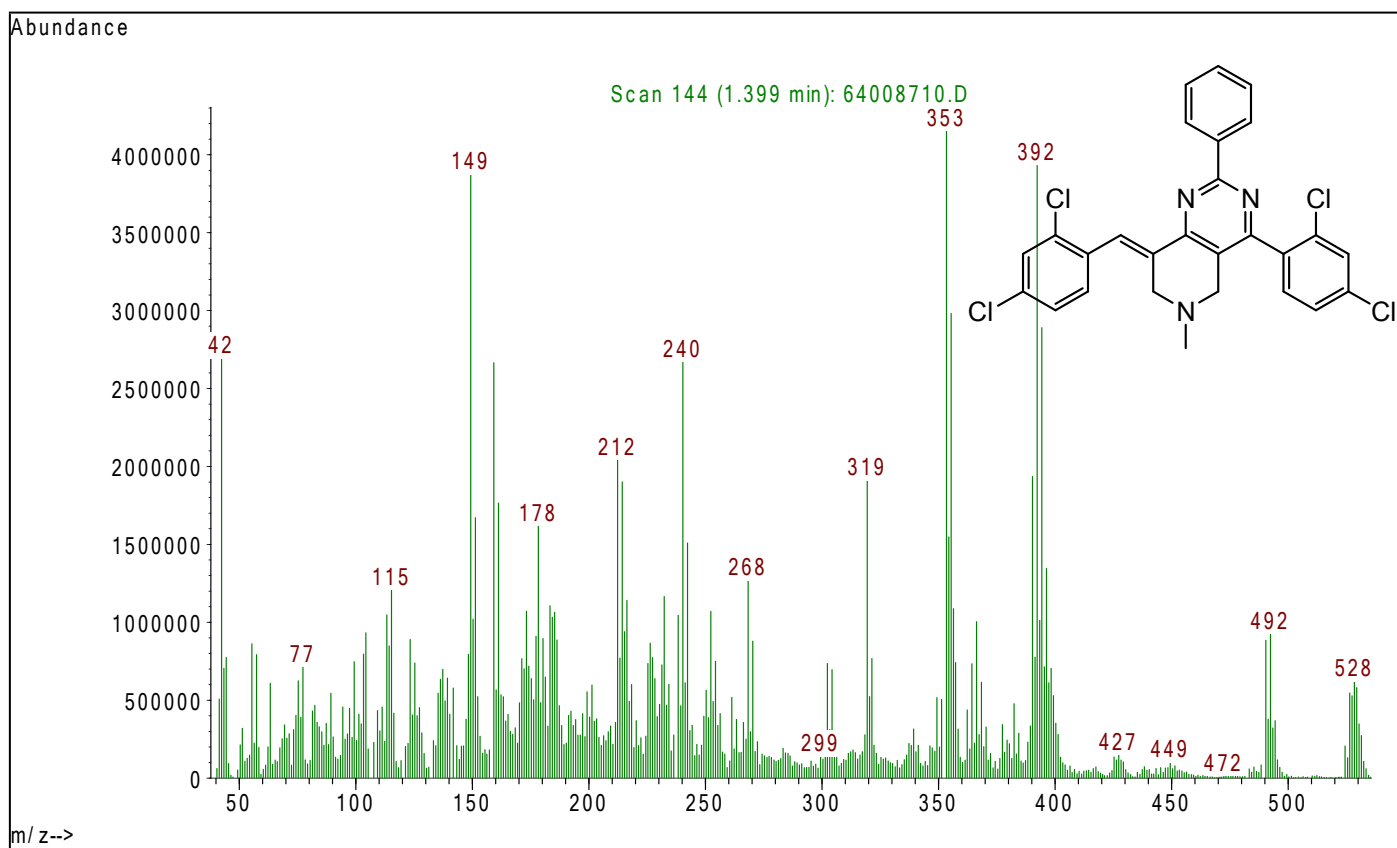


Fig S17: MS (EI) spectra of (E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3e)

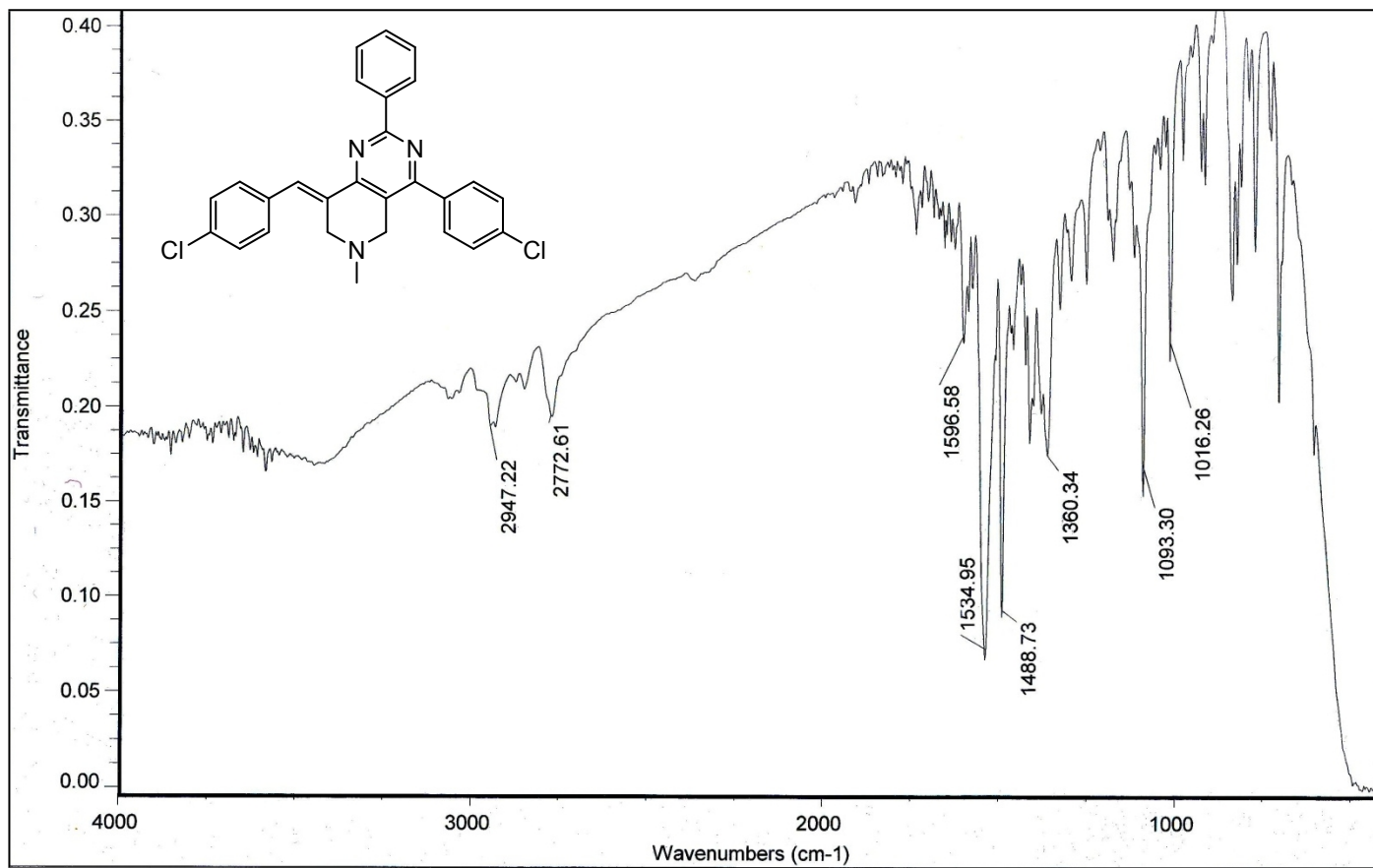


Fig S18: Ft-IR spectra of (E)-8-(4-chlorobenzylidene)-4-(4-chlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3f)

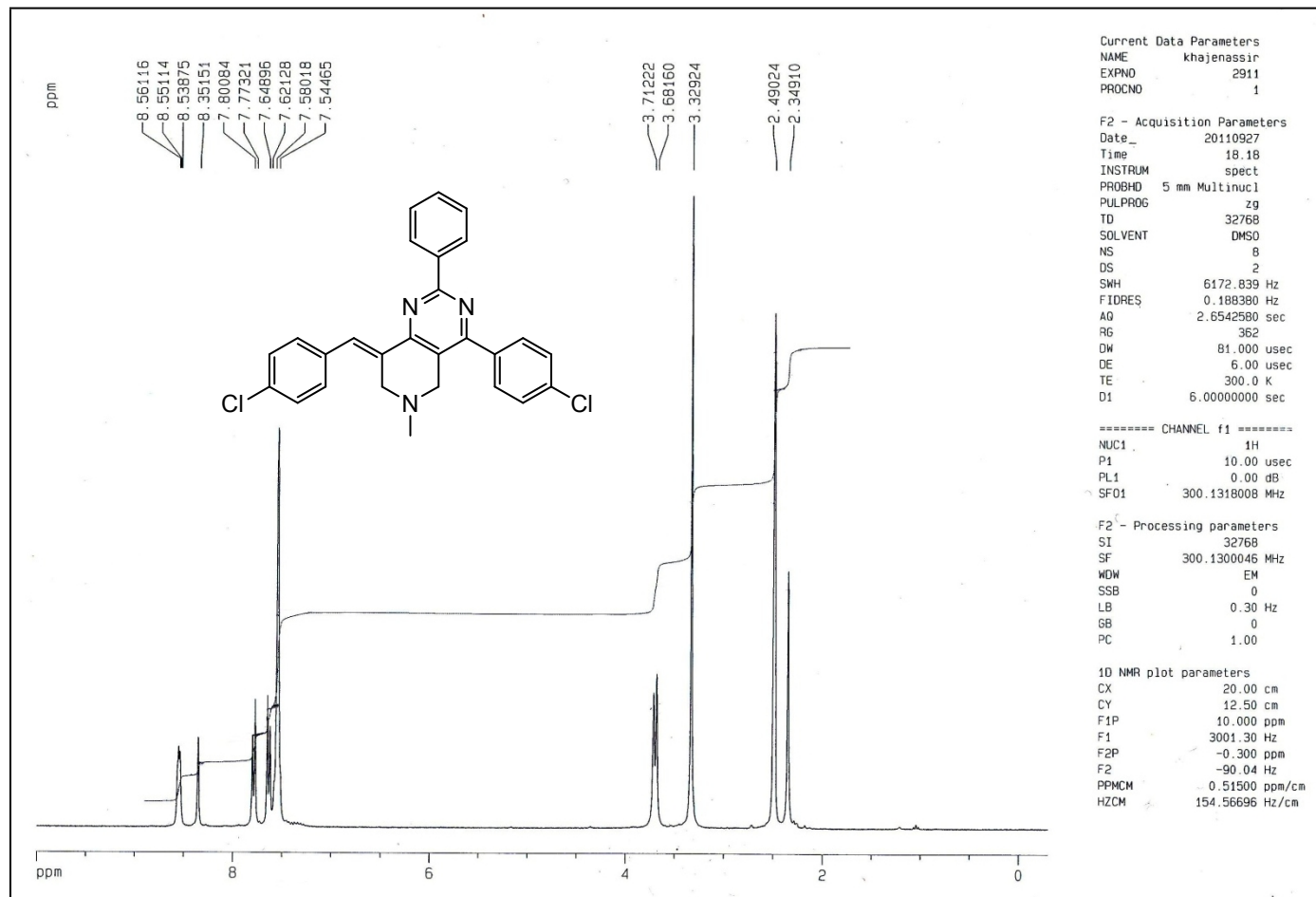


Fig S19: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-chlorobenzylidene)-4-(4-chlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3f)

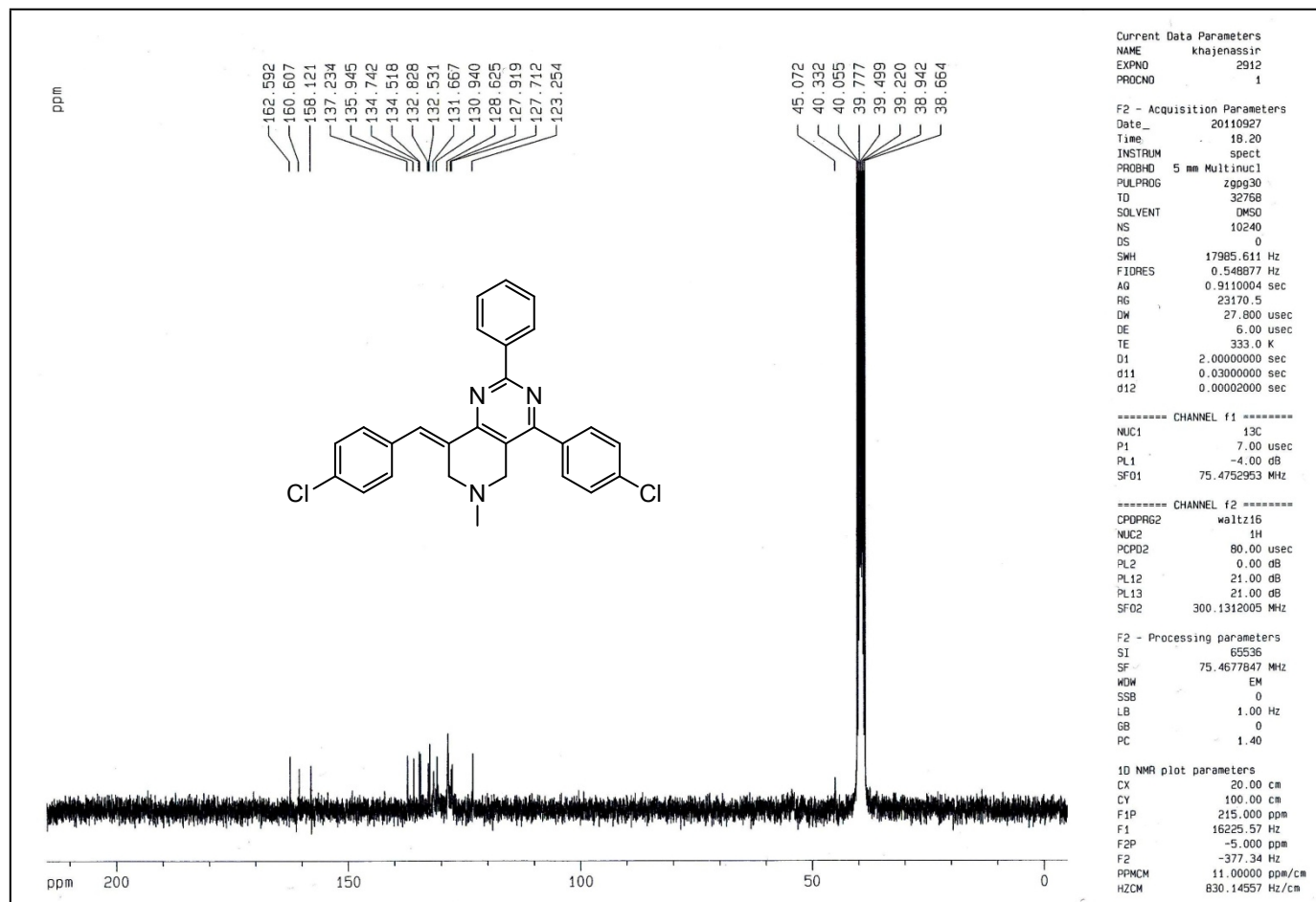


Fig S20: ^{13}C NMR (75 MHz, $\text{DMSO}-d_6$) spectra of (E)-8-(4-chlorobenzylidene)-4-(4-chlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3f)

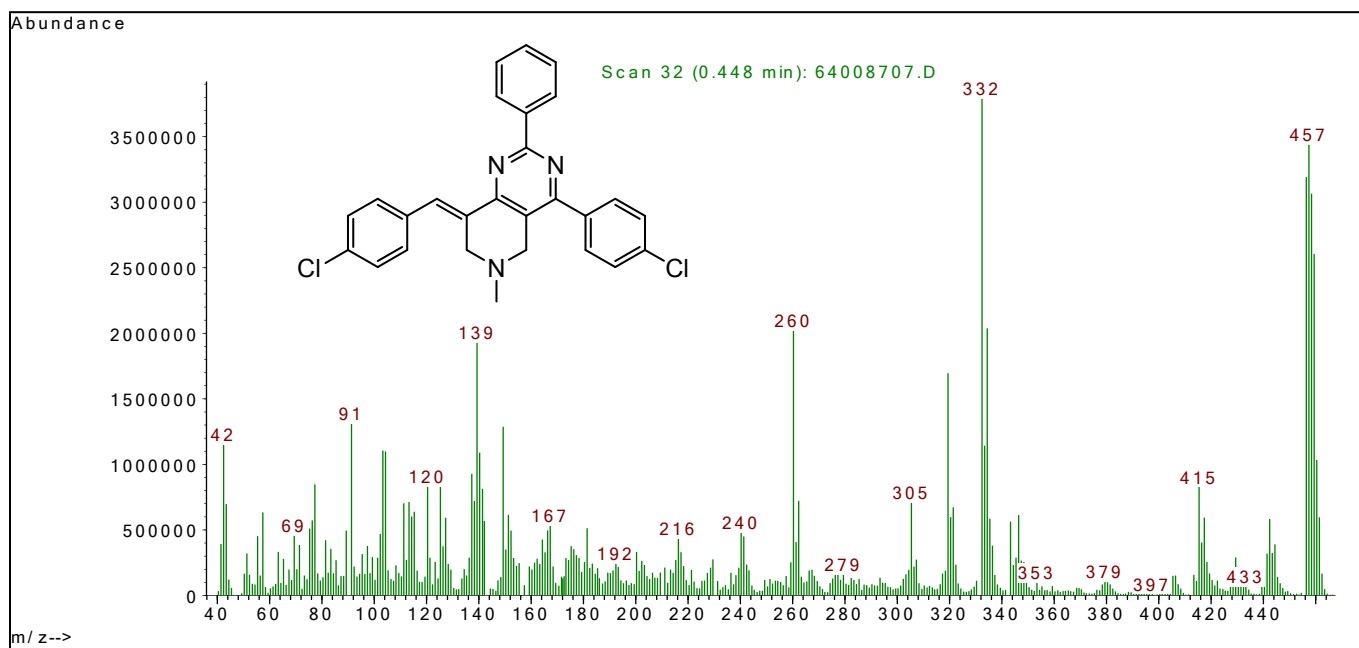


Fig S21: MS (EI) spectra of (E)-8-(4-chlorobenzylidene)-4-(4-chlorophenyl)-5,6,7,8-tetrahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3f)

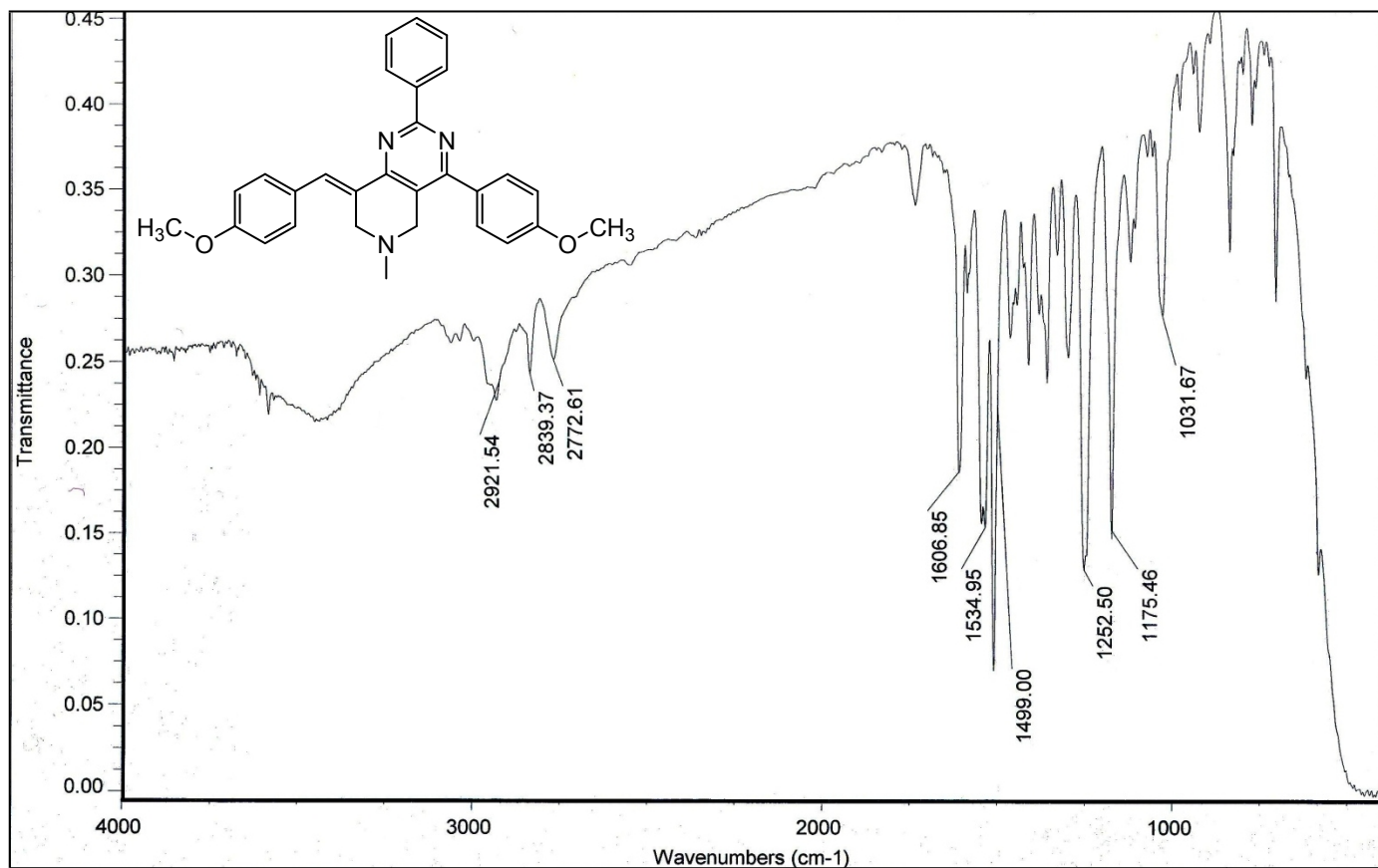


Fig S22: Ft-IR spectra of (E)-8-(4-methoxybenzylidene)-5,6,7,8-tetrahydro-4-(4-methoxyphenyl)-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3g)

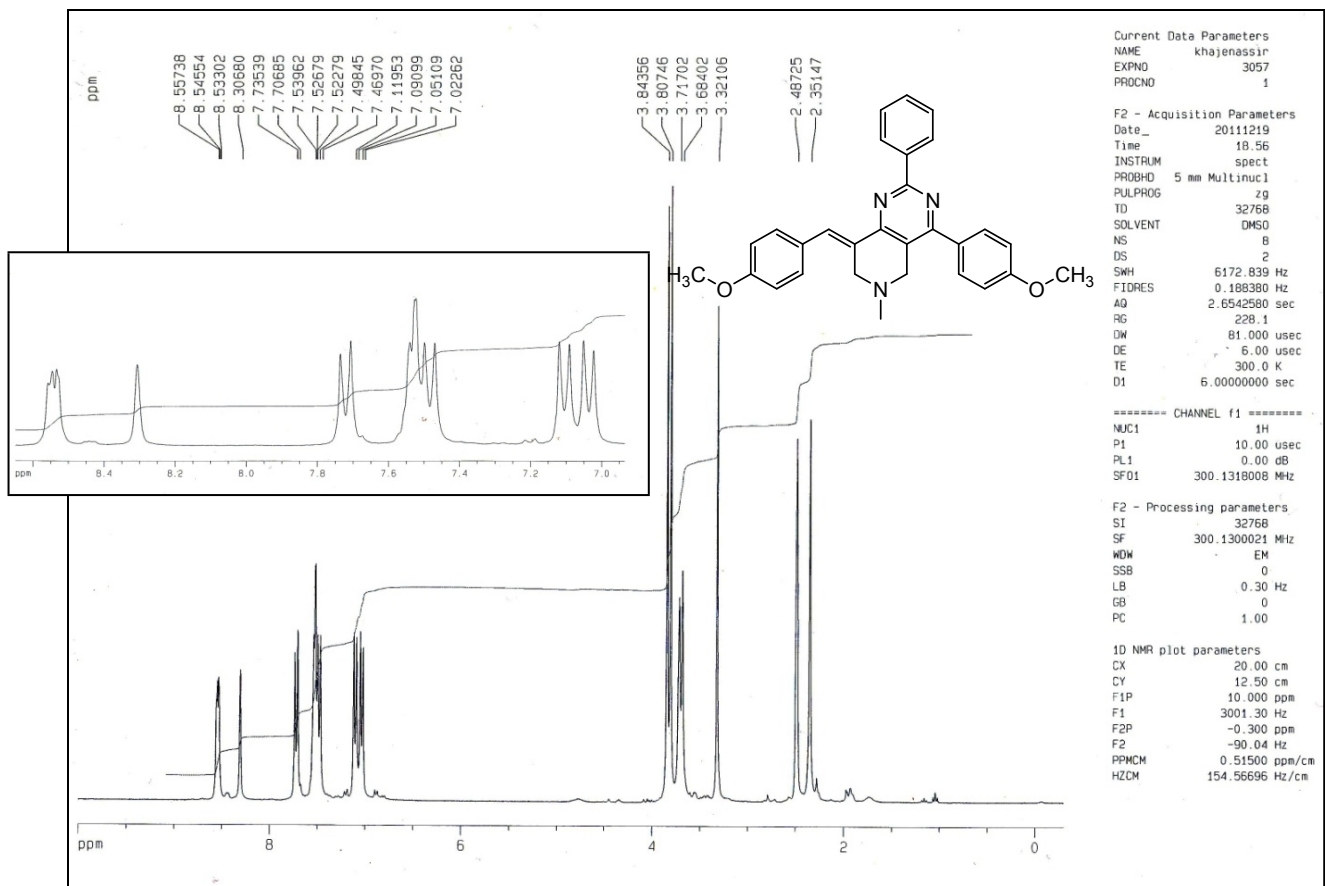


Fig S23: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (E)-8-(4-methoxybenzylidene)-5,6,7,8-tetrahydro-4-(4-methoxyphenyl)-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3g)

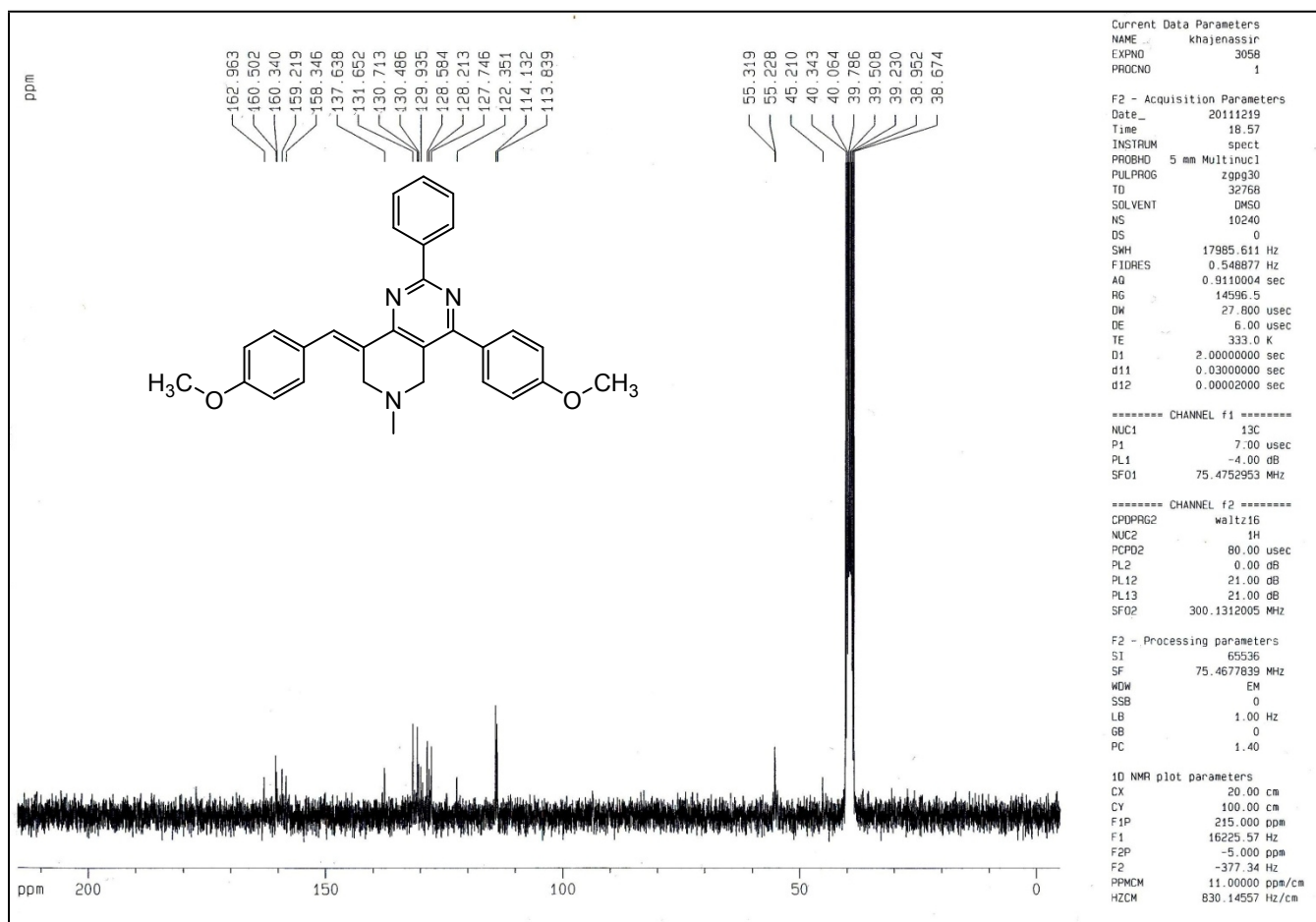


Fig S24: ¹³C NMR (75 MHz, DMSO-*d*₆) spectra of (E)-8-(4-methoxybenzylidene)-5,6,7,8-tetrahydro-4-(4-methoxyphenyl)-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3g)

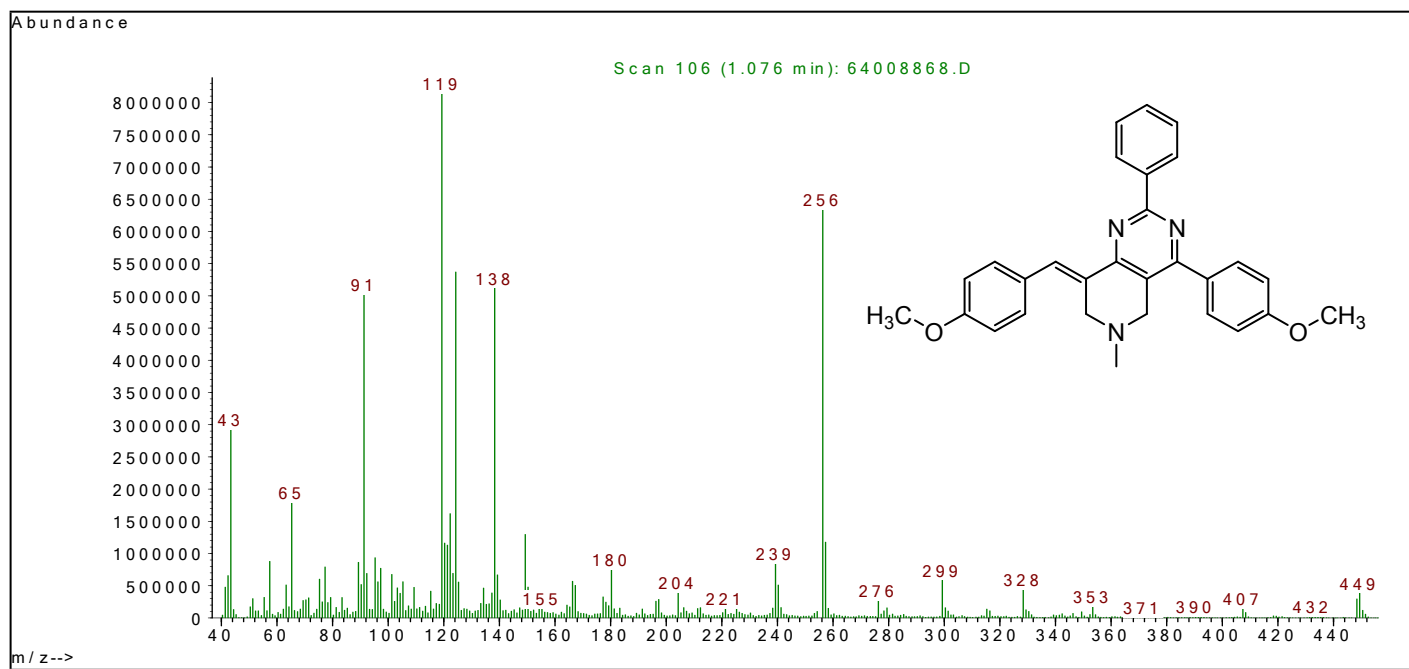


Fig S25: MS (EI) spectra of (E)-8-(4-methoxybenzylidene)-5,6,7,8-tetrahydro-4-(4-methoxyphenyl)-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3g)

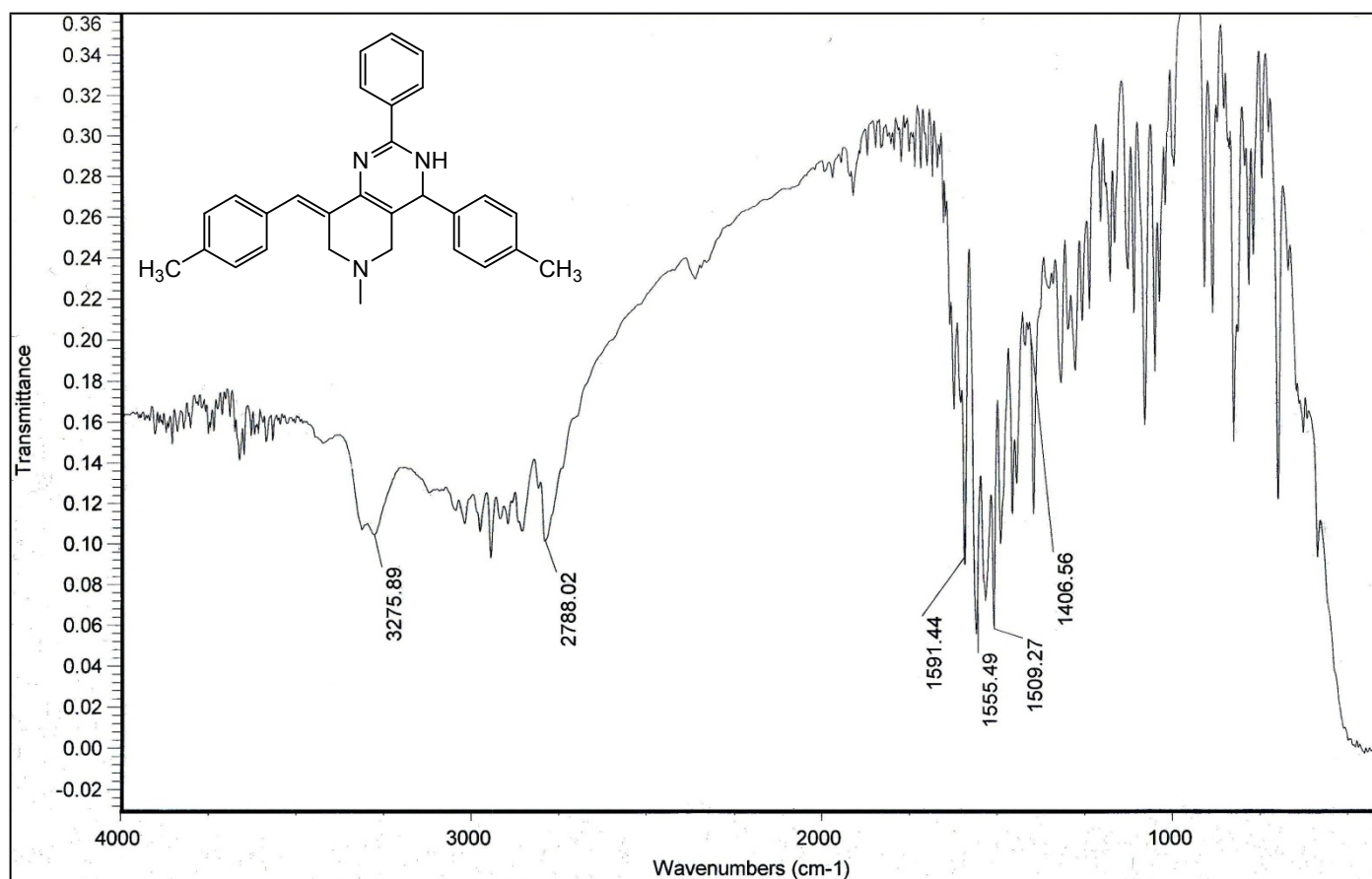


Fig S26: Ft-IR spectra of (8E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3h)

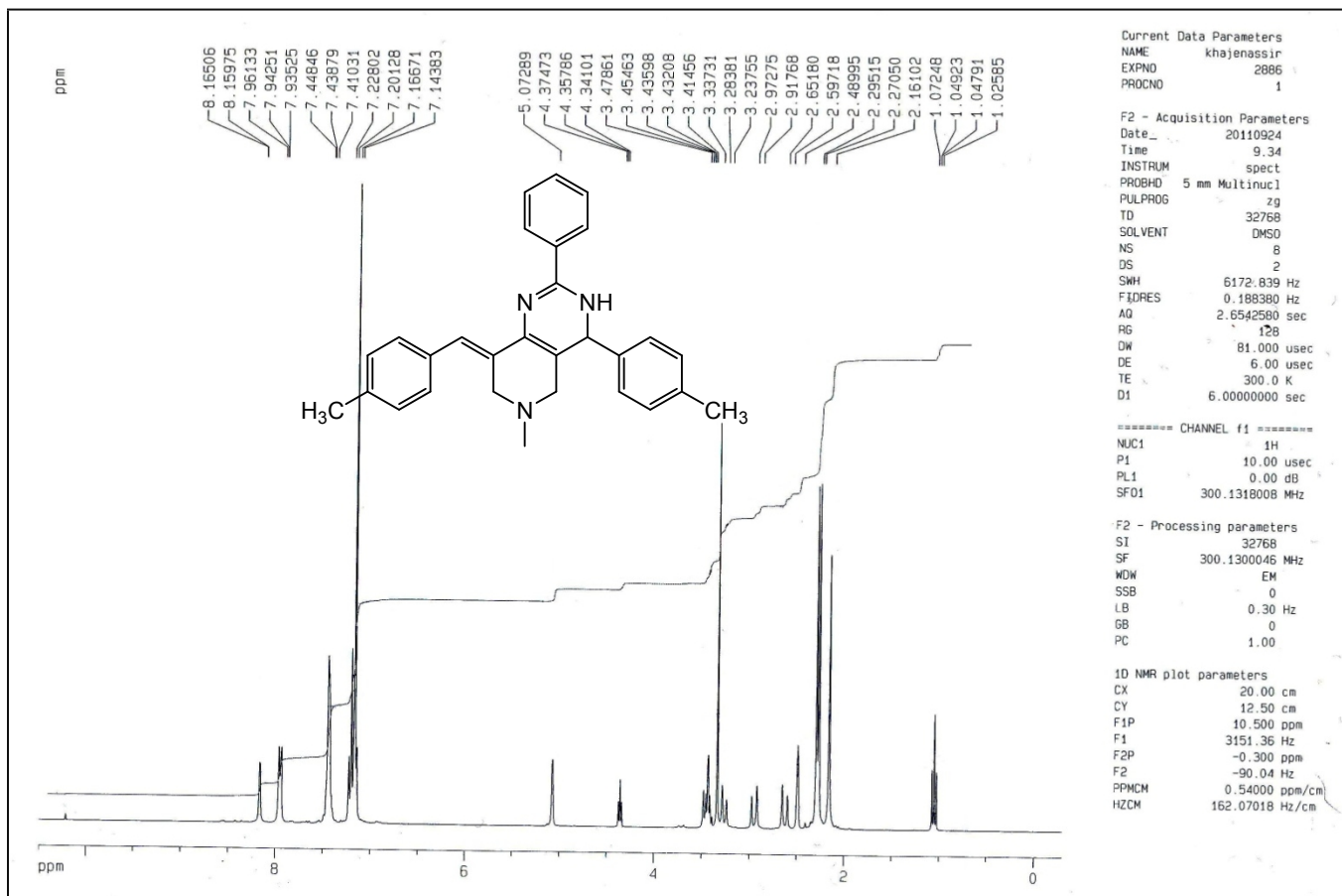


Fig S27: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (8E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3h)

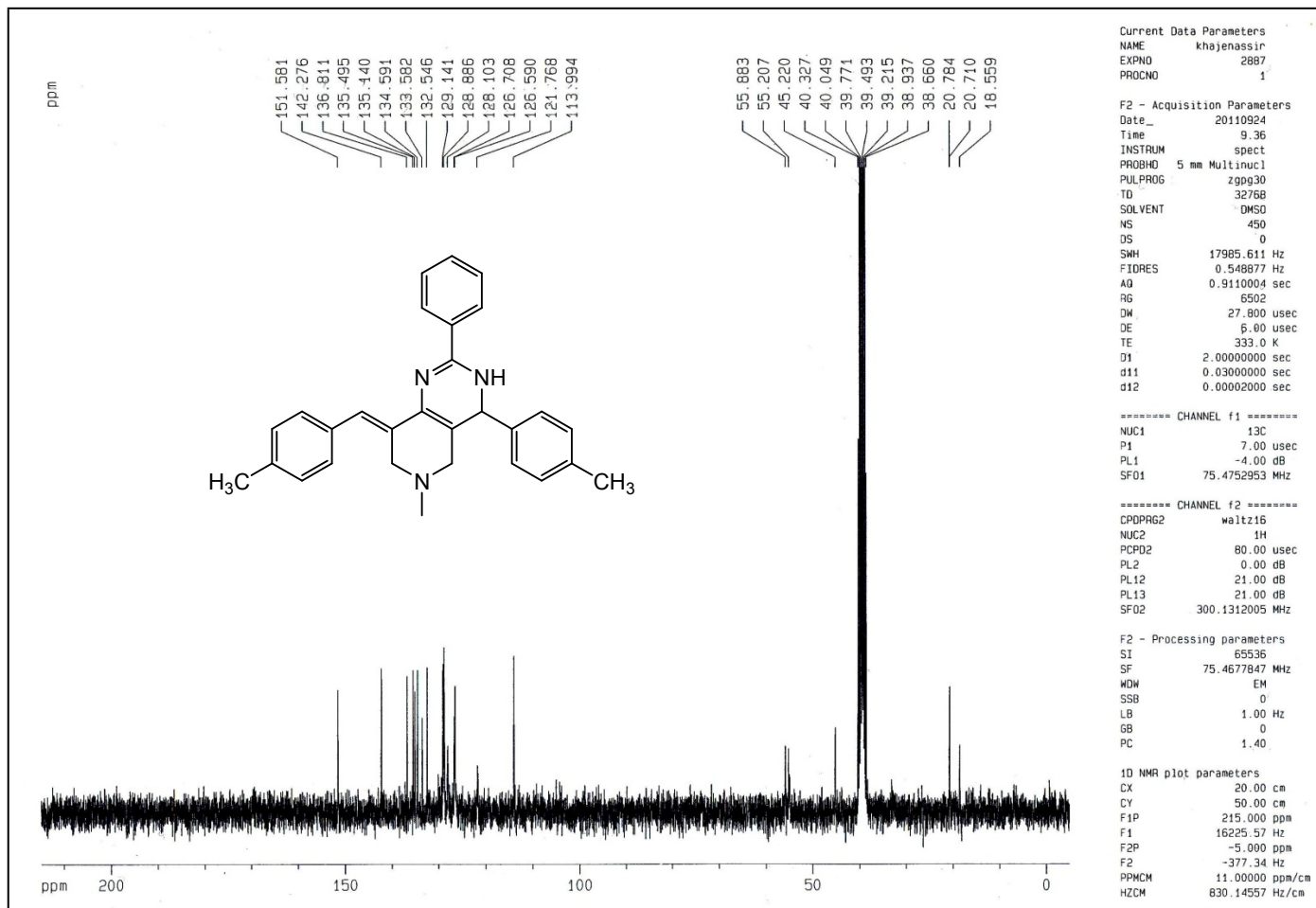


Fig S28: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (8E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3h)

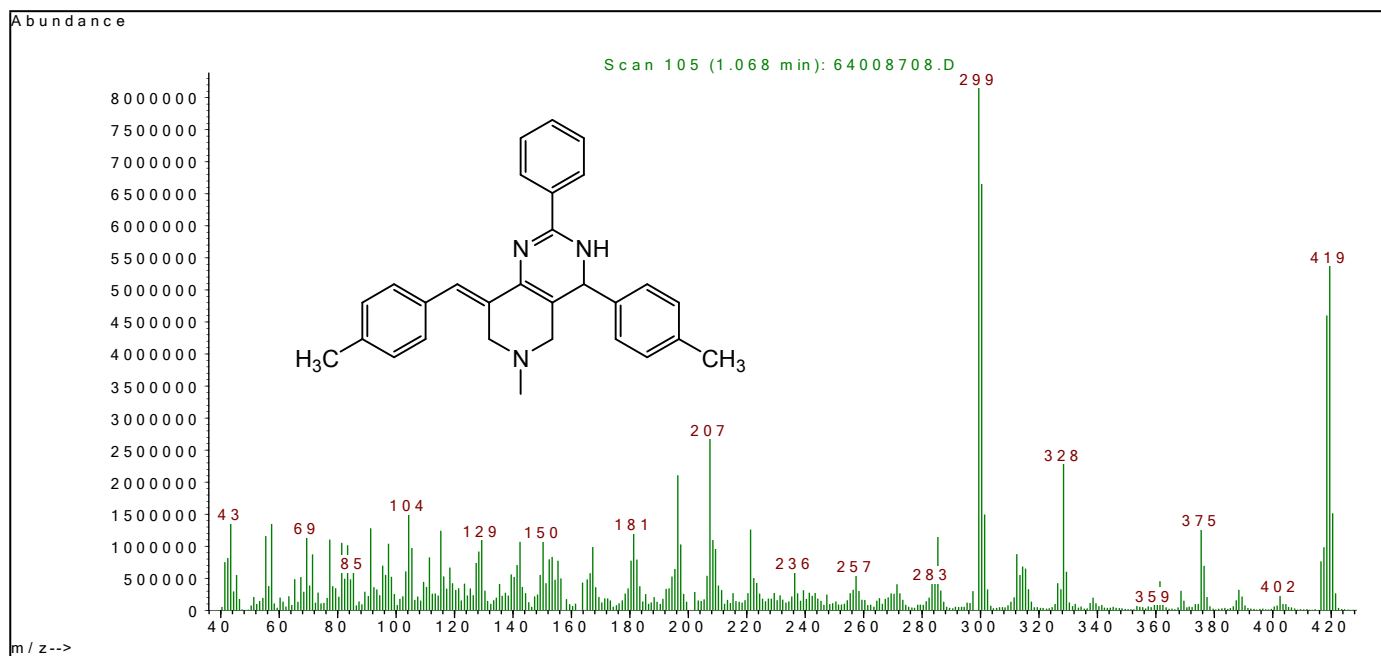


Fig S29: MS (EI) spectra of (8E)-8-(4-methylbenzylidene)-4-(4-methylphenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3h)

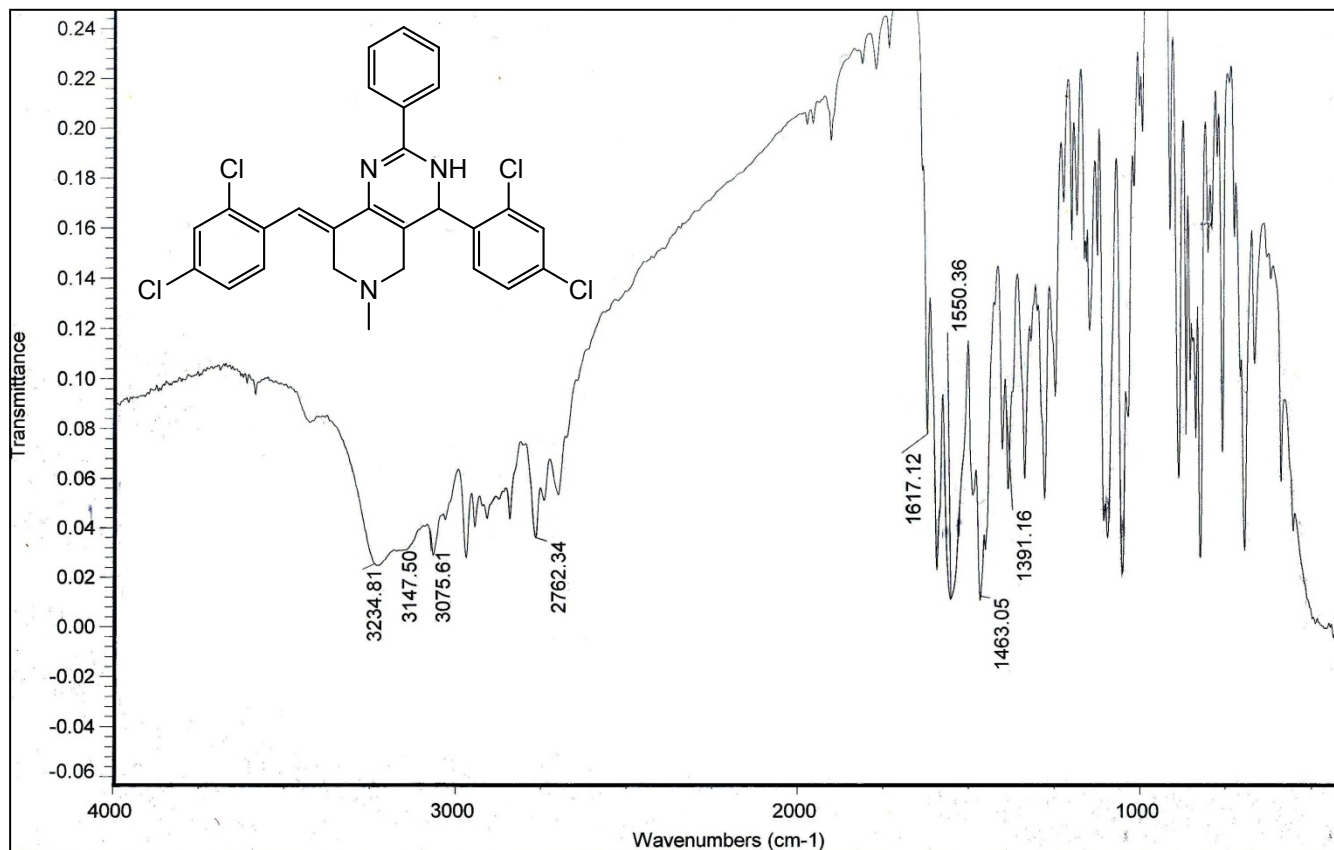


Fig S30: Ft-IR spectra of (8E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3i)

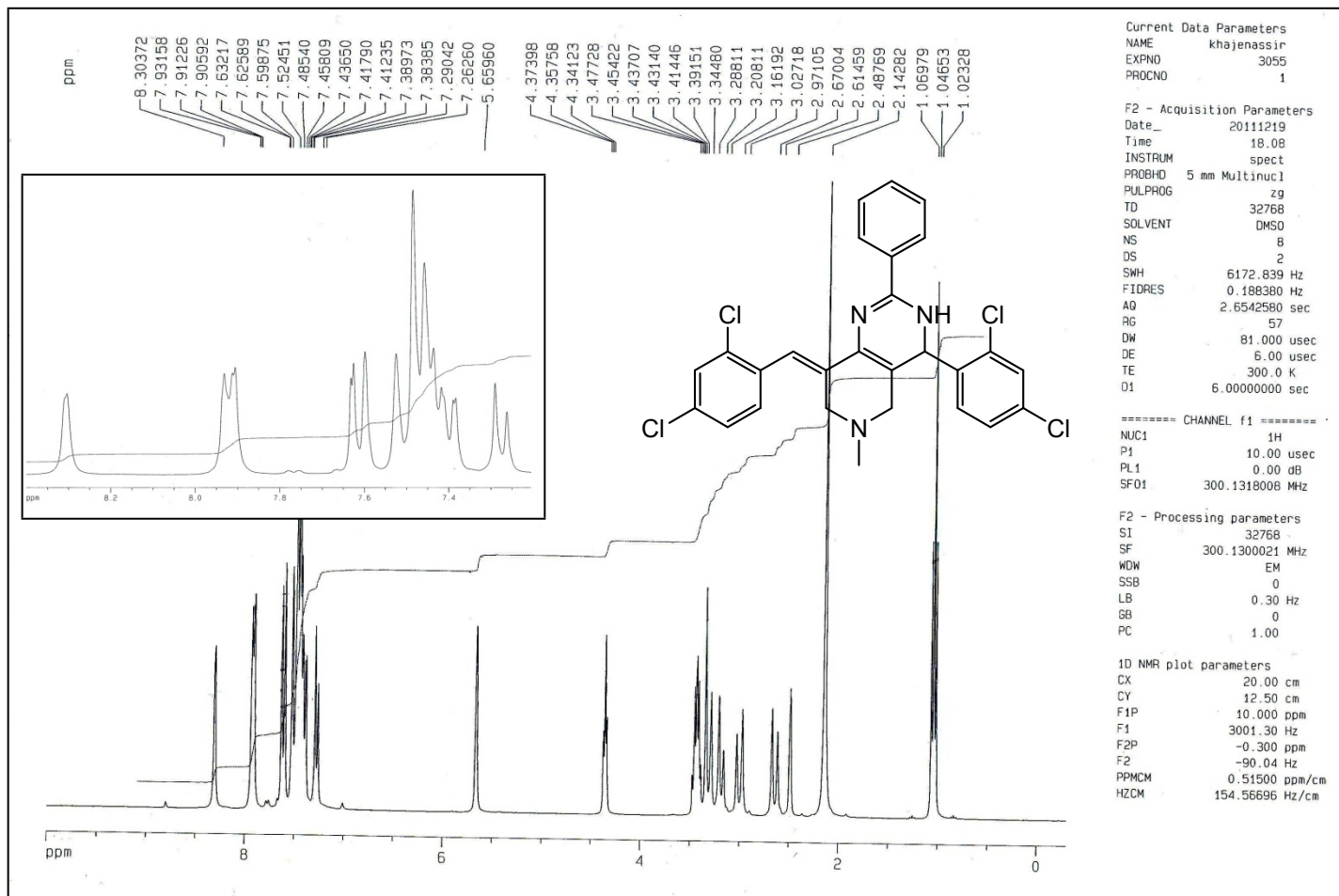


Fig S31: ^1H NMR (300 MHz, $\text{DMSO-}d_6$) spectra of (8E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3i)

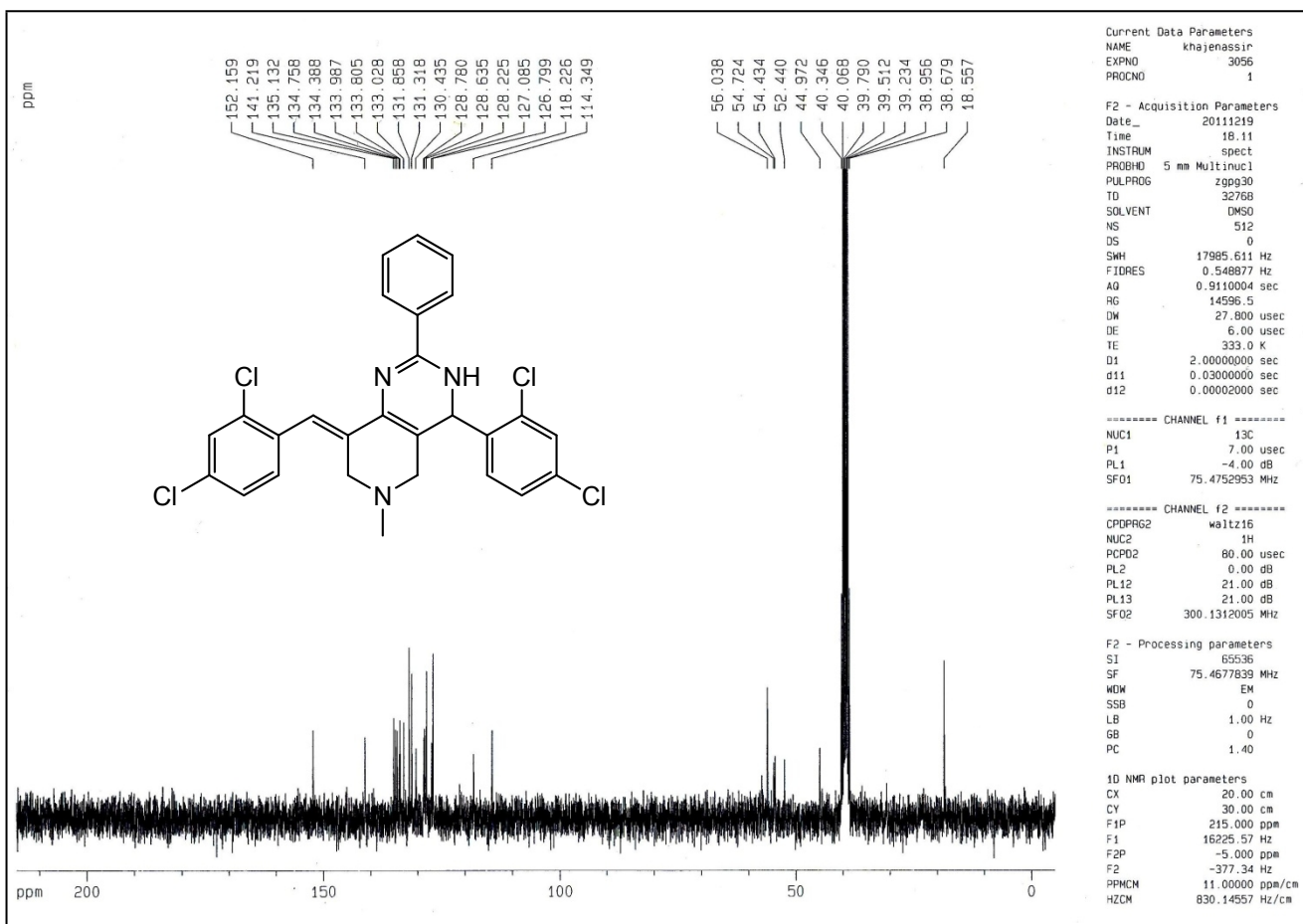


Fig S32: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (8E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3i)

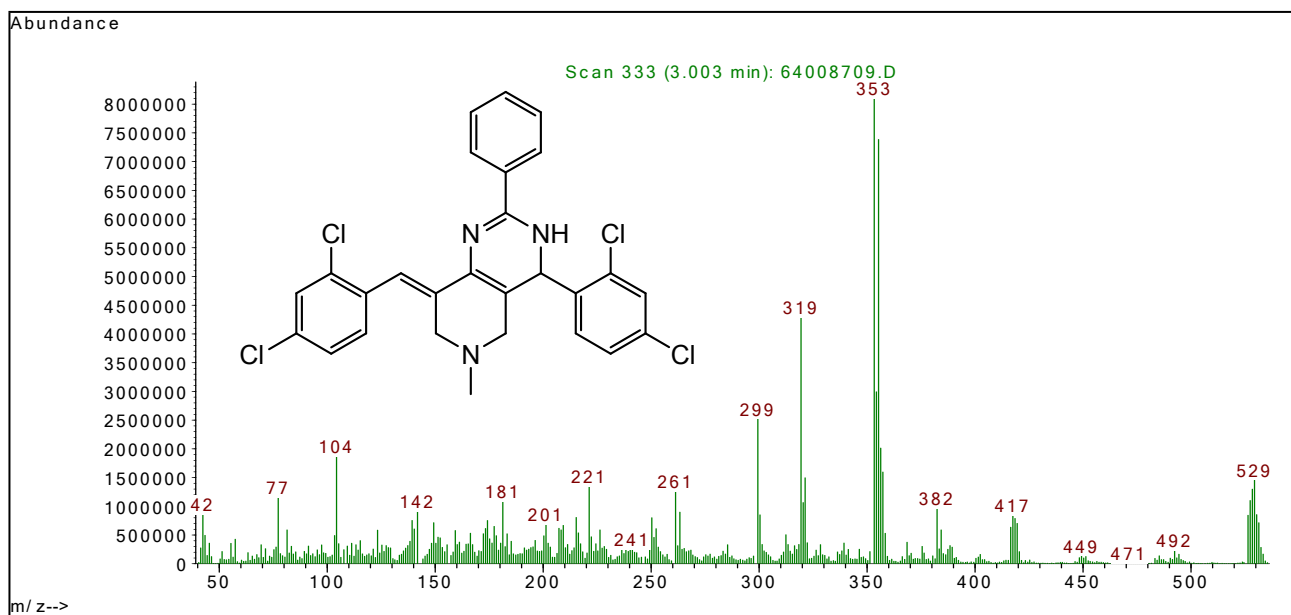


Fig S33: MS (EI) spectra of (8E)-8-(2,4-dichlorobenzylidene)-4-(2,4-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3i)

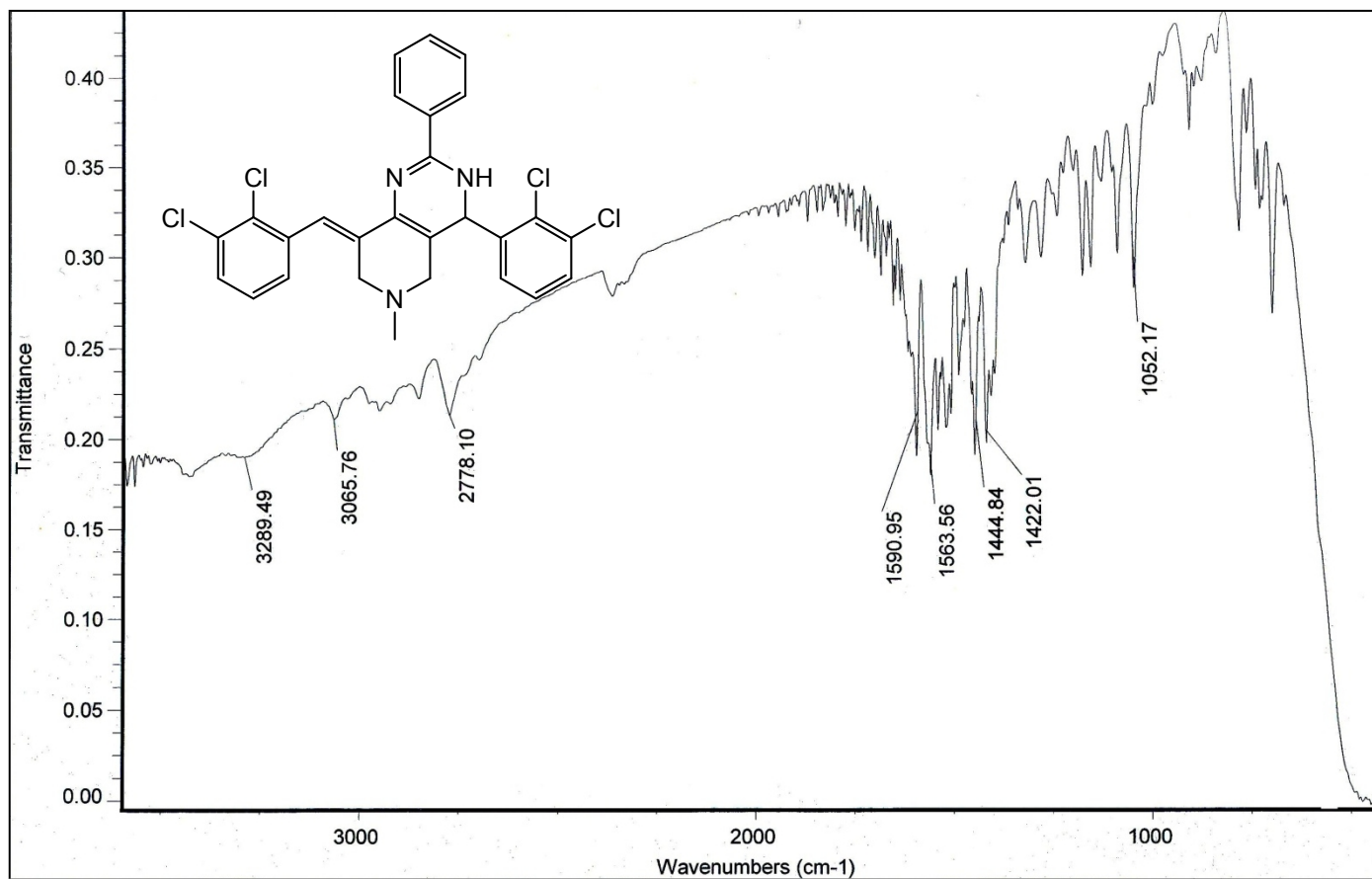


Fig S34: Ft-IR spectra of (8E)-8-(2,3-dichlorobenzylidene)-4-(2,3-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3j)

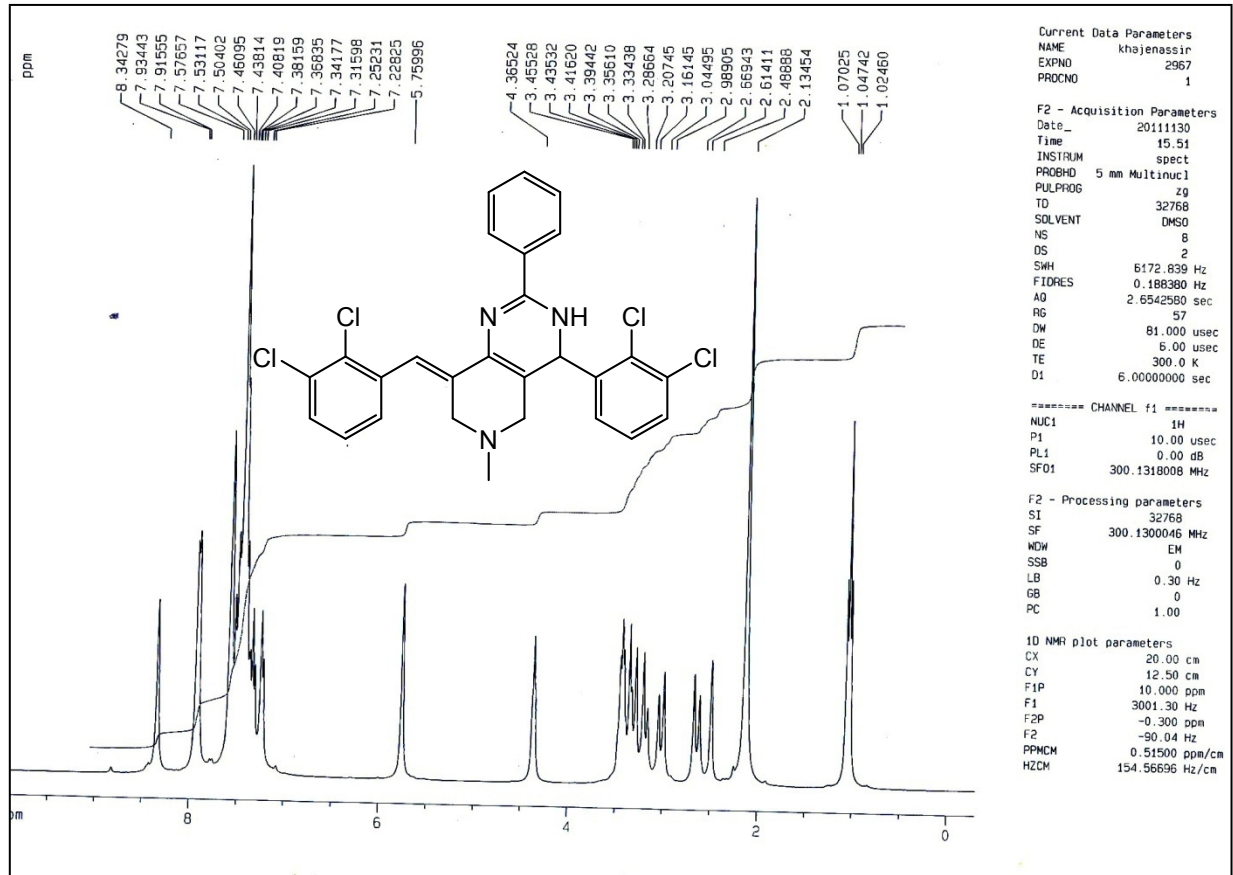


Fig S35: ¹H NMR (300 MHz, DMSO-*d*₆) spectra of (8E)-8-(2,3-dichlorobenzylidene)-4-(2,3-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3j)

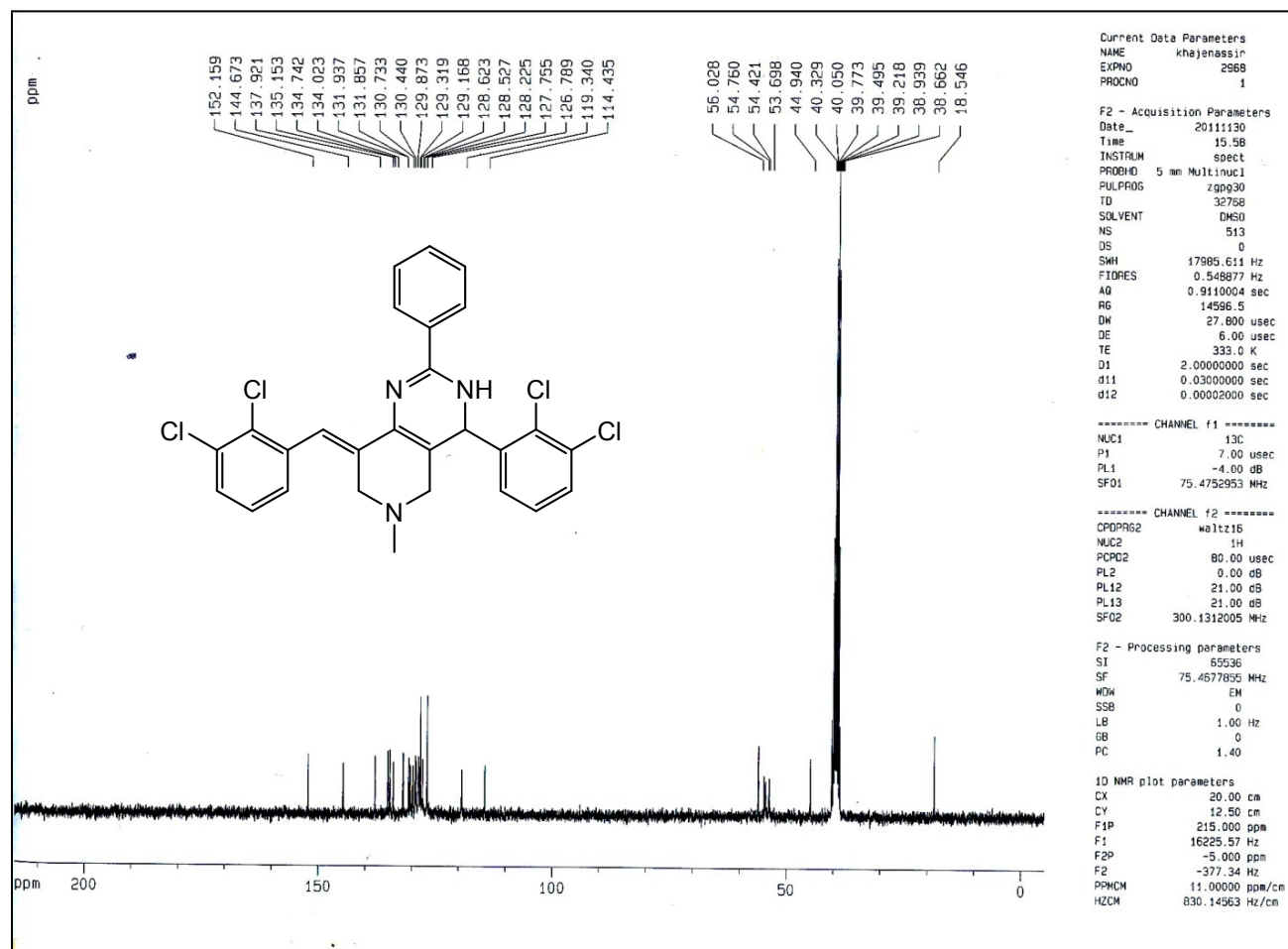


Fig S36: ^{13}C NMR (75 MHz, $\text{DMSO-}d_6$) spectra of (8E)-8-(2,3-dichlorobenzylidene)-4-(2,3-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3j)

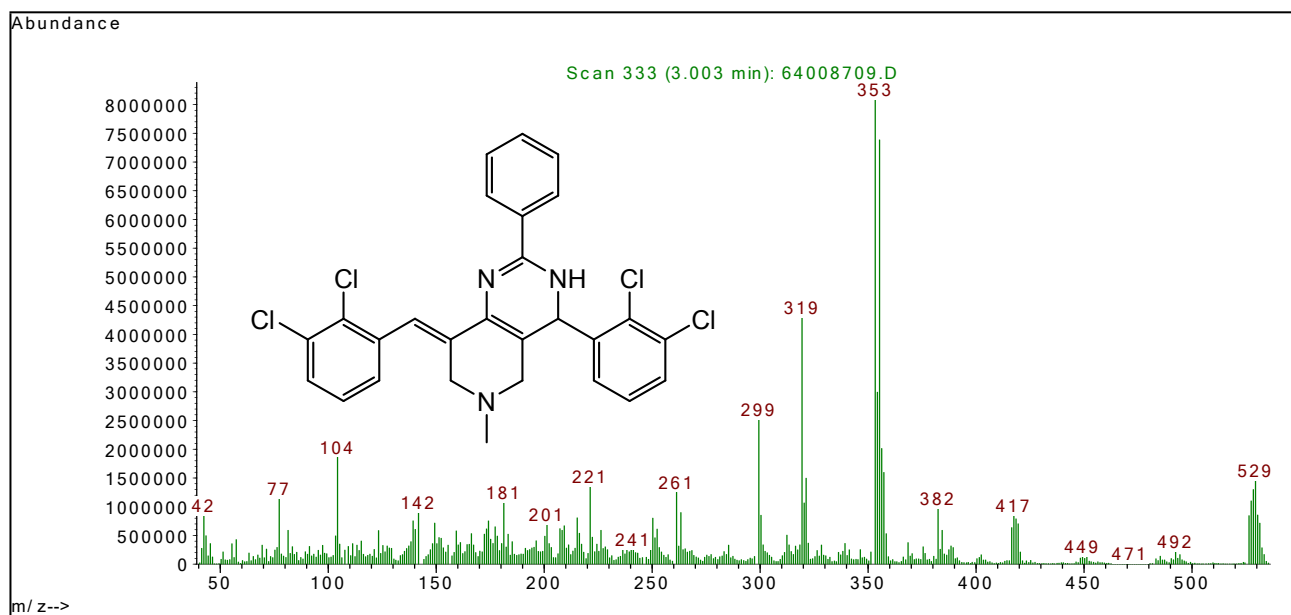


Fig S37: MS (EI) spectra of (8E)-8-(2,3-dichlorobenzylidene)-4-(2,3-dichlorophenyl)-2,3,5,6,7,8-hexahydro-6-methyl-2-phenylpyrido[4,3-d]pyrimidine (3j)