Versatile Three Component Procedure for Combinatorial Synthesis of Biologically Relevant Scaffold Spiro[indole-thiazolidinones] under Aqueous Conditions.

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Supporting Information

Experimental: Melting points were determined on a Toshniwal apparatus. The purity of compounds was checked on thin layers of silica gel in various non-aqueous solvent systems, for e.g. benzene: ethylacetate (9:1), benzene: dichloromethane (8:2). IR spectra (KBr) were recorded on a Magna FT IR–550 spectrophotometer and ^{1}H NMR and ^{13}C NMR spectra were recorded on Bruker DRX-300 using $CDCl_3$ at 300.13 and 75.47, respectively. TMS was used as internal reference. DART Mass spectra of representative compounds were recorded on YOKUDELNA_ES+_2000 spectrometer and EIMS were recorded on Kratos Mass spectrometer. The ultrasound-assisted reactions were carried out in and ultrasonic bath (Bandelin Sonorex) operating at 230 V generating 33 KHz output frequency. The location at which the intensity of ultrasound is maximum checked by Weissler reaction. HIU irradiation was provided by the ultrasonic processor probe system (Processor SONOPROS PR-1000MP, OSCAR ULTRASONICS made) operating at 20 KHz, 750W with 6mm/12 mm tip diameter probes. The synthesized compounds were compared with the authentic samples, prepared by the conventional method.

Typical procedure for preparation of 3'-(2,3-dihydro-1,5-dimethyl-3-oxo-2-phenyl-1*H*-pyrazol-4-yl)-5'-methyl-spiro[3*H*-indole-3,2'-thiazolidine]-2,4'(1*H*)-dione (4a) under HIU irradiation using sonicator:

A mixture of indole-2, 3-dione (3 mmol), 4-aminoantipyrine (3 mmol) and 2-mercaptopropionic acid (3.5 mmol) and cetyltrimethylammonium bromide (20 mol%) in water (10ml) were taken in a flask. The flask was attached to a 12 mm tip diameter probe and the reaction mixture was sonicated for the specified period at 50% power of the processor at 4 s pulse mode. At the end of the reaction period, TLC was checked and the flask was detached from the probe and the content was transferred into a beaker. The formed precipitated product was flittered and washed with water and ethanol to afford the pure white crystalline product **(4a).**

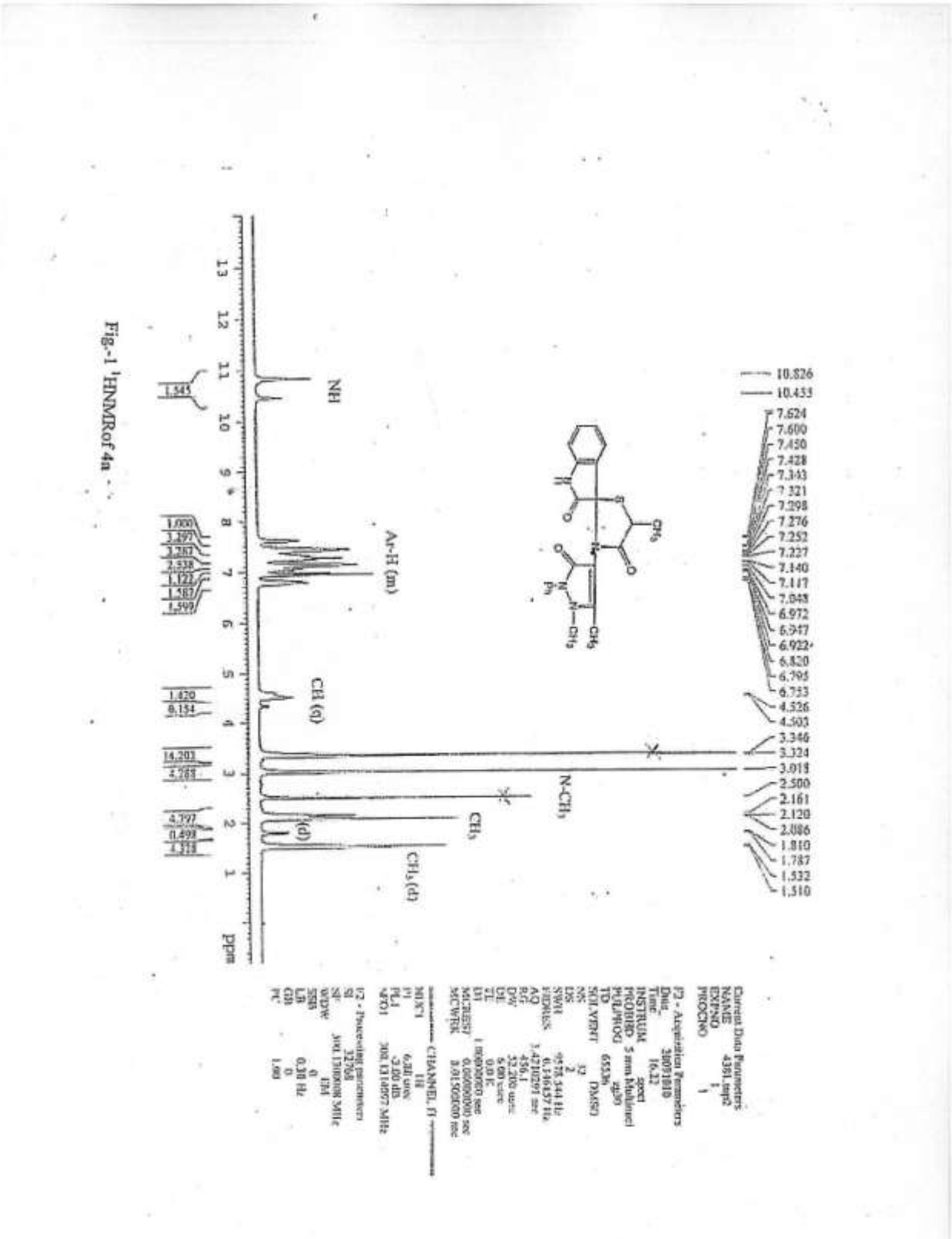

Fig-1 ^{1}HNMR of 4a

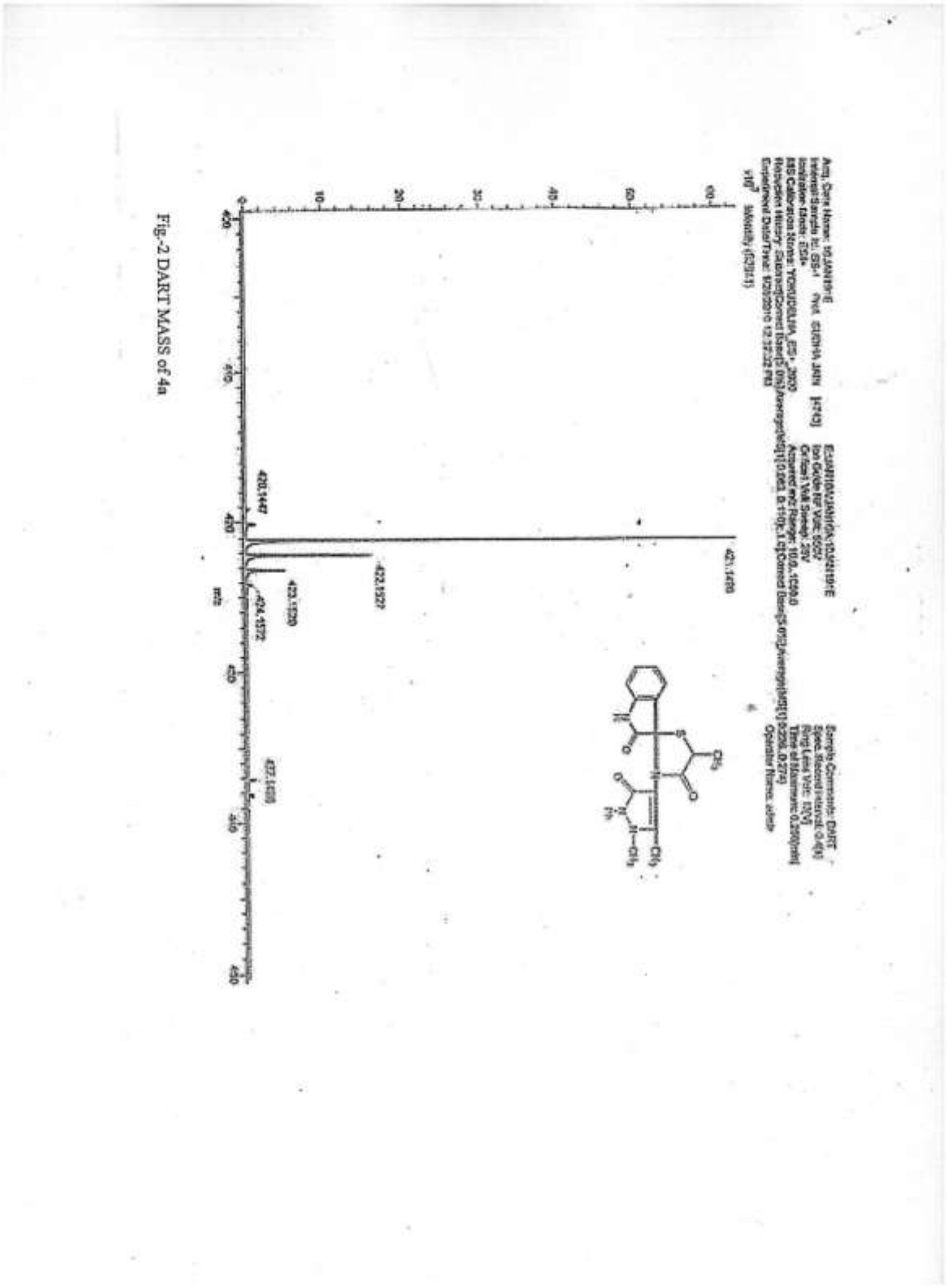

Fig.-2 DART MASS of 4a

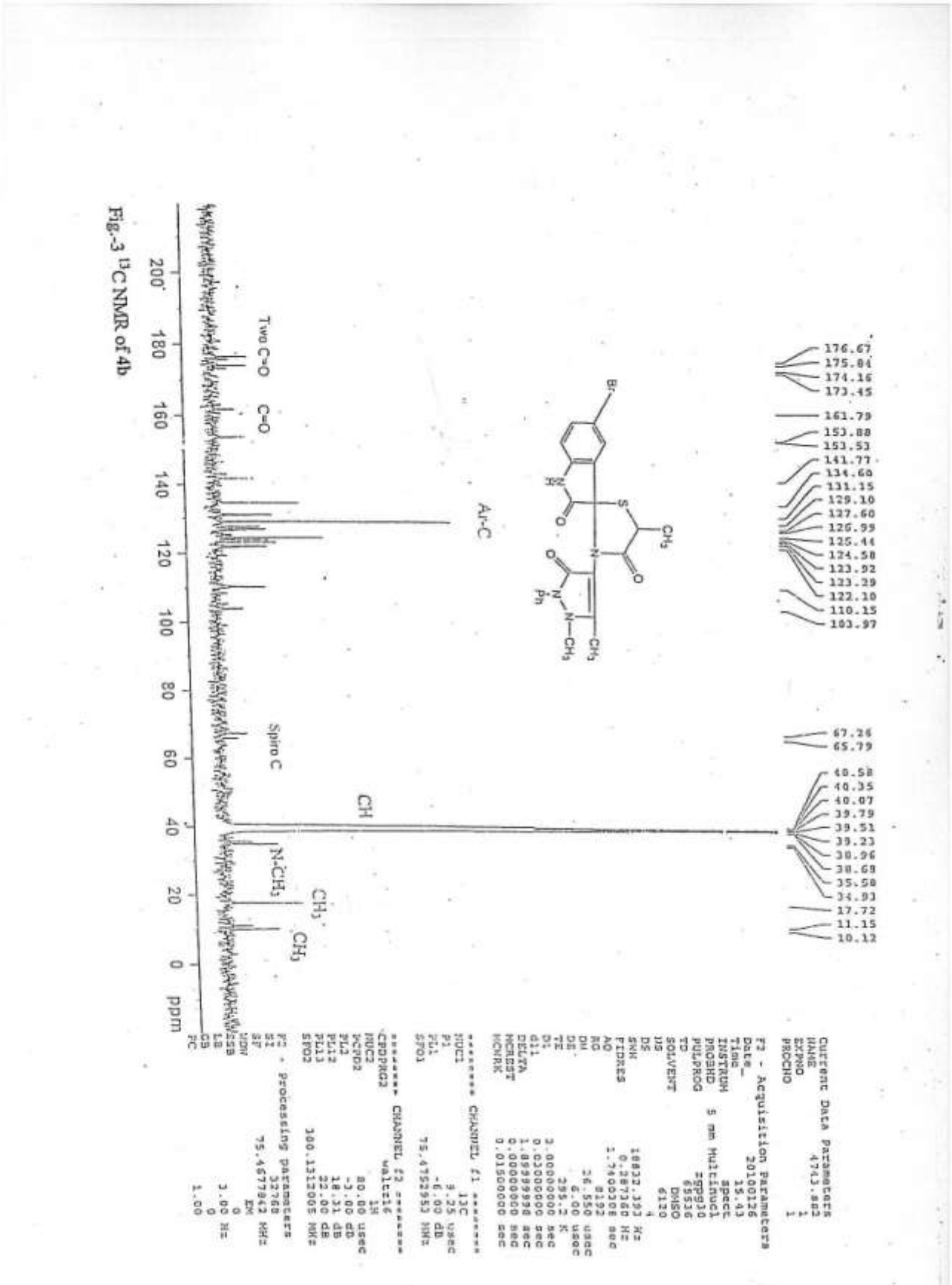

Fig.-3 ^{13}C NMR of 4b

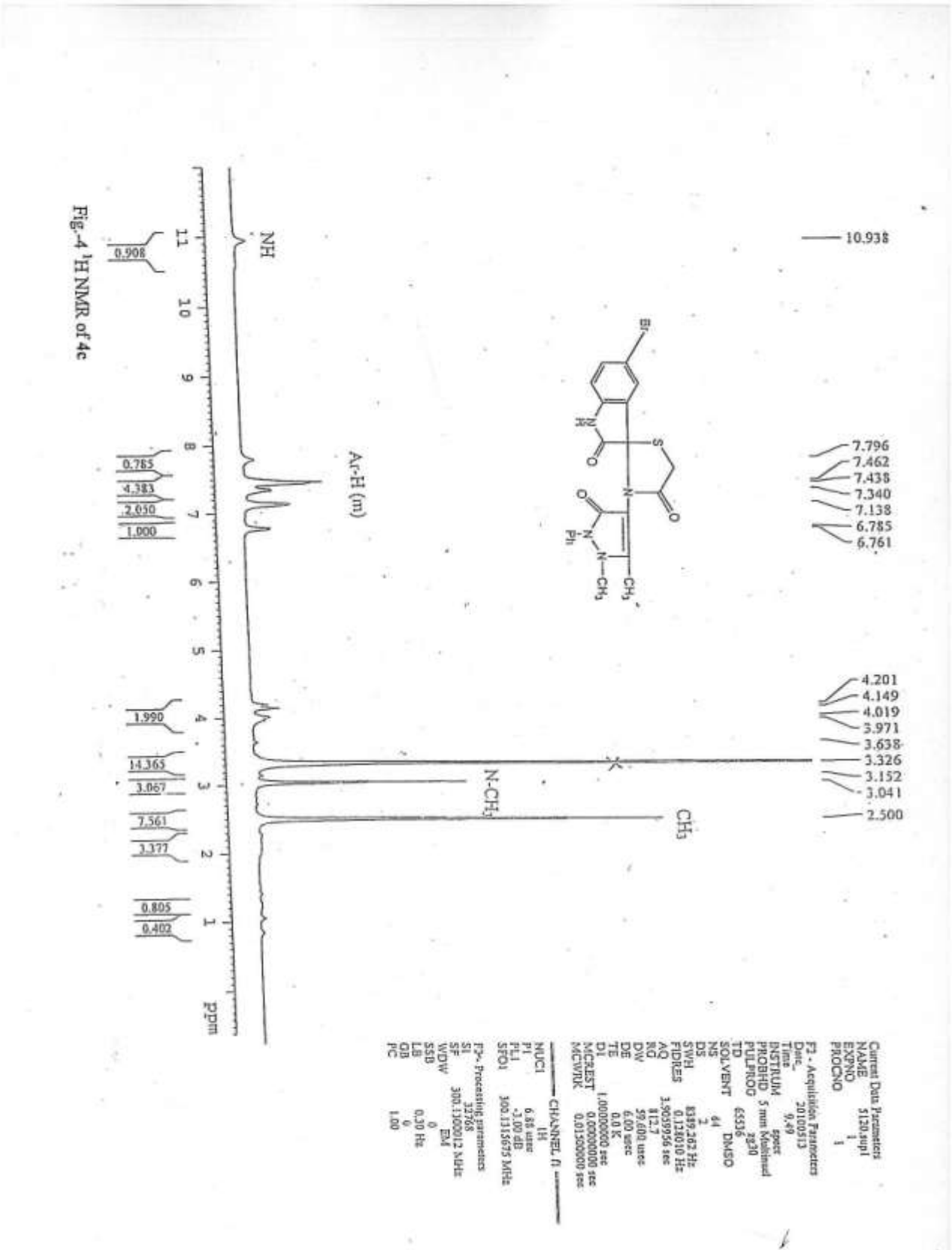

Fig.-4 ^{1}H NMR of 4c

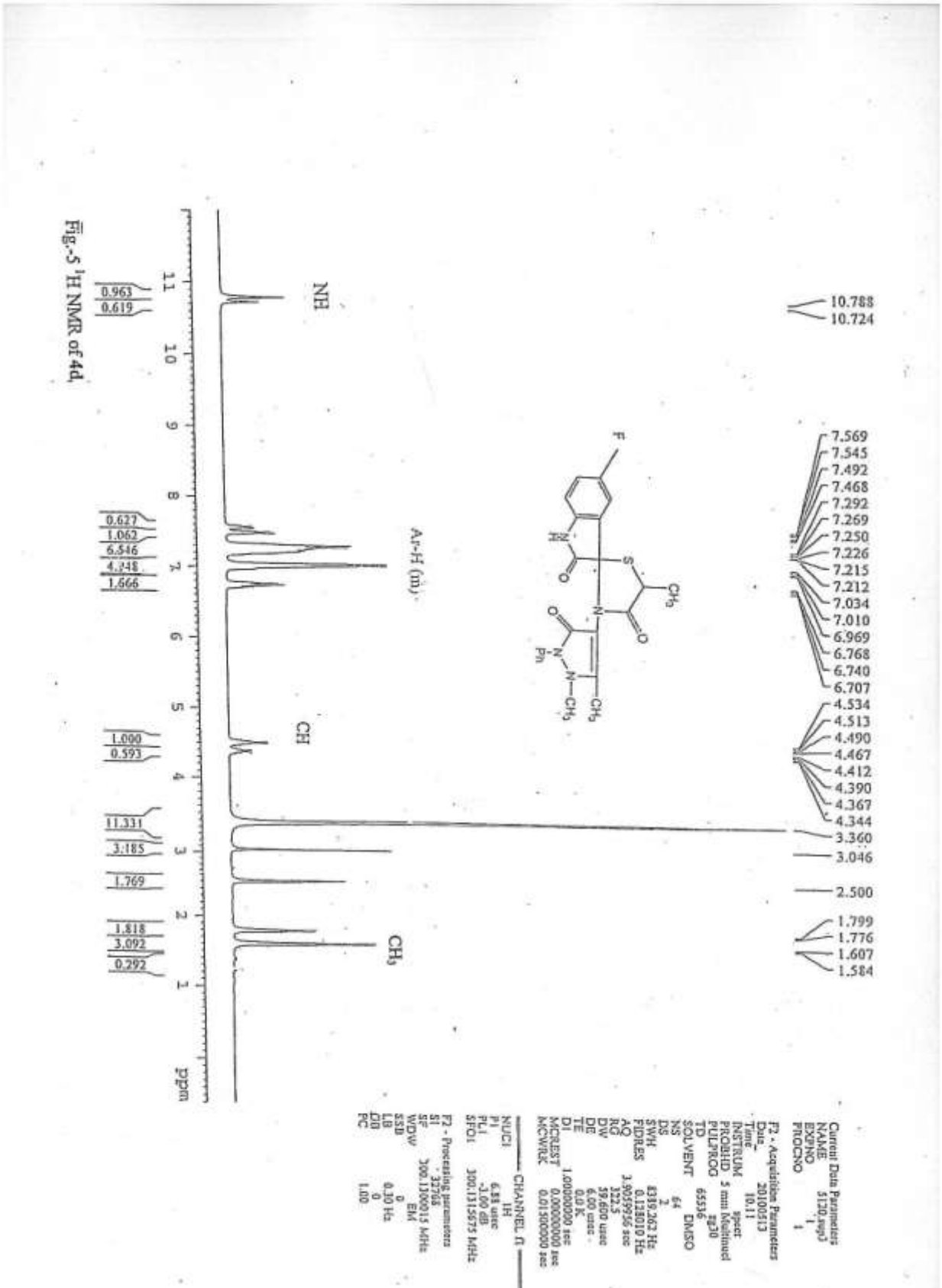

Fig. S ^{1}H NMR of 4d.

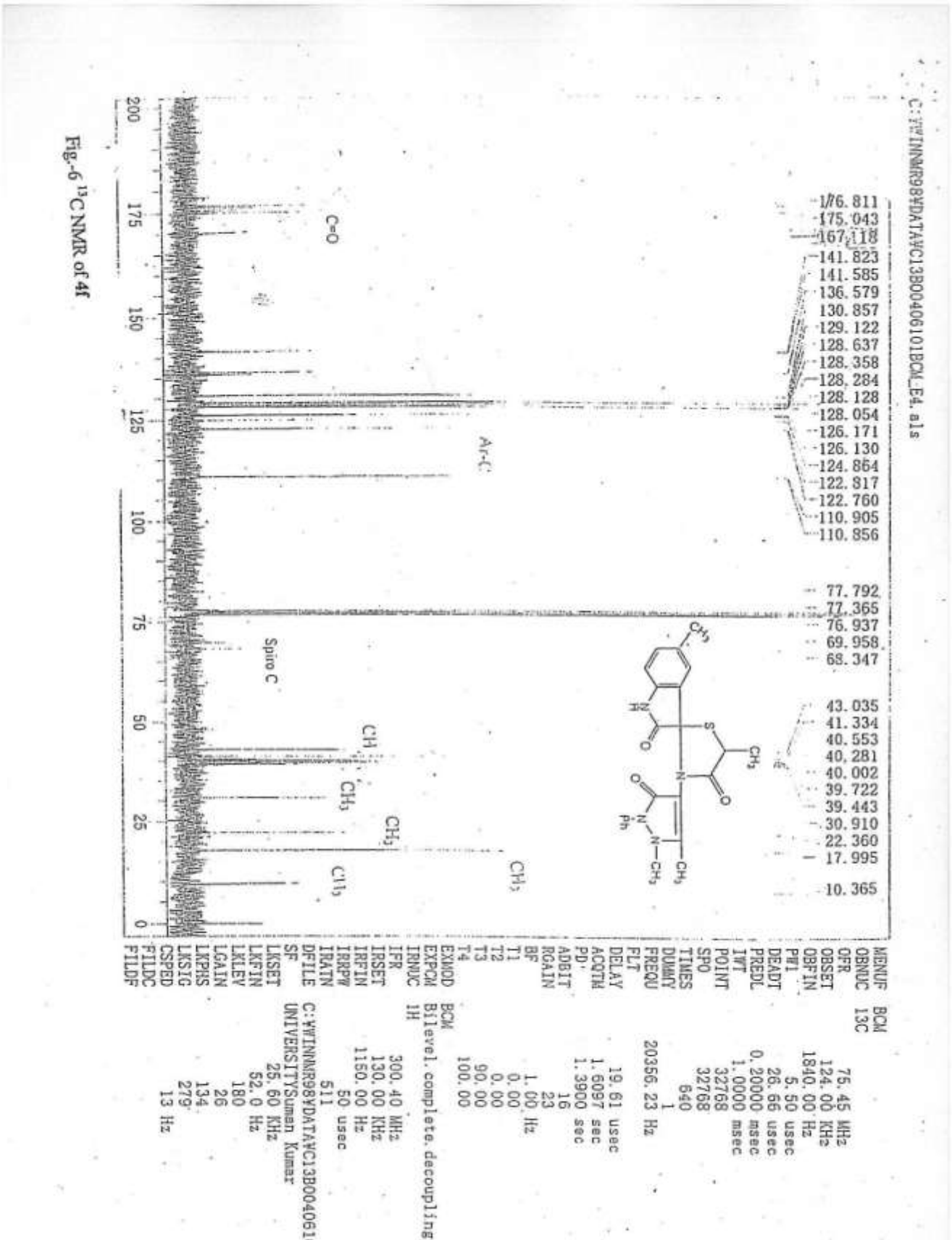

Fig.-6 ^{13}C NMR of **4f**

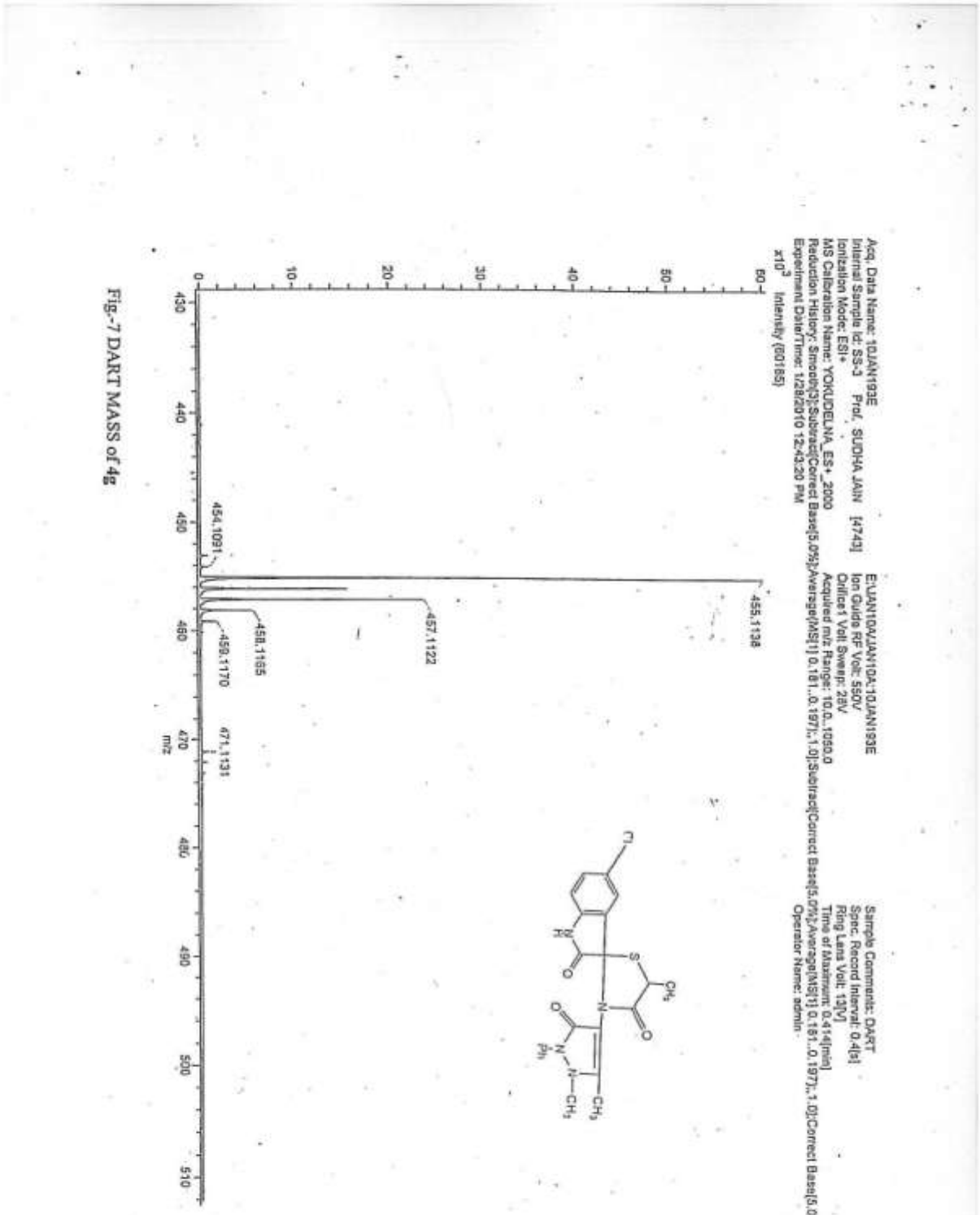

Fig.-7 DART MASS of 4g

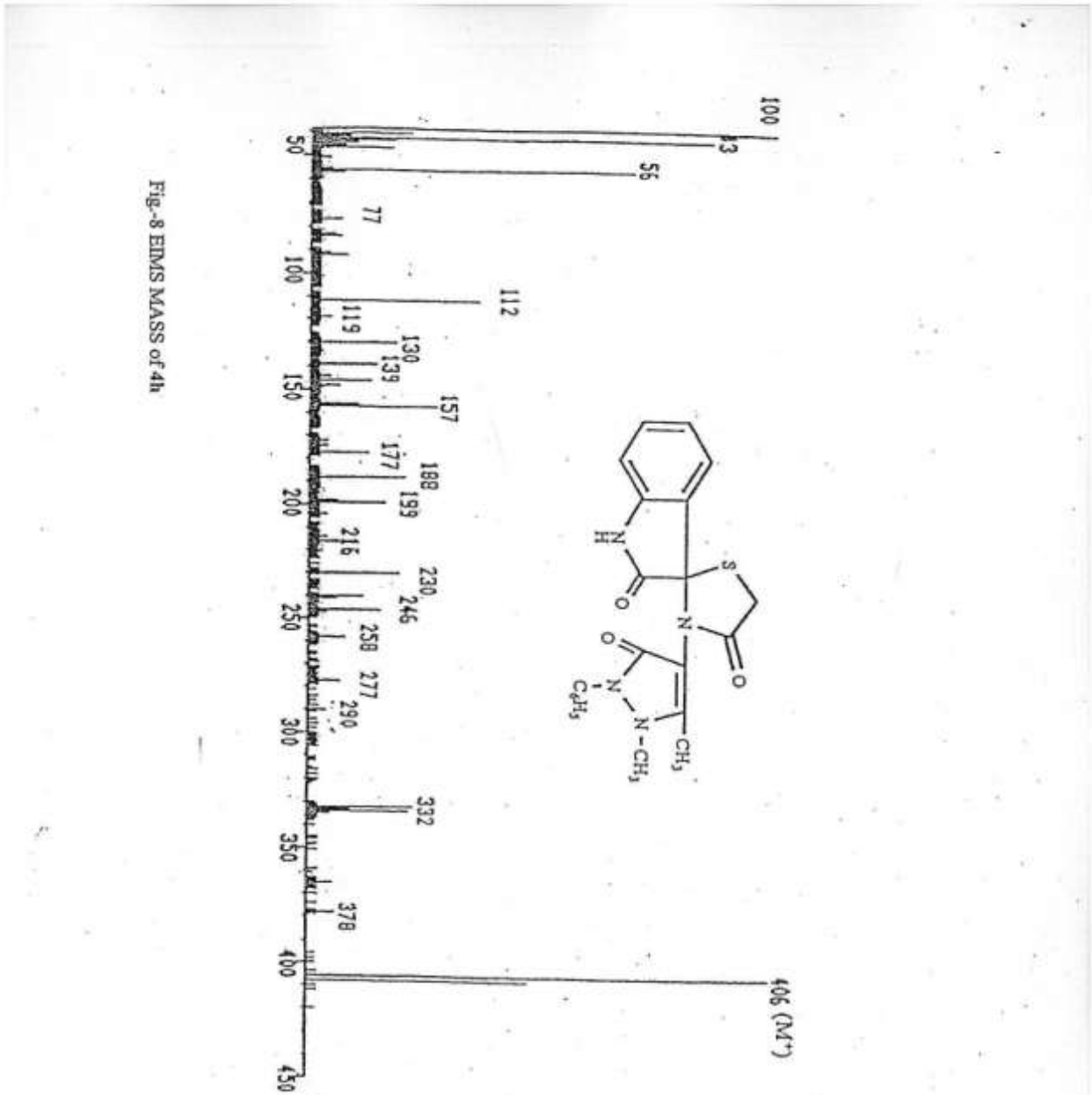

Fig.-8 EIMS MASS of 4h

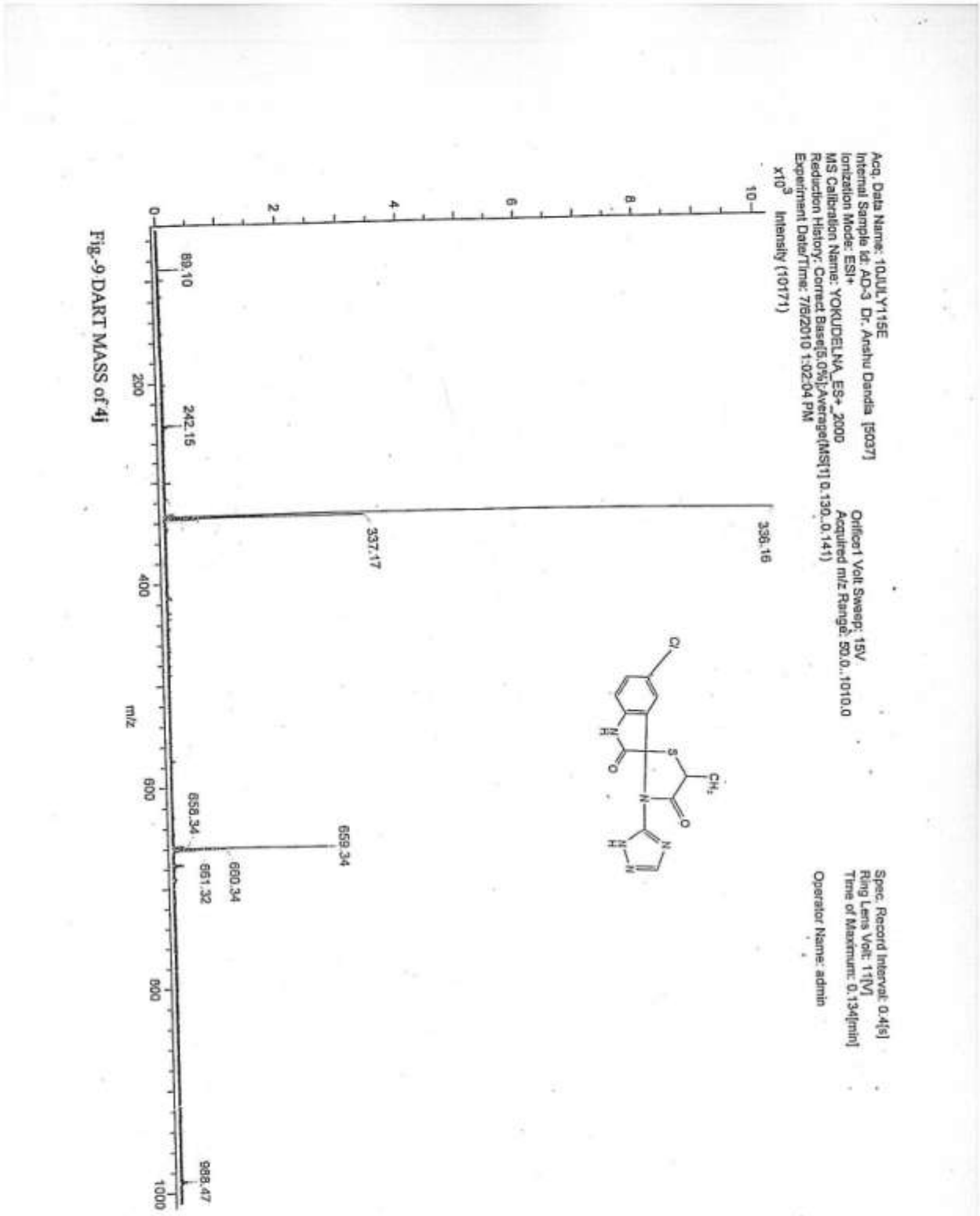

Fig.-9 DART MASS of 4j

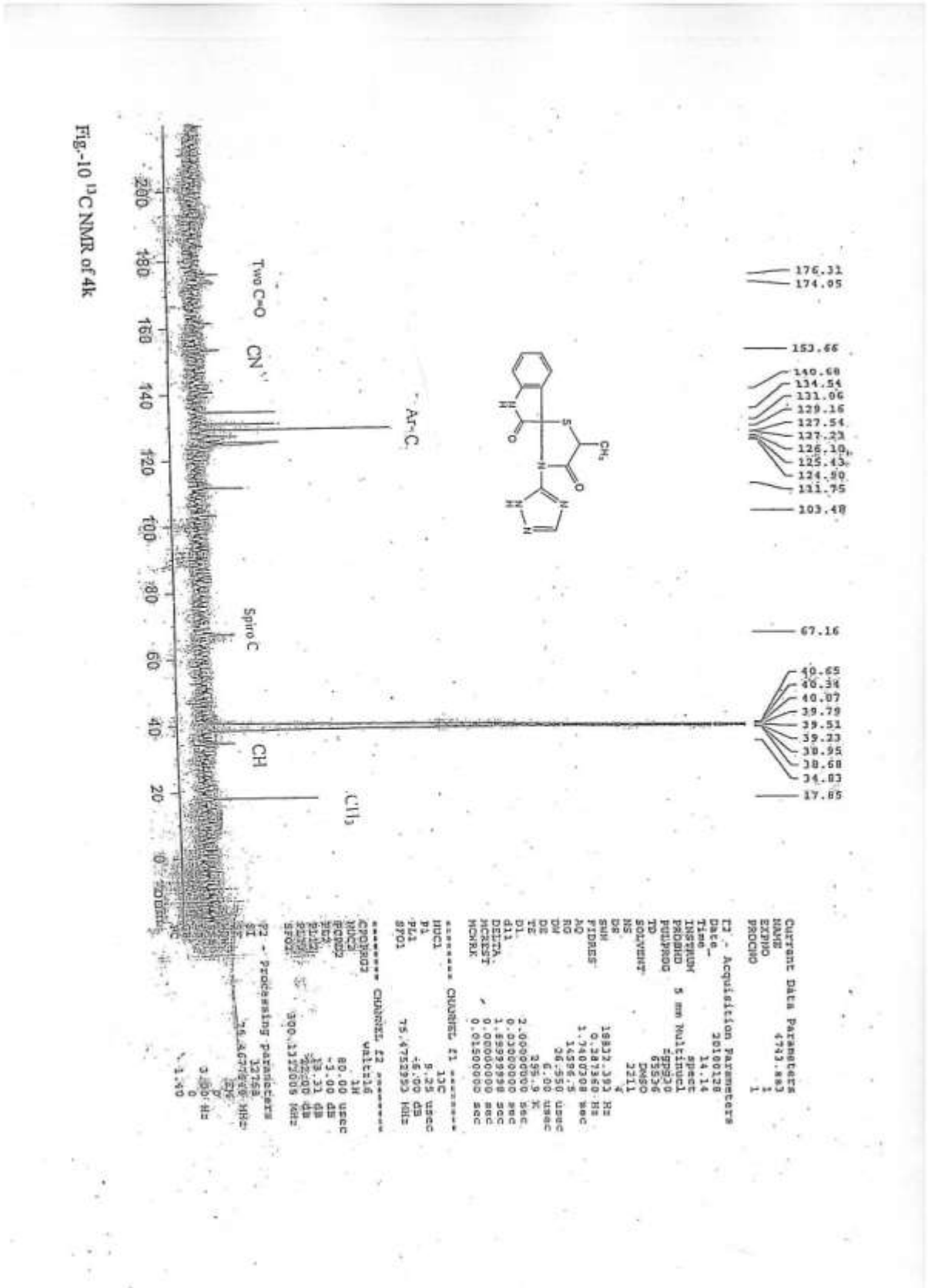

Fig.-10 ^{13}C NMR of 4k

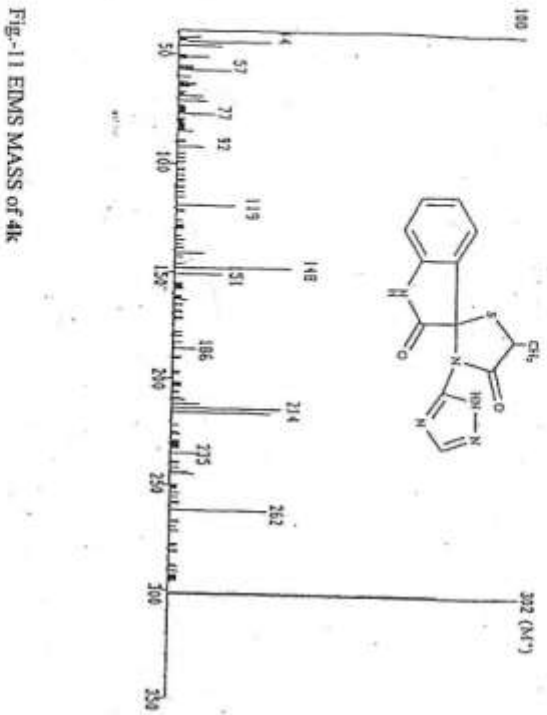

Fig.-11 EIMS MASS of 4k

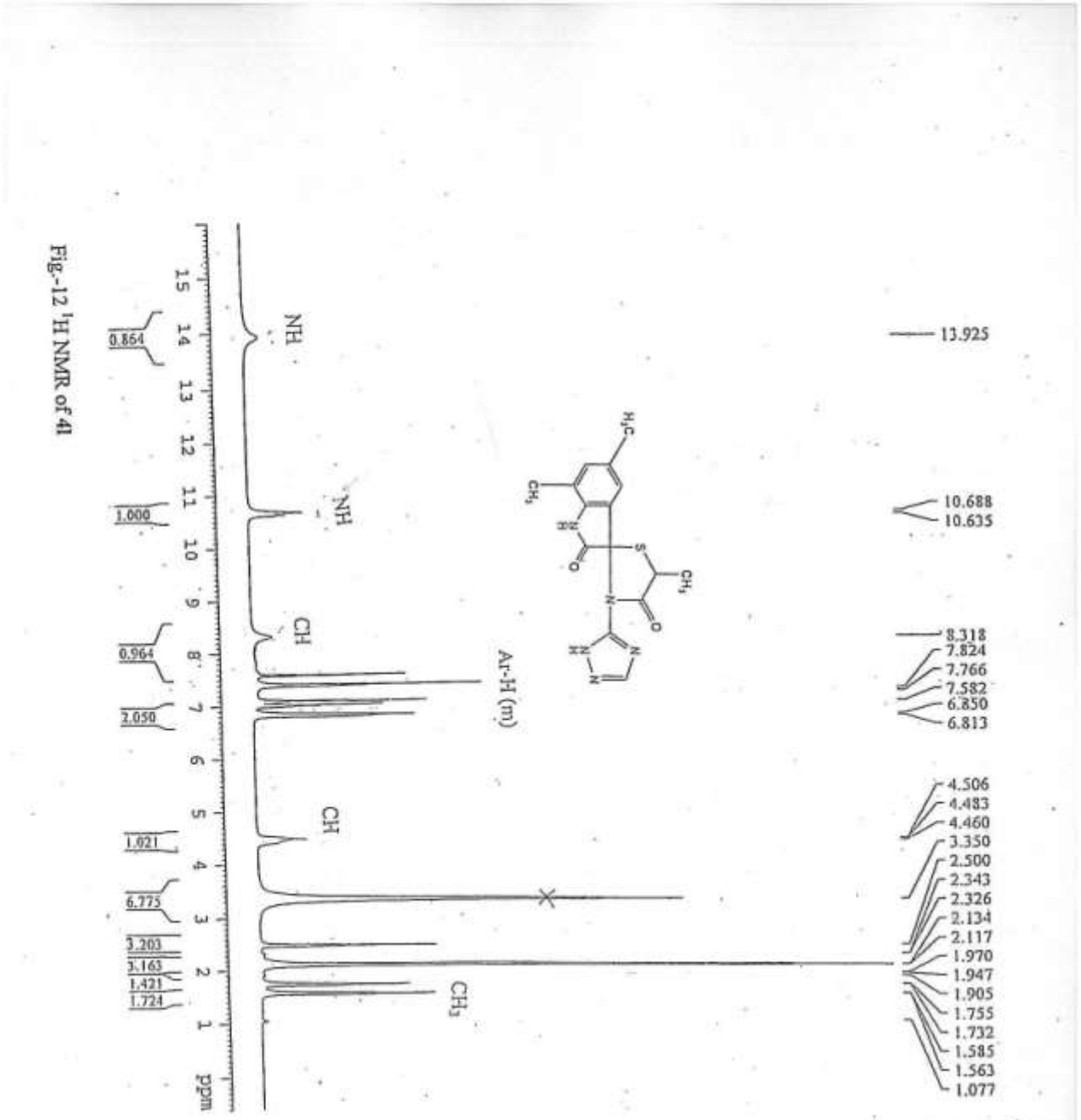

Fig.-12 ^{1}H NMR of 4l

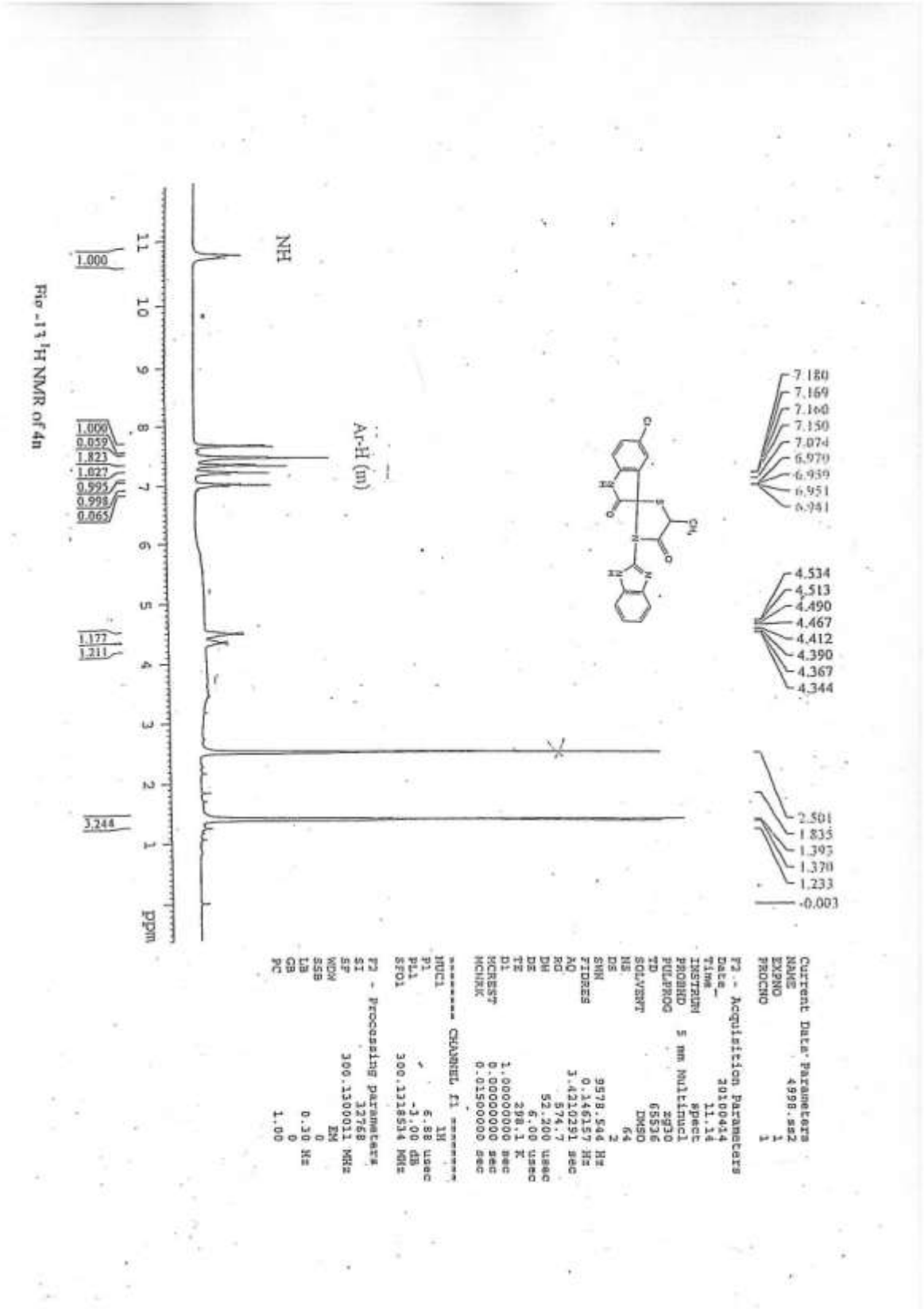

Fig -1 ^{1}H NMR of 4n

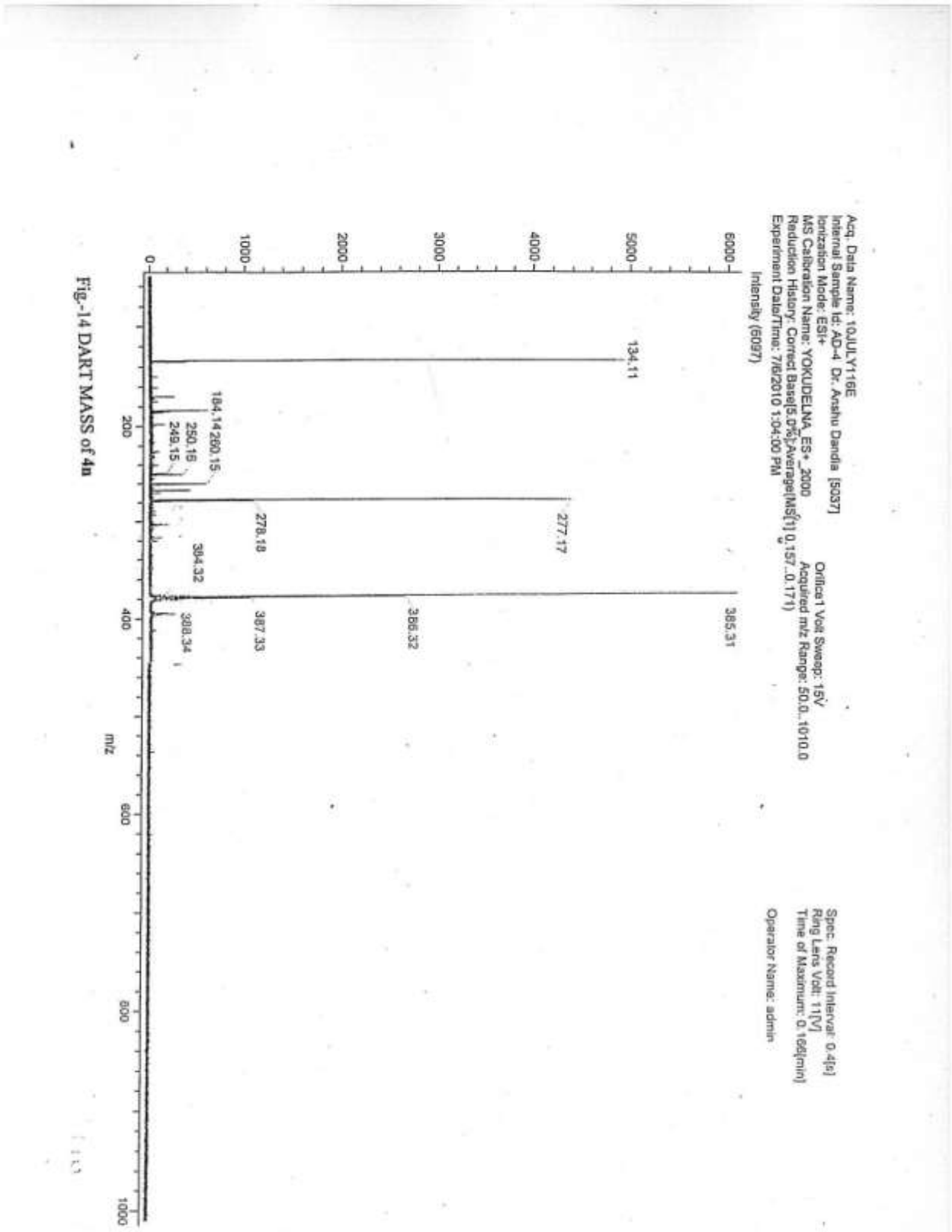

Fig.-14 DART MASS of **4n**

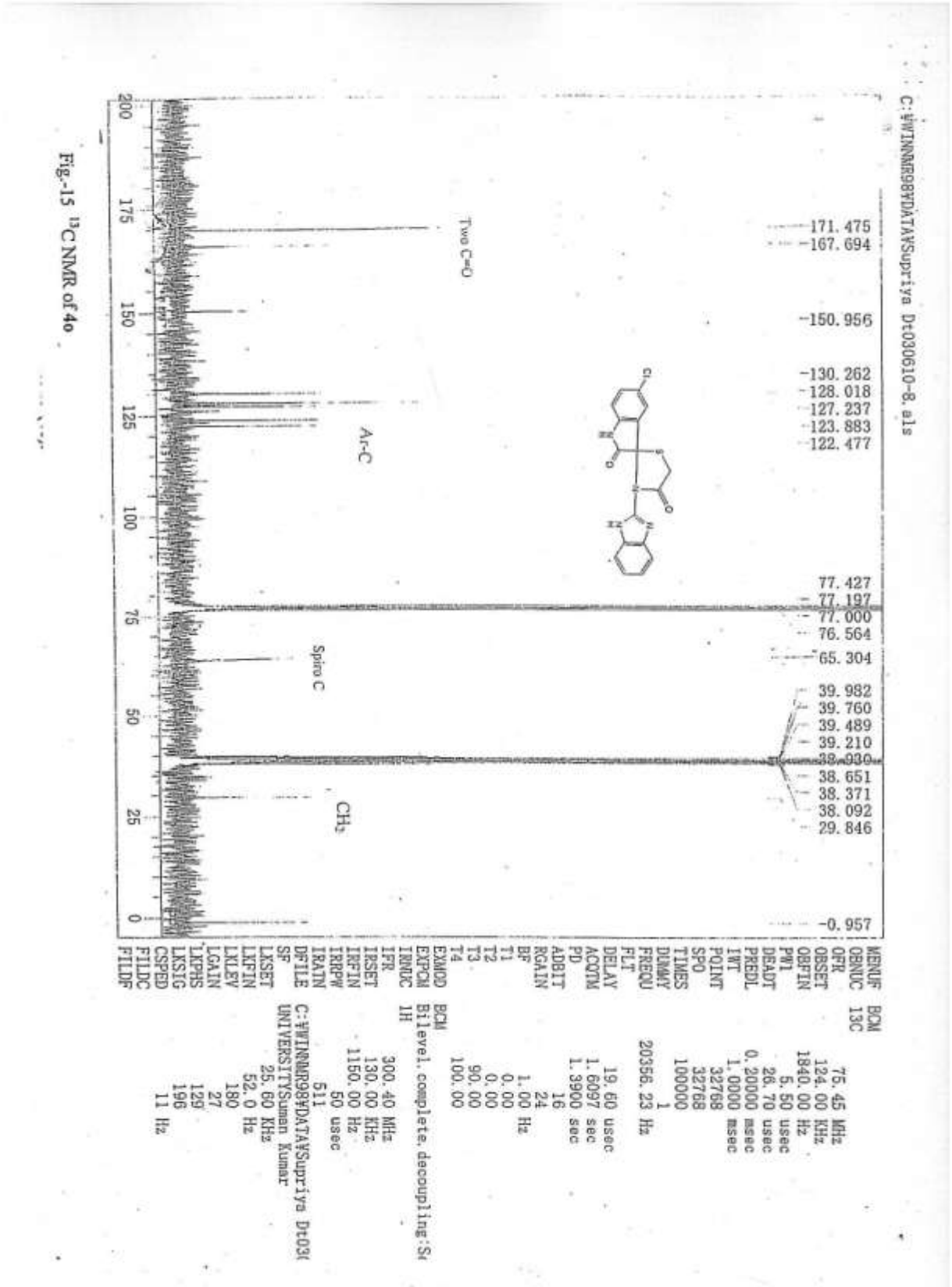

Fig.-15 ^{13}C NMR of 4o

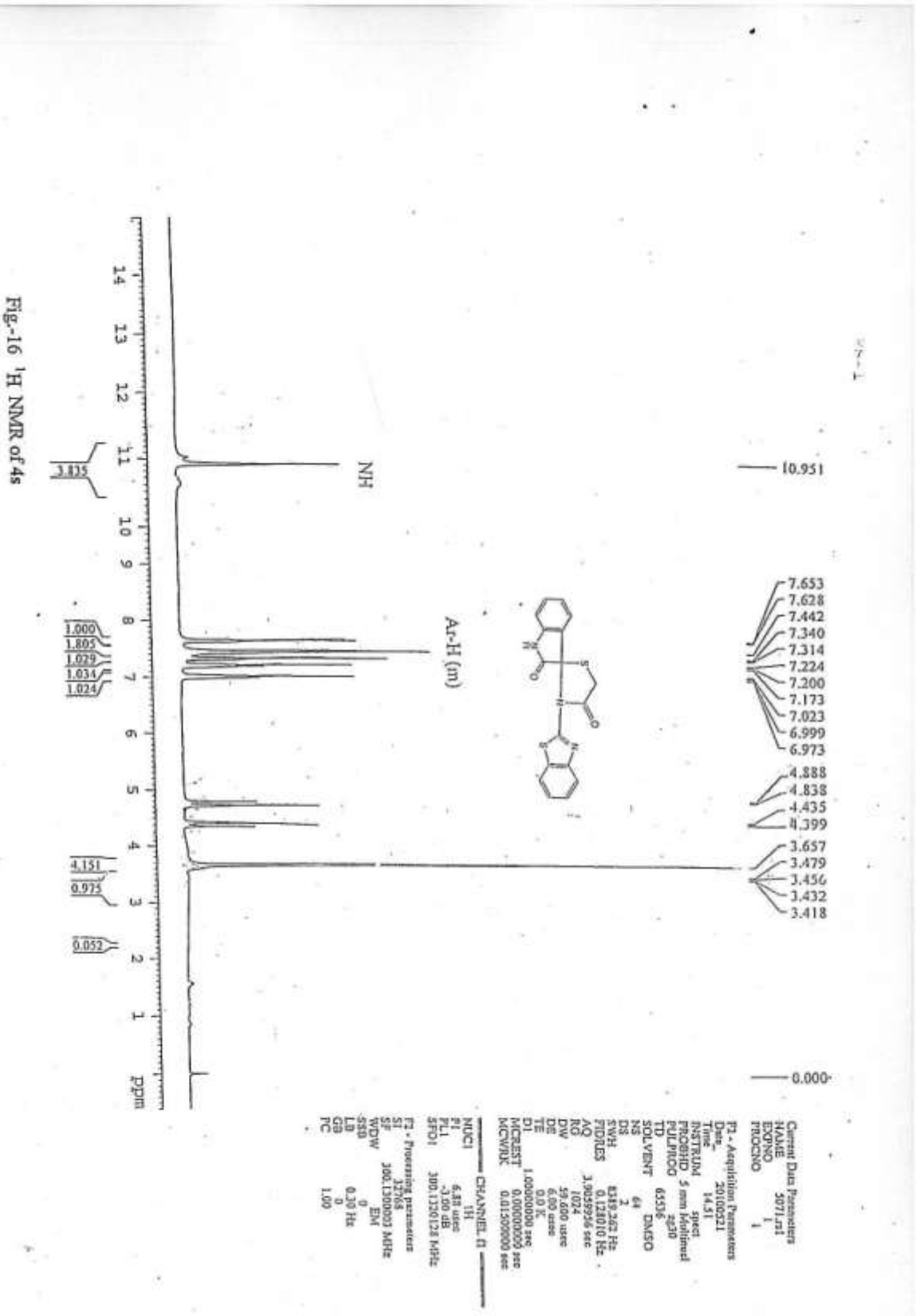

Fig-16 ^{1}H NMR of 4s

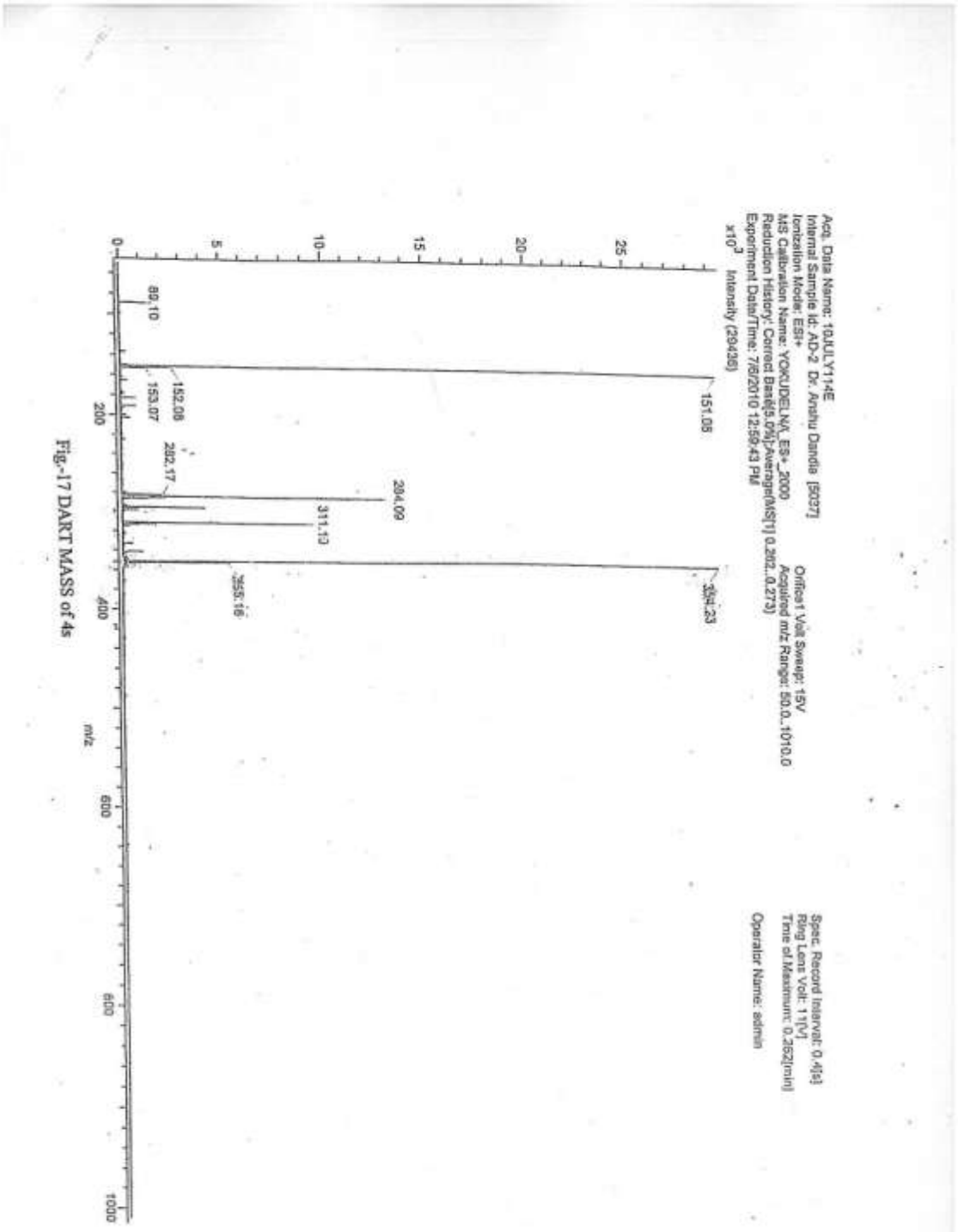

Fig.-17 DART MASS of 4s

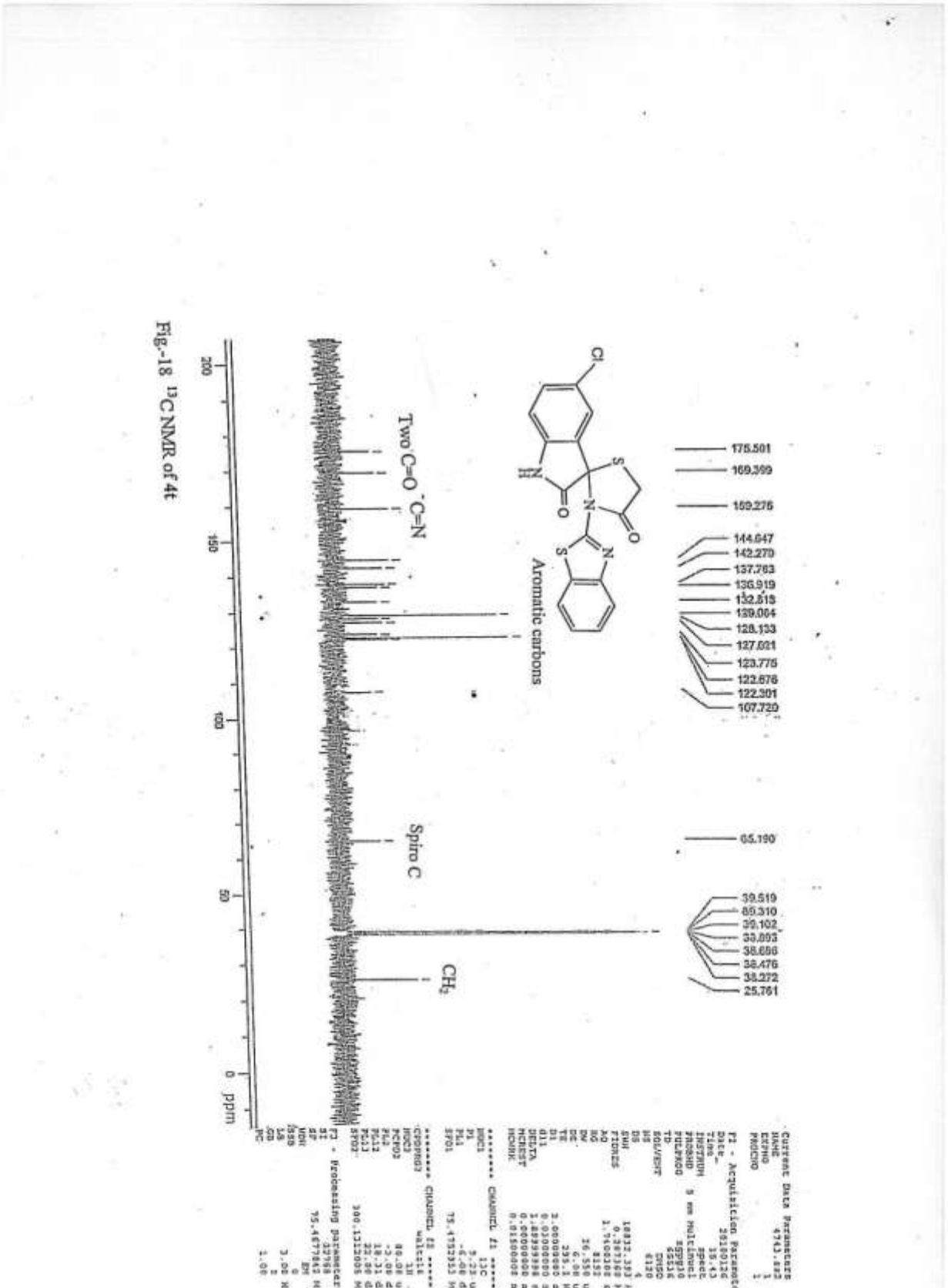

Fig.-18 ^{13}C NMR of 4t

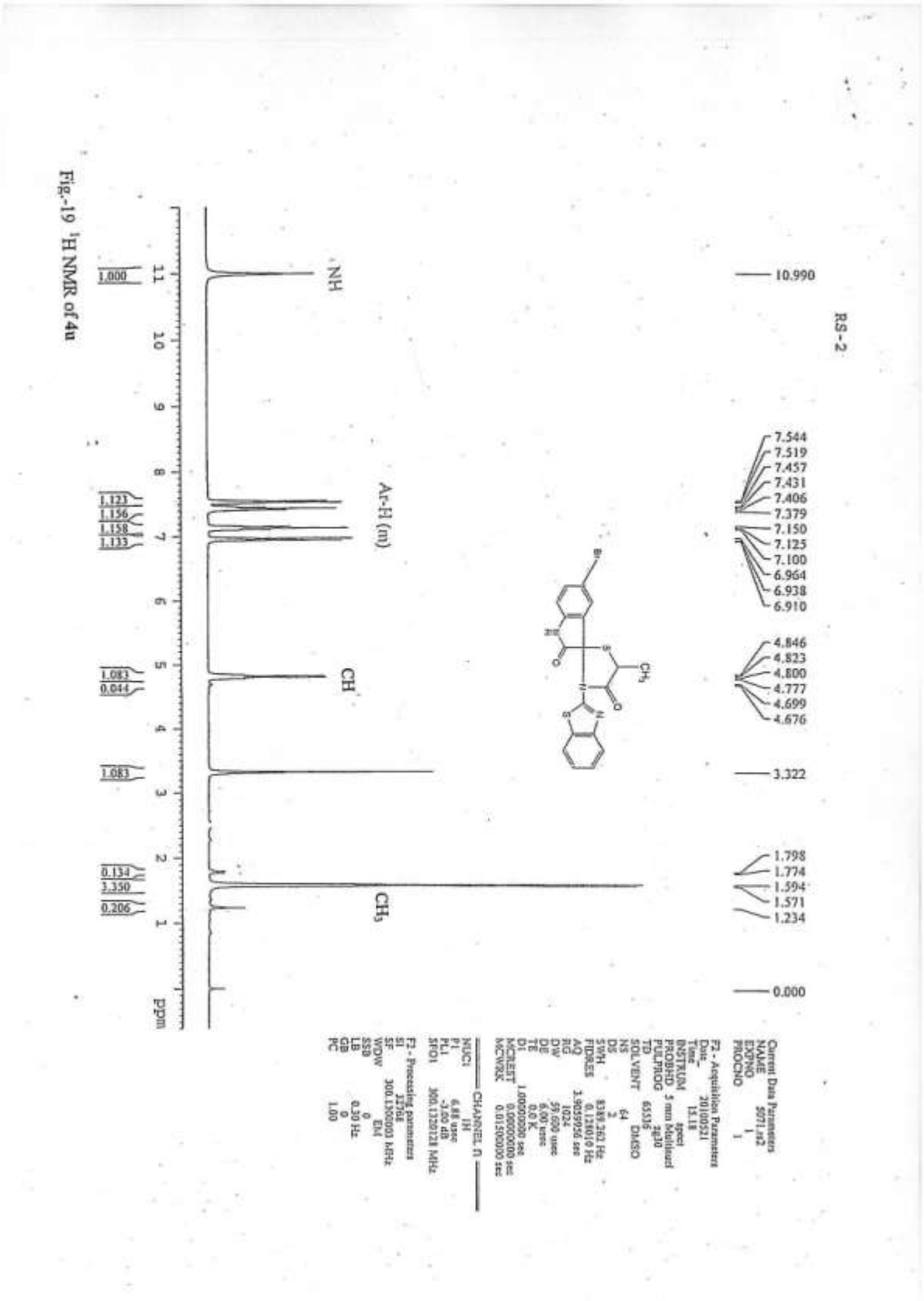

Fig.-19 ^{1}H NMR of **4u**

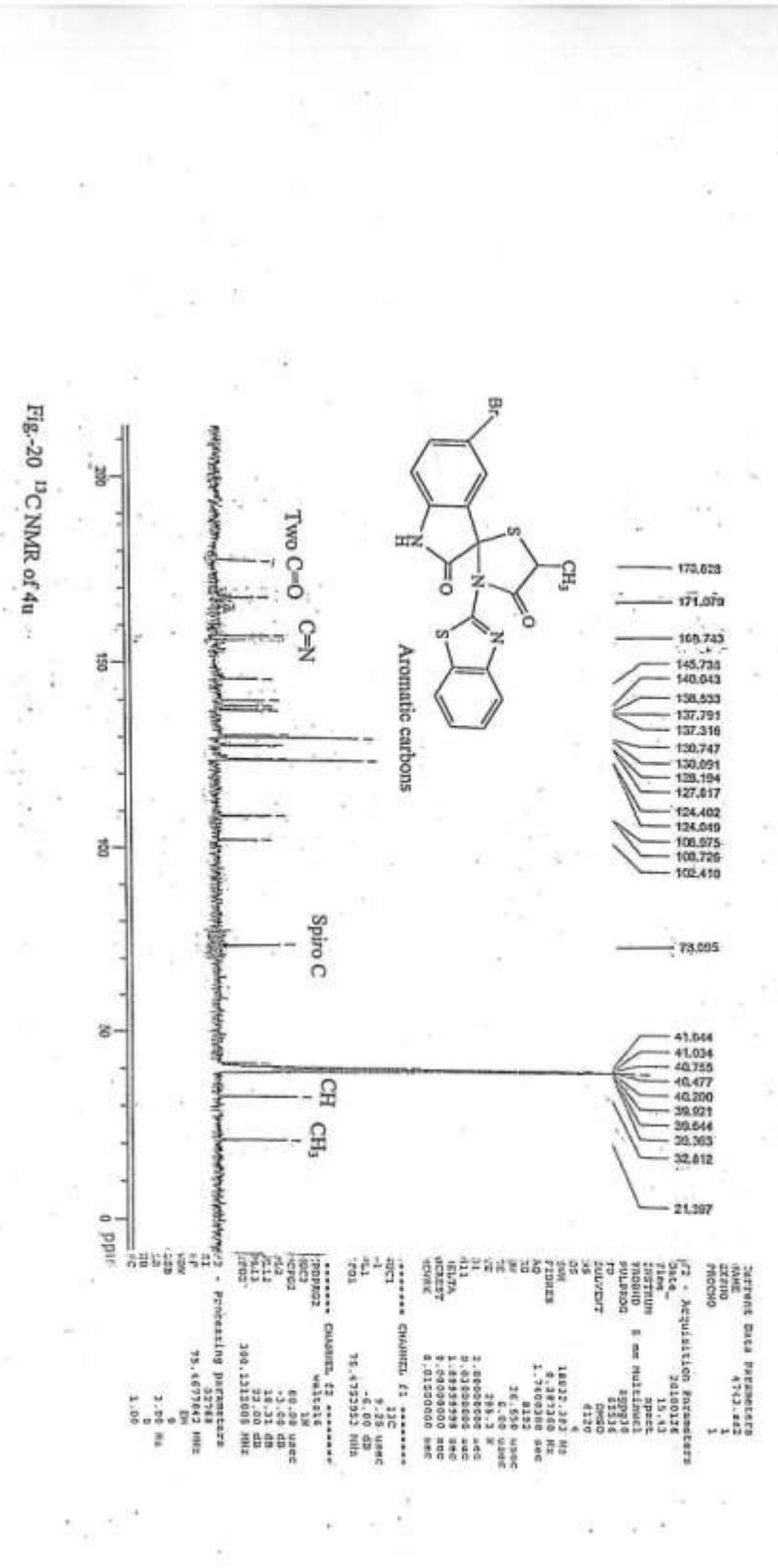

Fig.-20 ^{13}C NMR of 4u

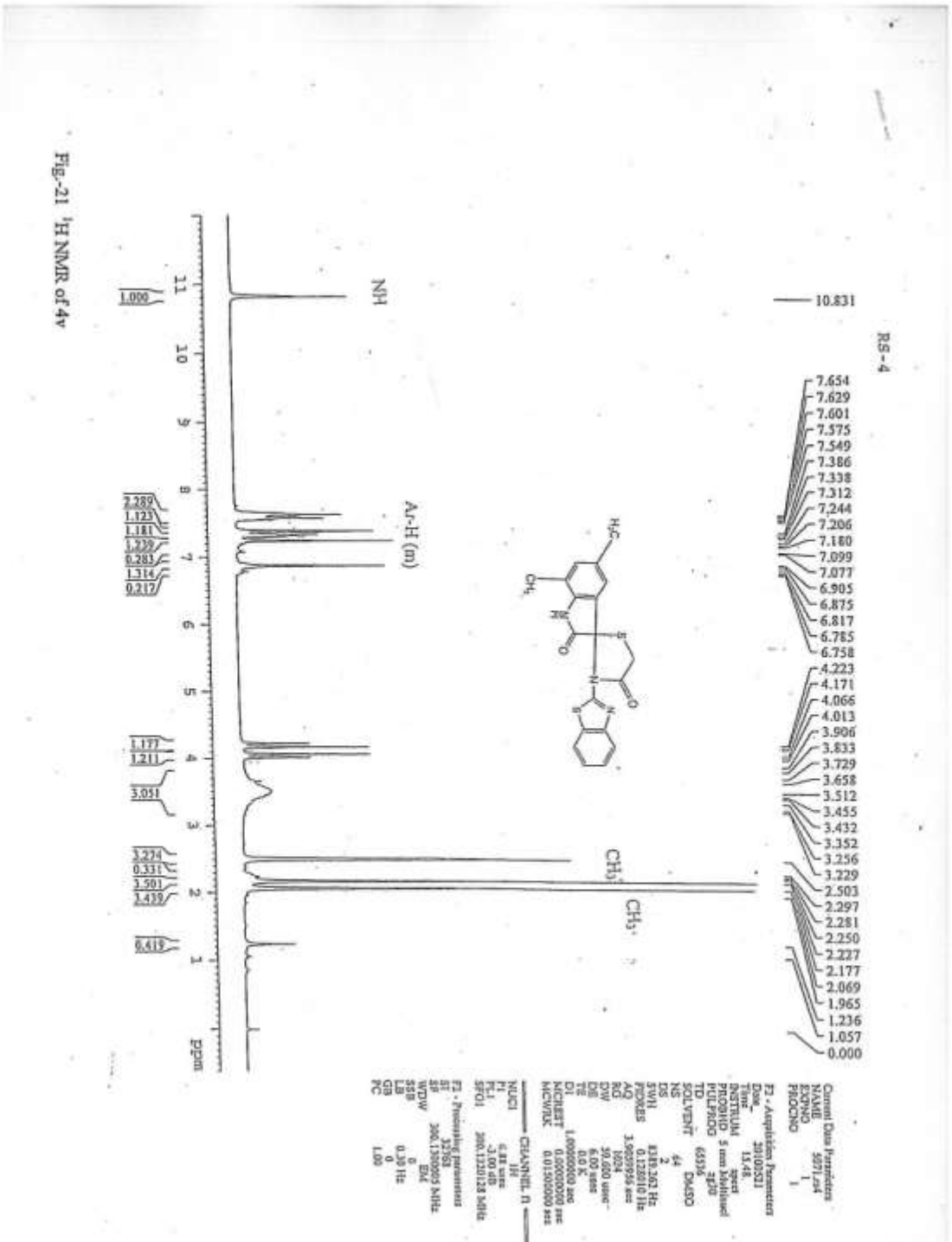

Fig.-21 ^{1}H NMR of 4v

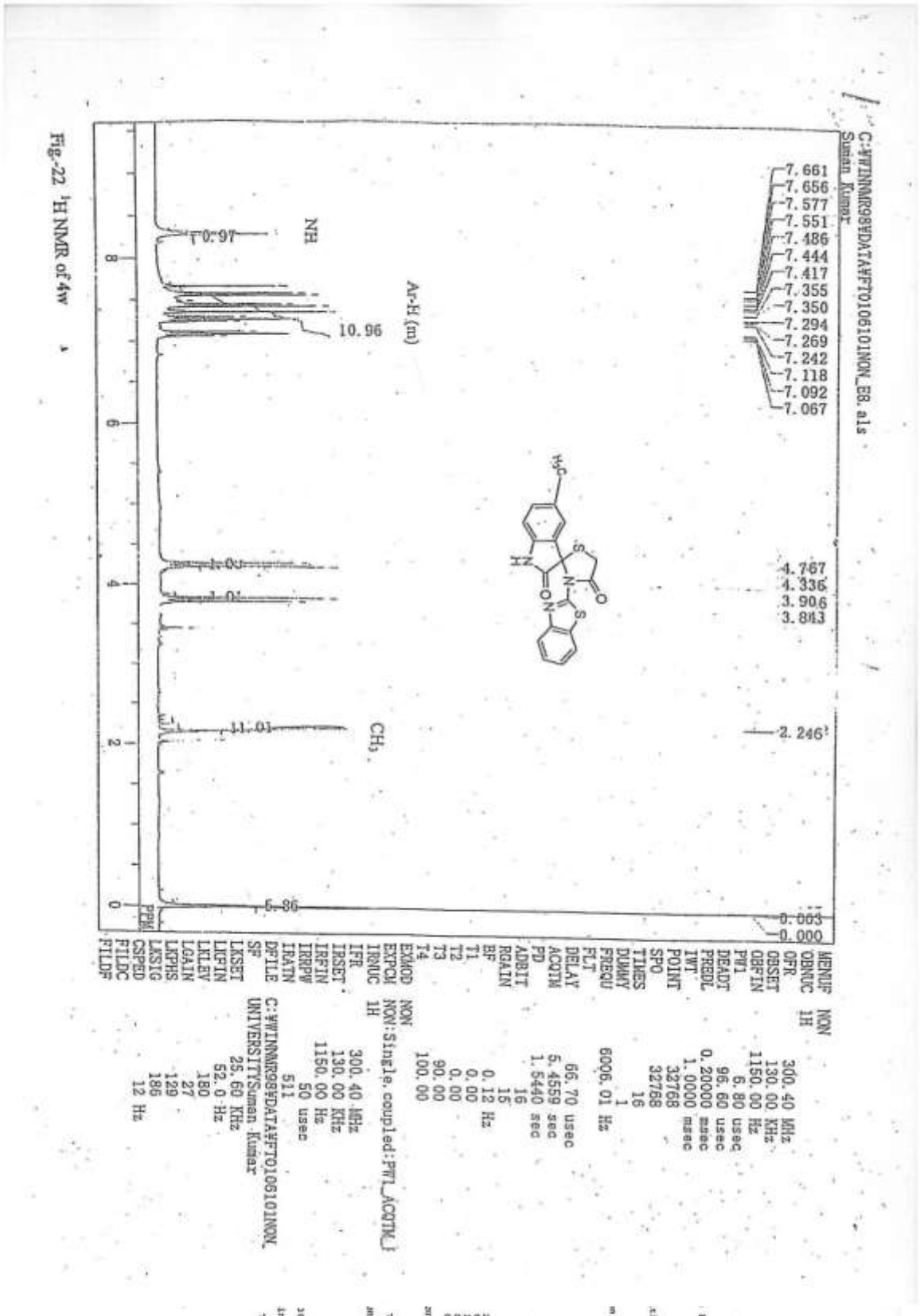

Fig-22 ^{1}H NMR of 4w

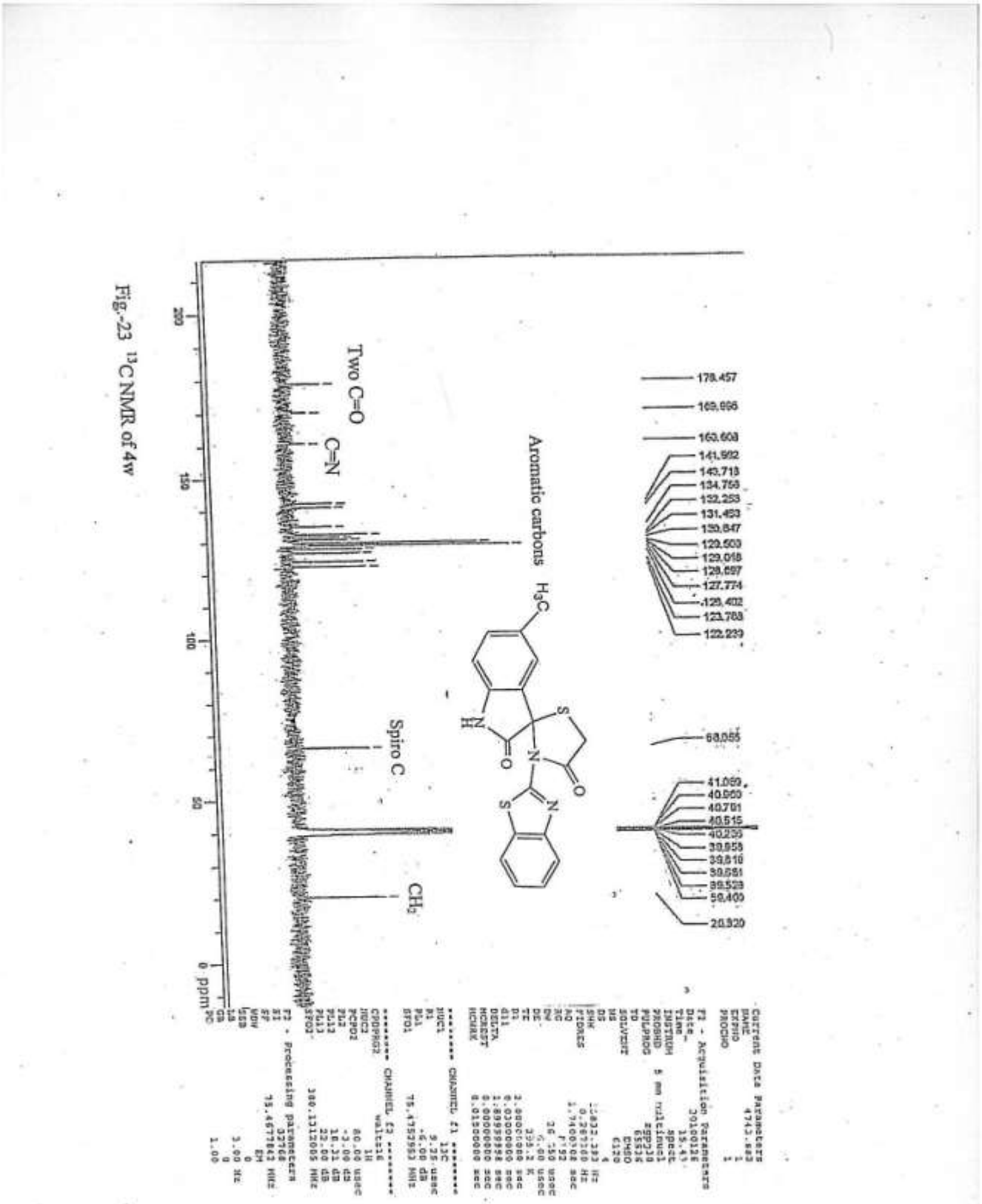

Fig.-23 ^{13}C NMR of 4w

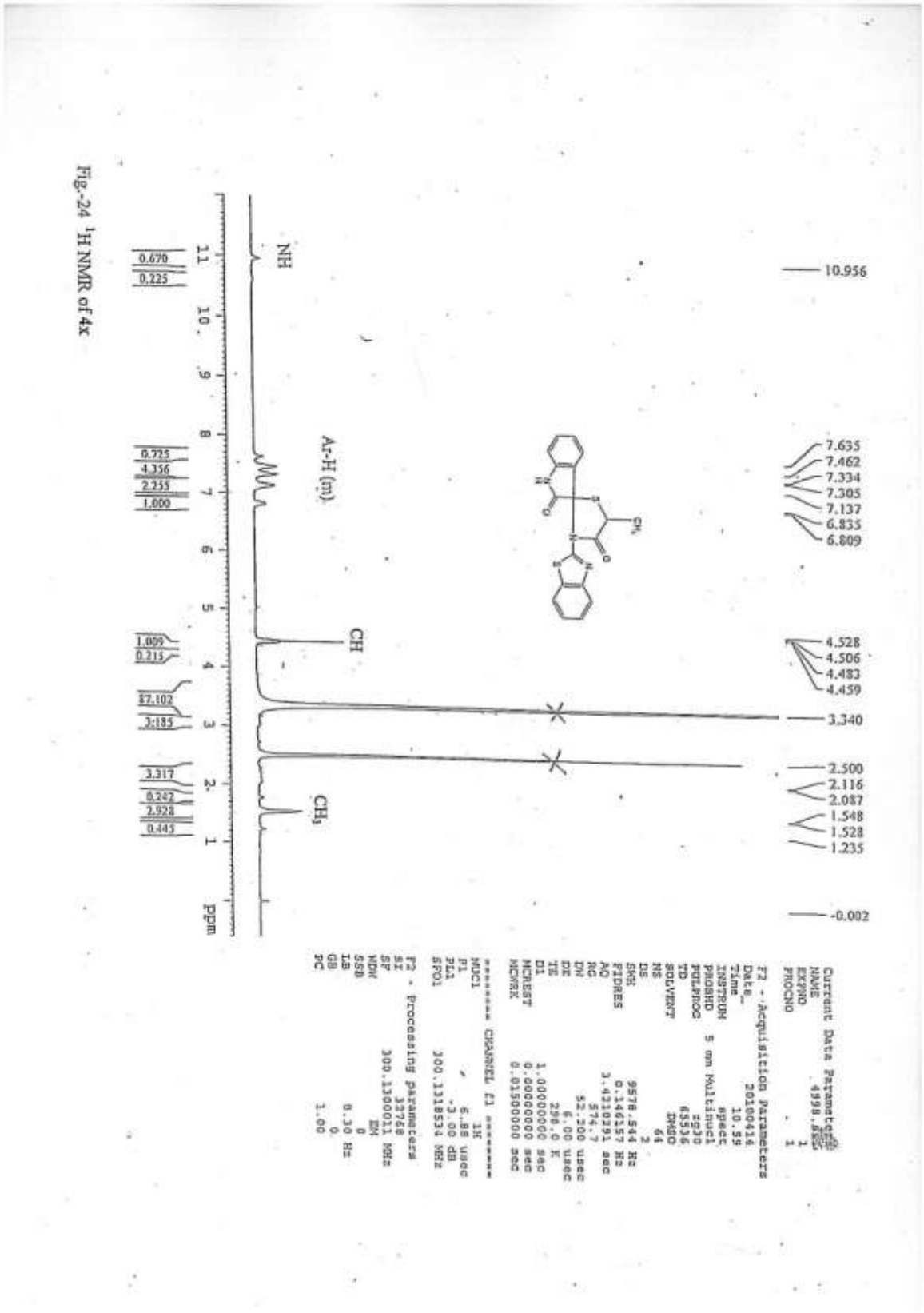

Fig.-24 ^{1}H NMR of 4x

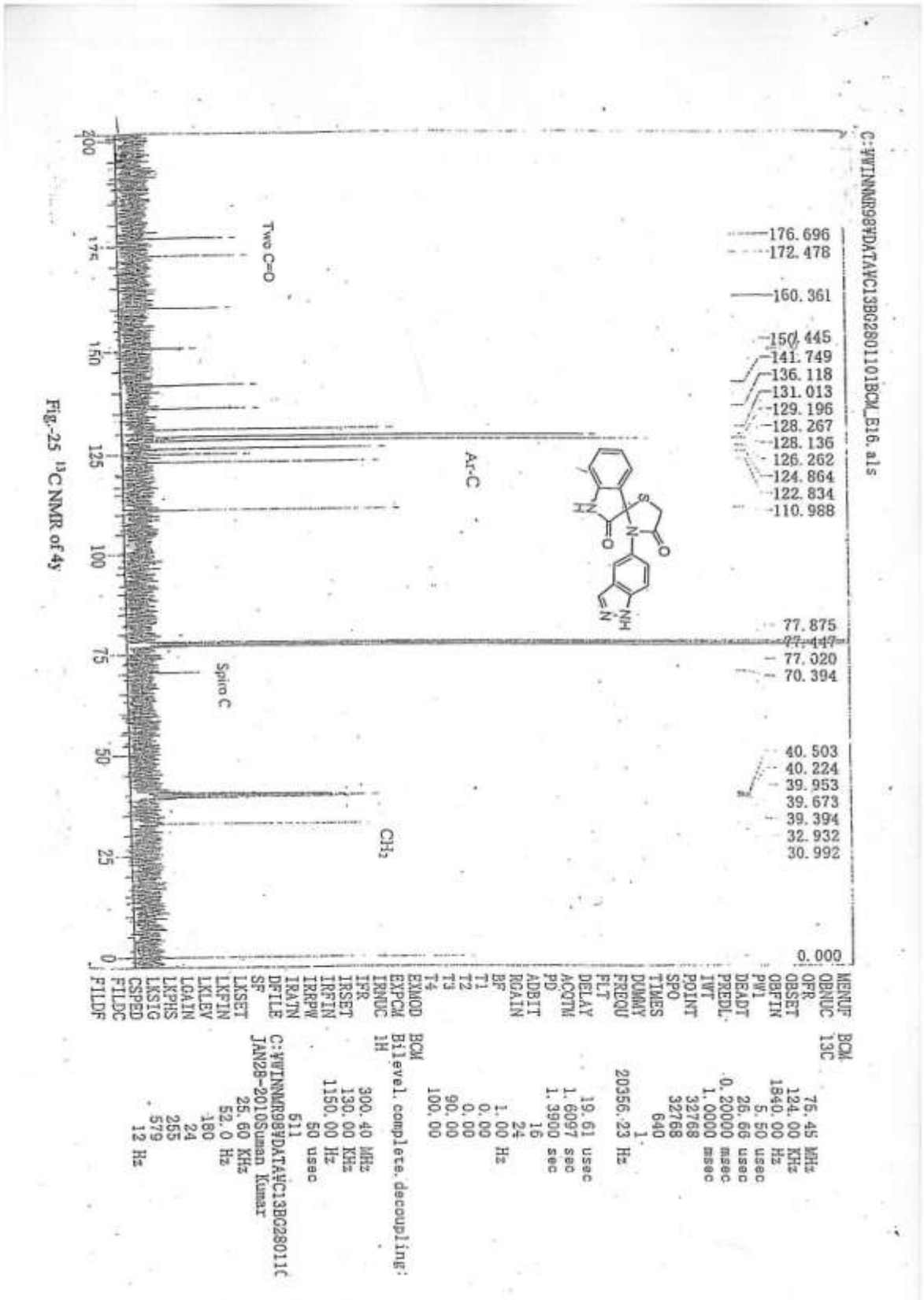

Fig.-25 ^{13}C NMR of 4y

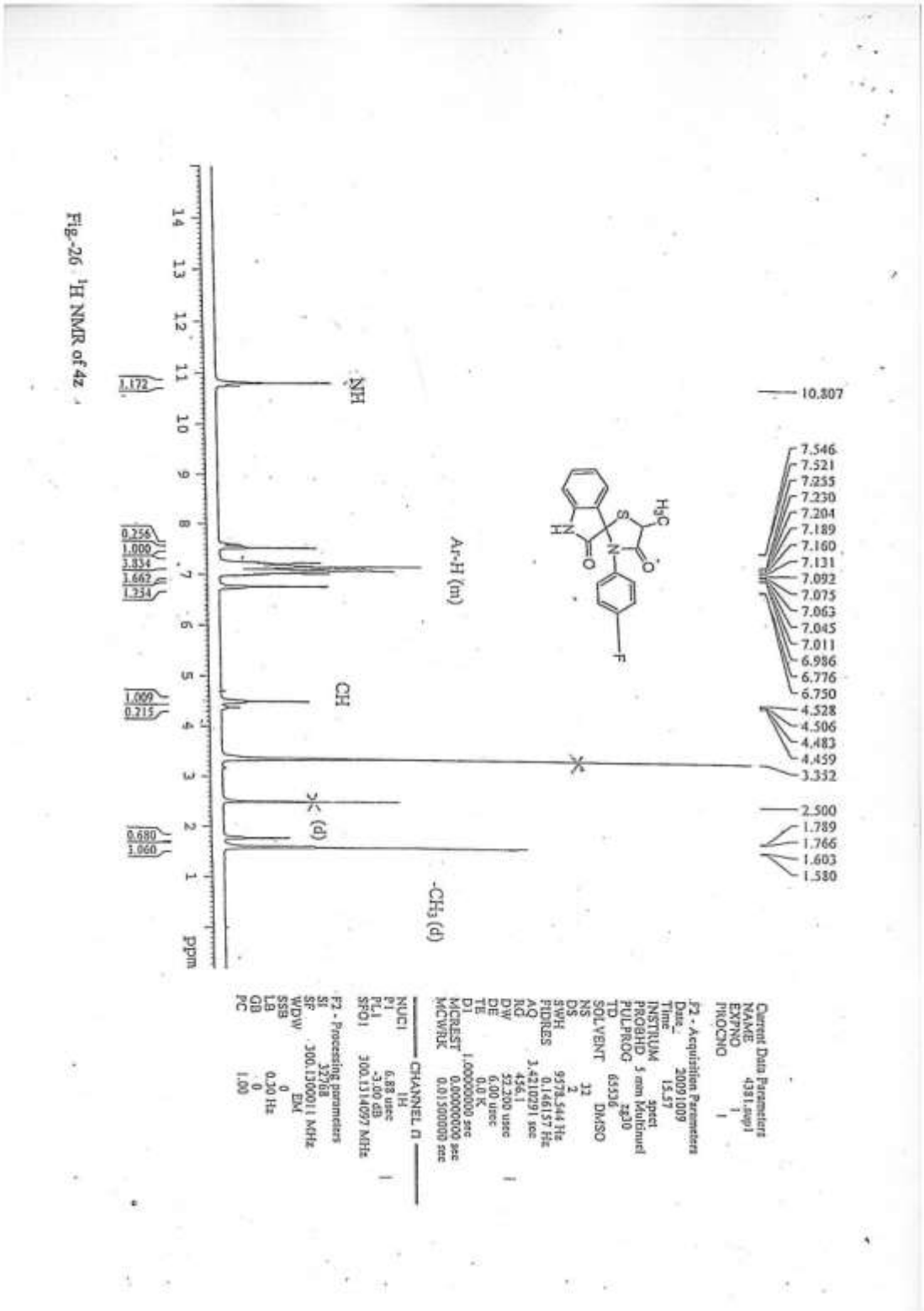

Fig.-26 ^{1}H NMR of 4z

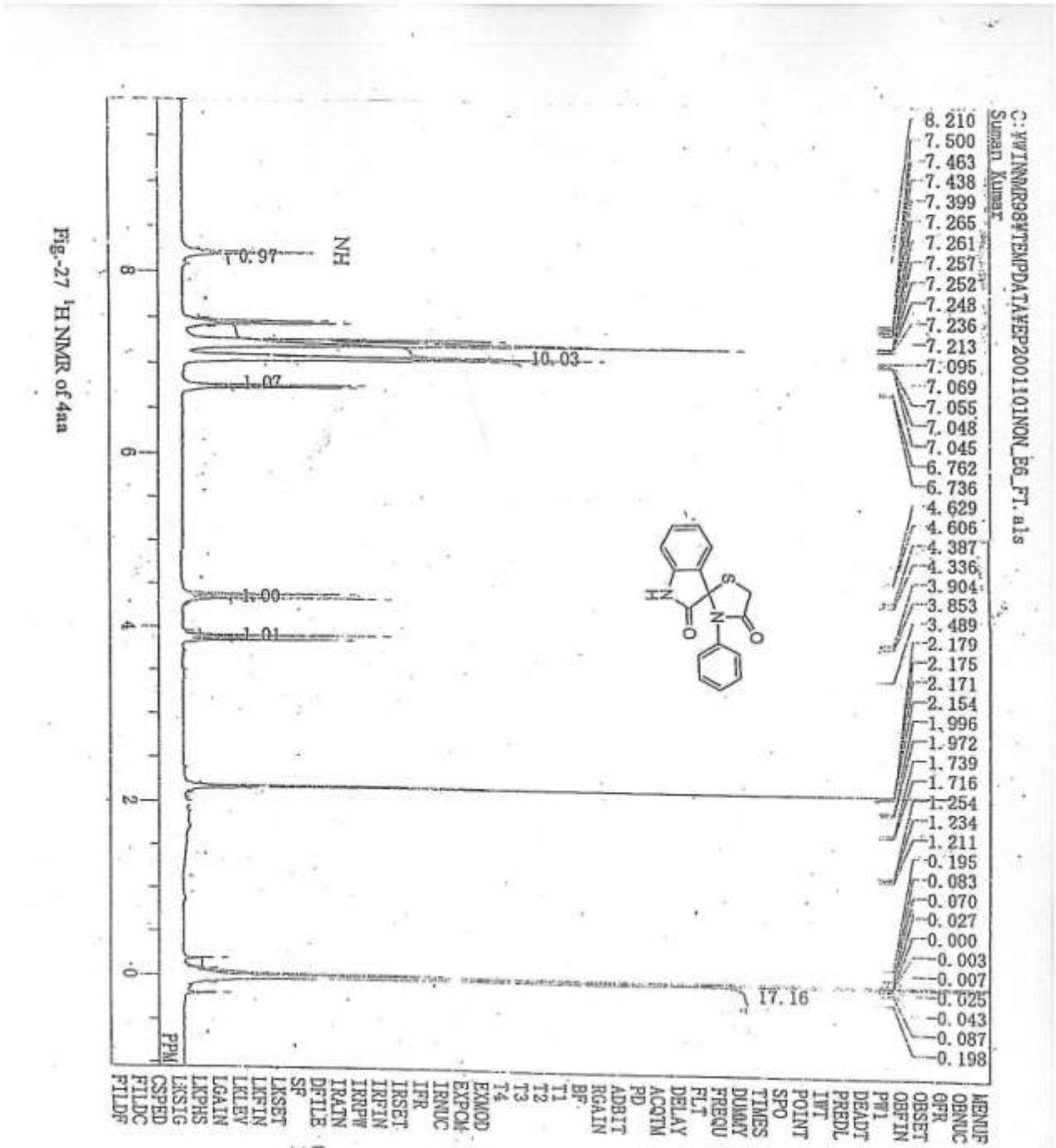

Fig.-27 ^{1}H NMR of 4aa

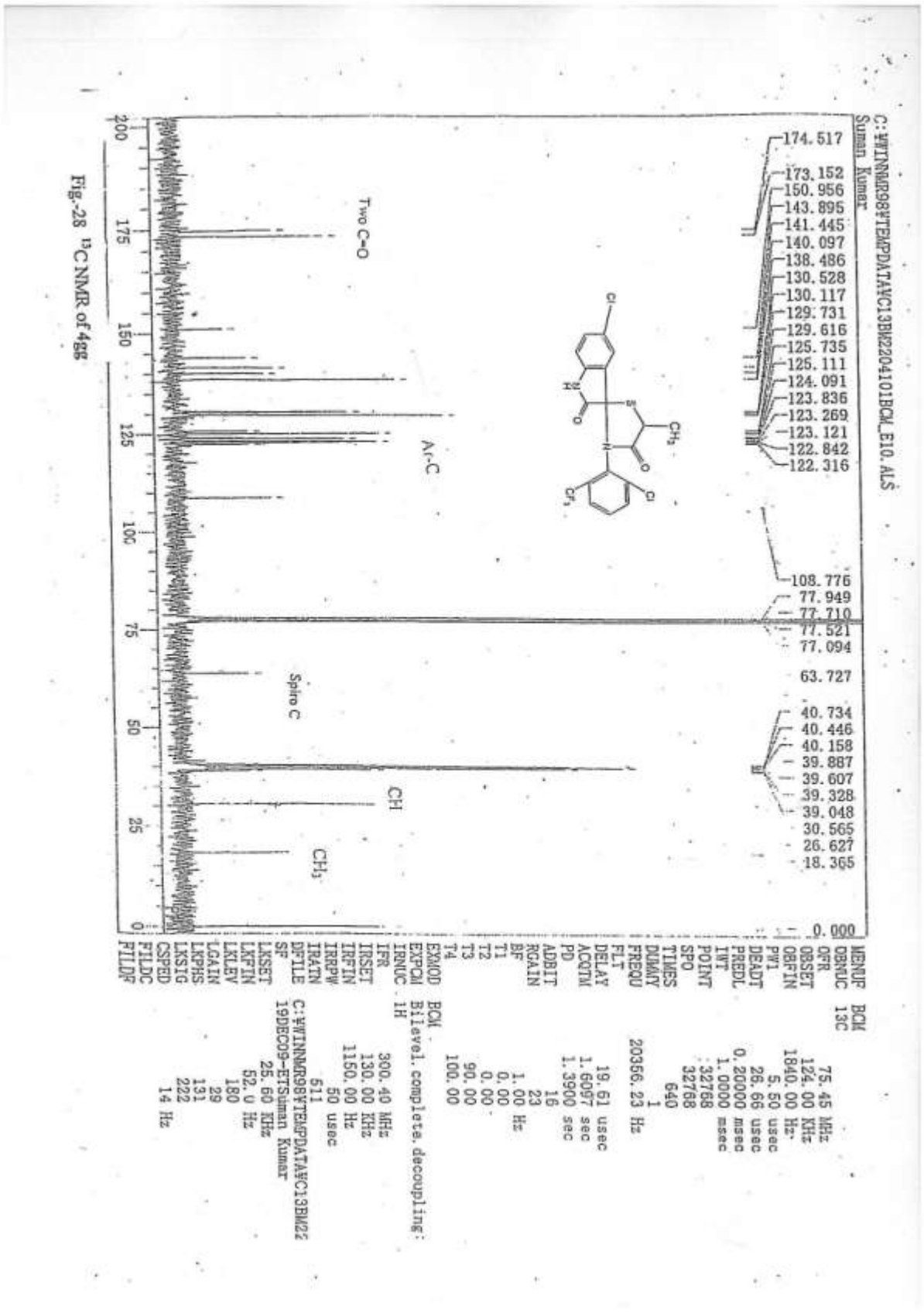

Fig.-28 ^{13}C NMR of 4gg

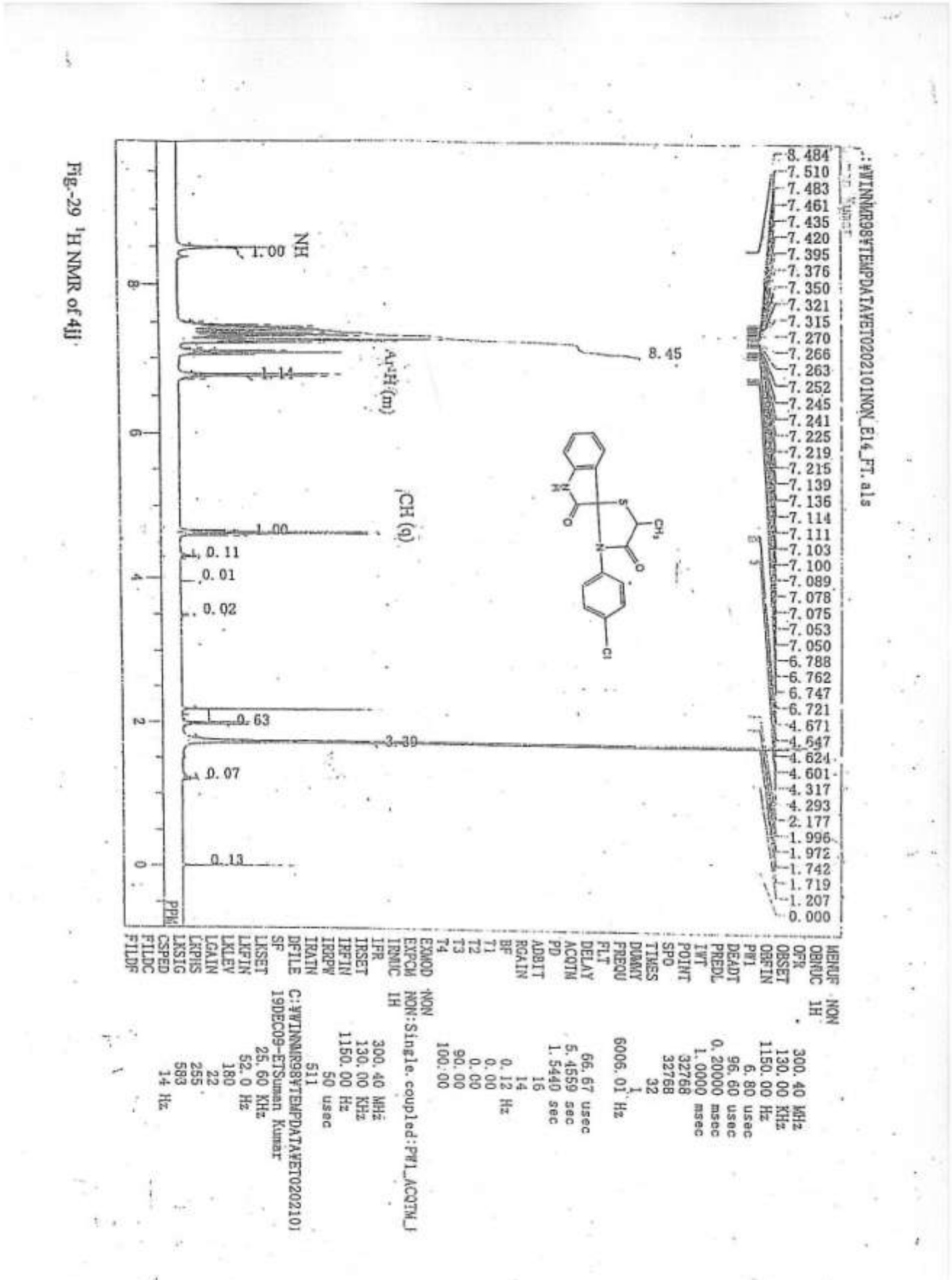

Fig.-29 ^{1}H NMR of 4jj

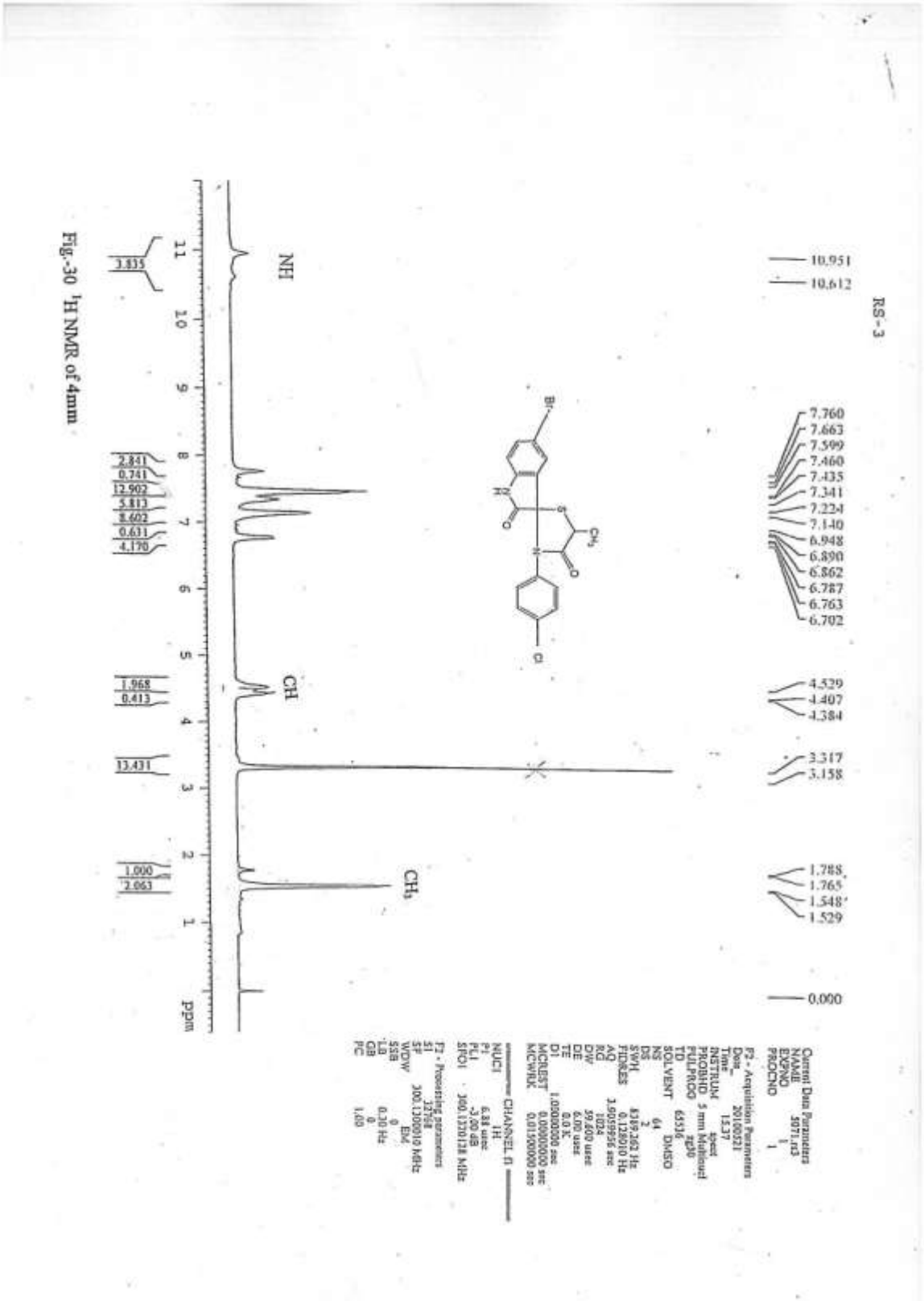

Fig.-30 ^{1}H NMR of 4mm

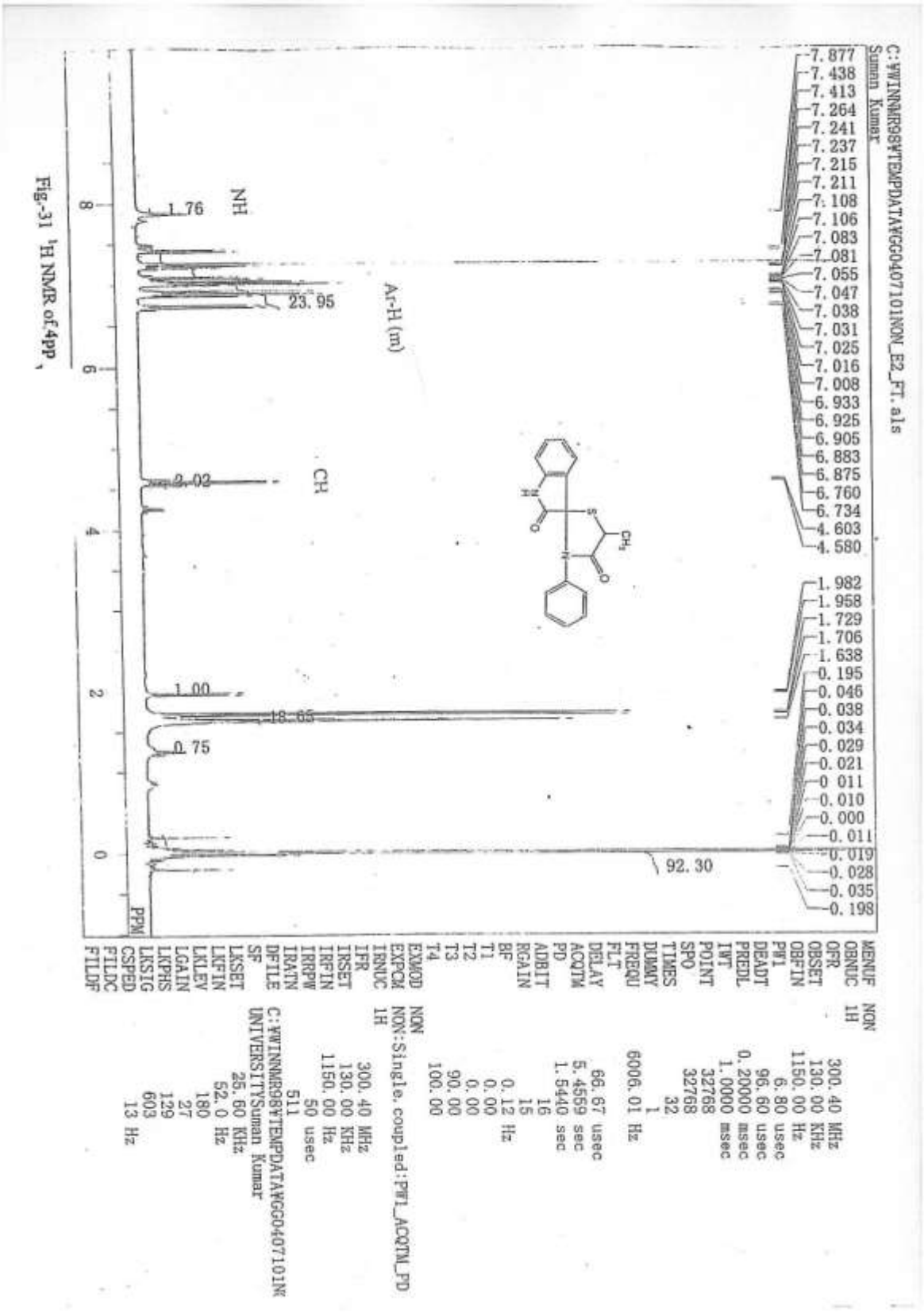

Fig.-31 ^{1}H NMR of 4pp

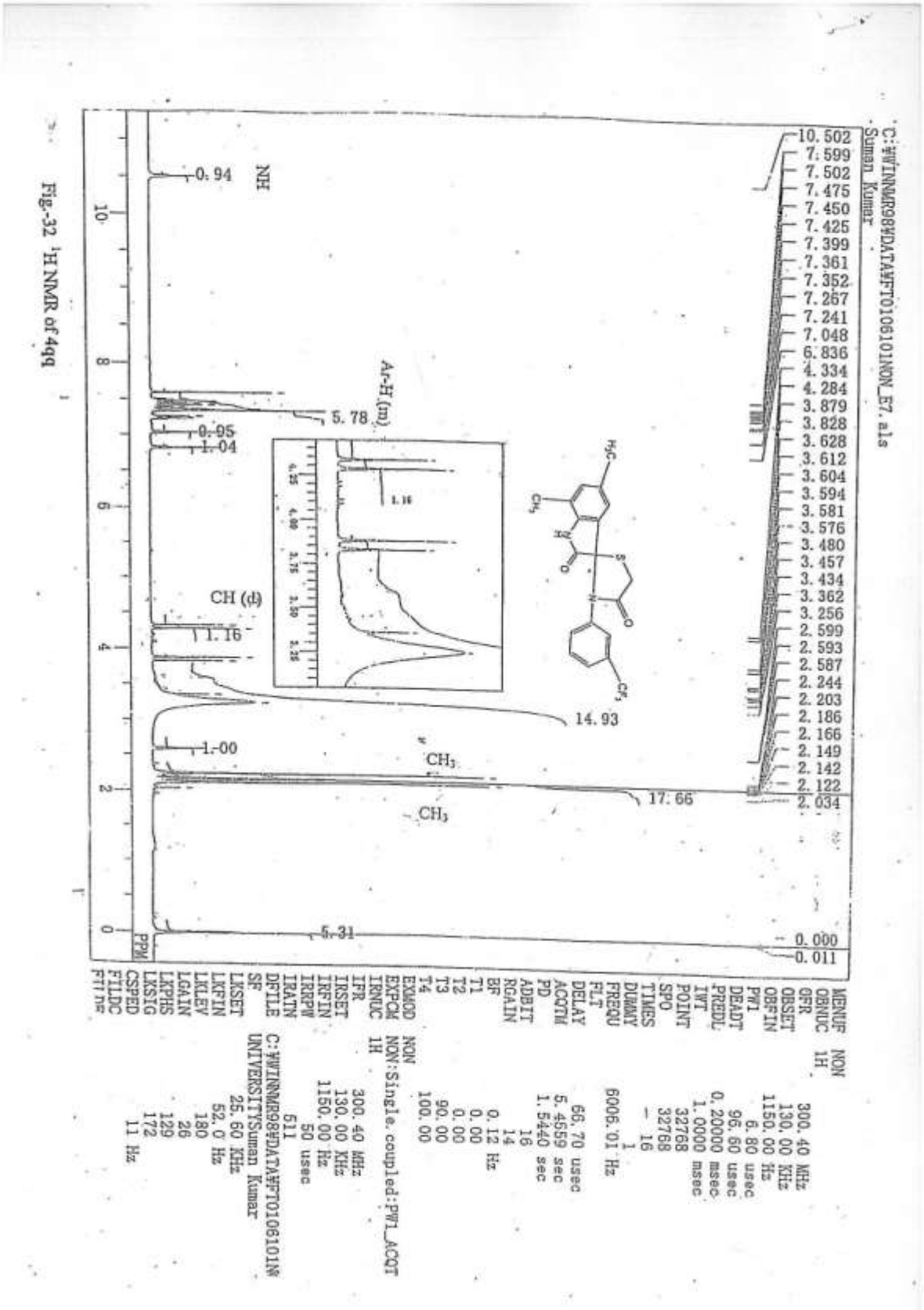

Fig.-32 ^{1}H NMR of 4qq

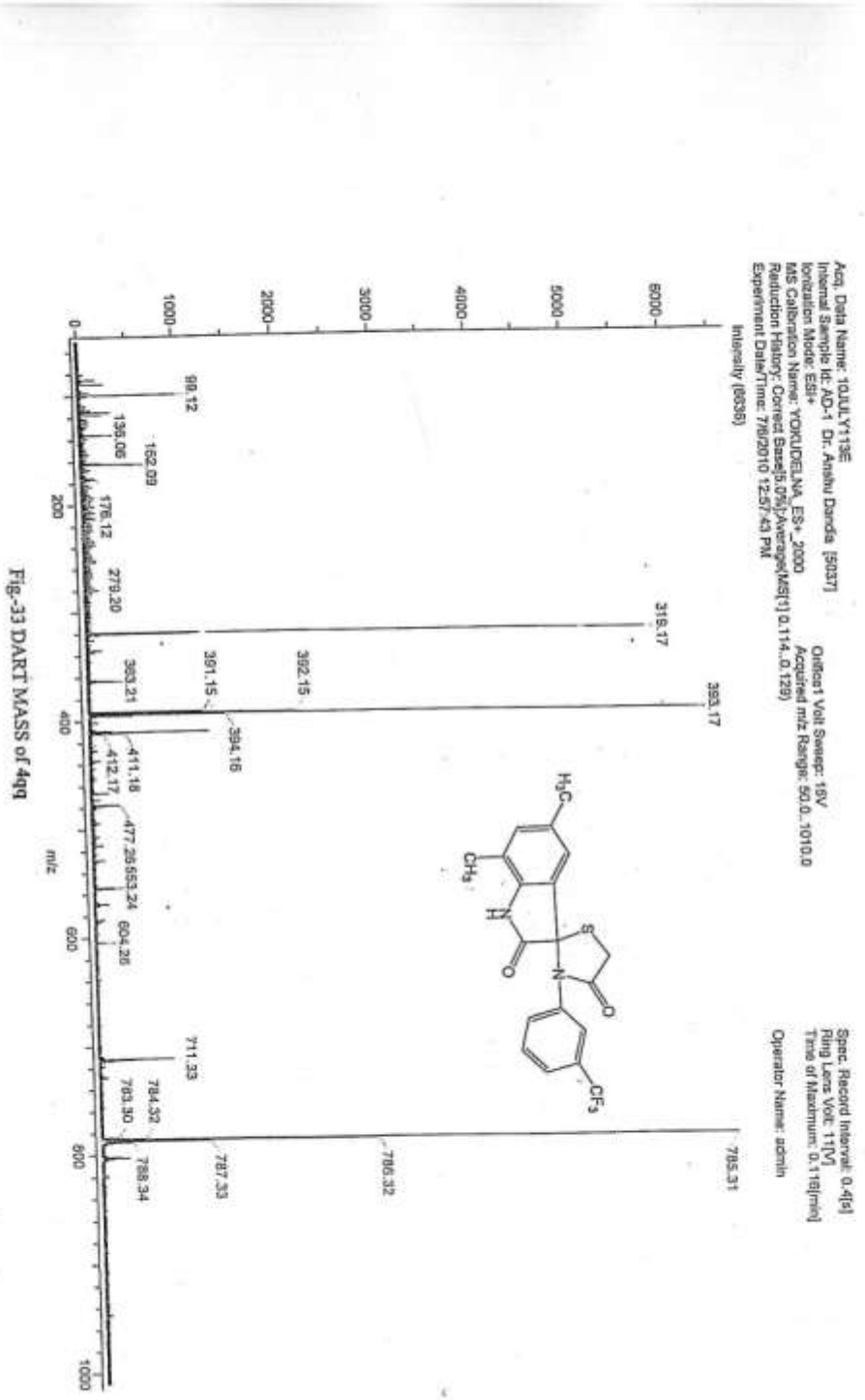

Fig.-33 DART MASS of 4qq

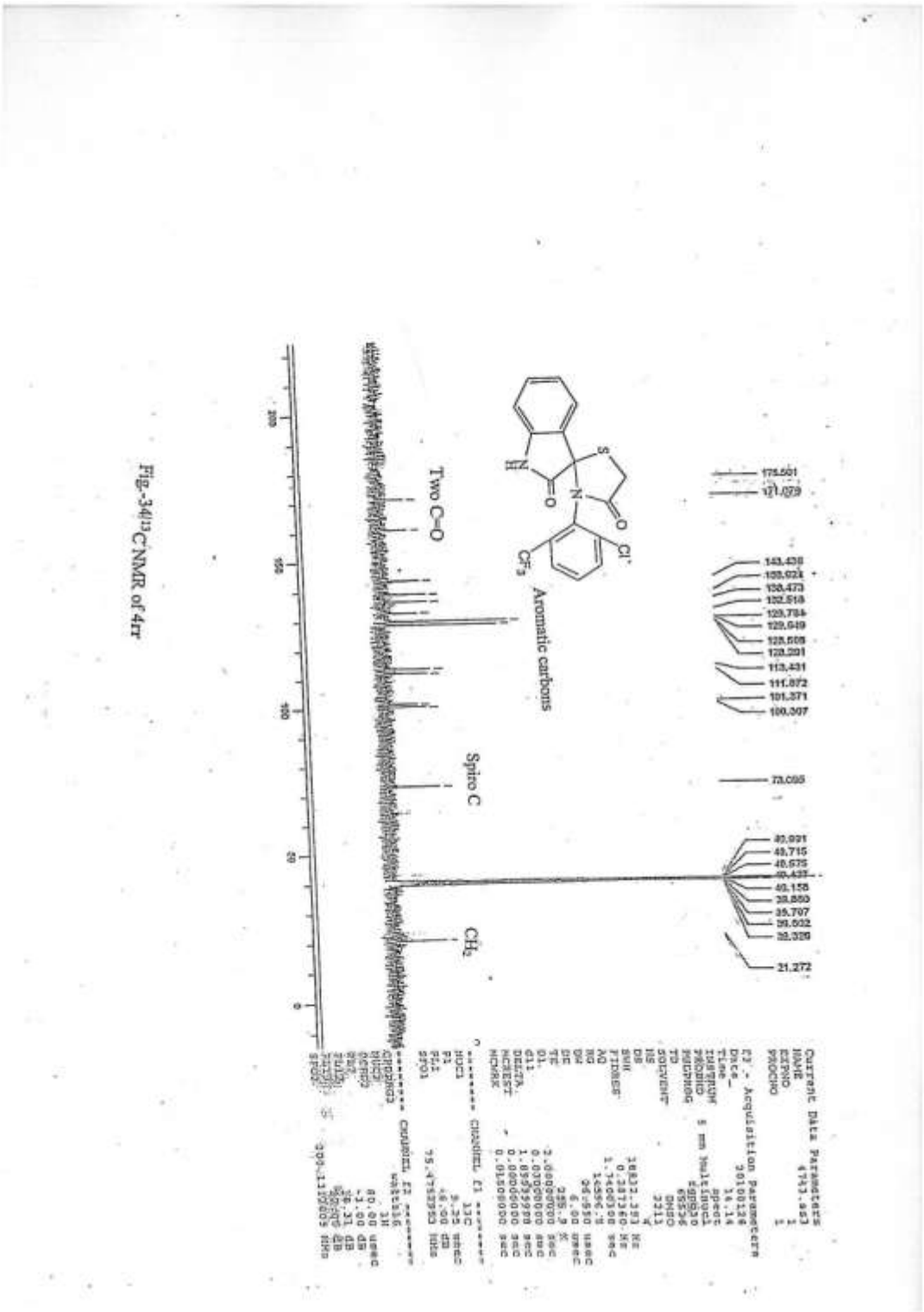

Fig.-34 ^{13}C NMR of 4rr

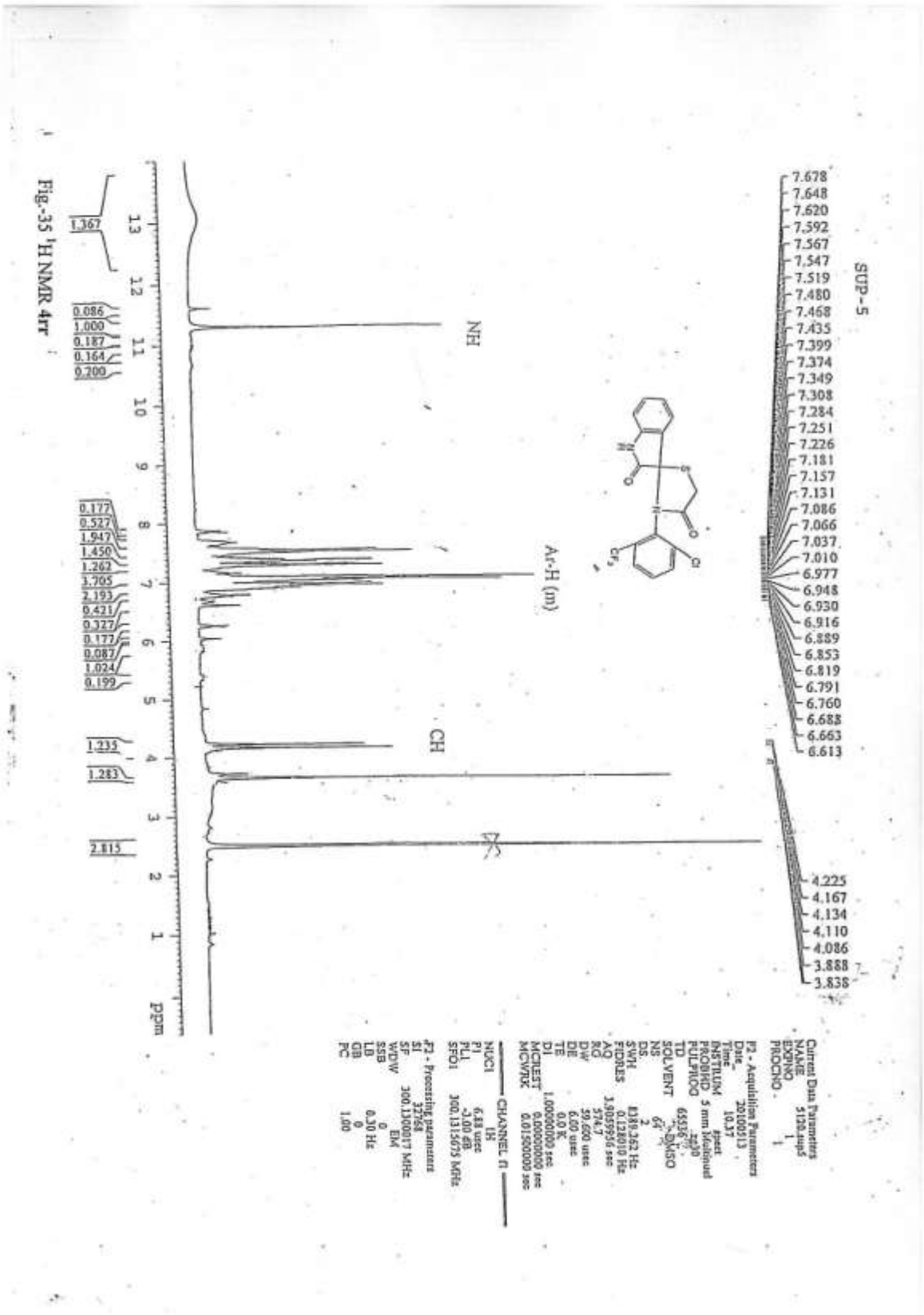

Fig.-35 ^{1}H NMR 4rr

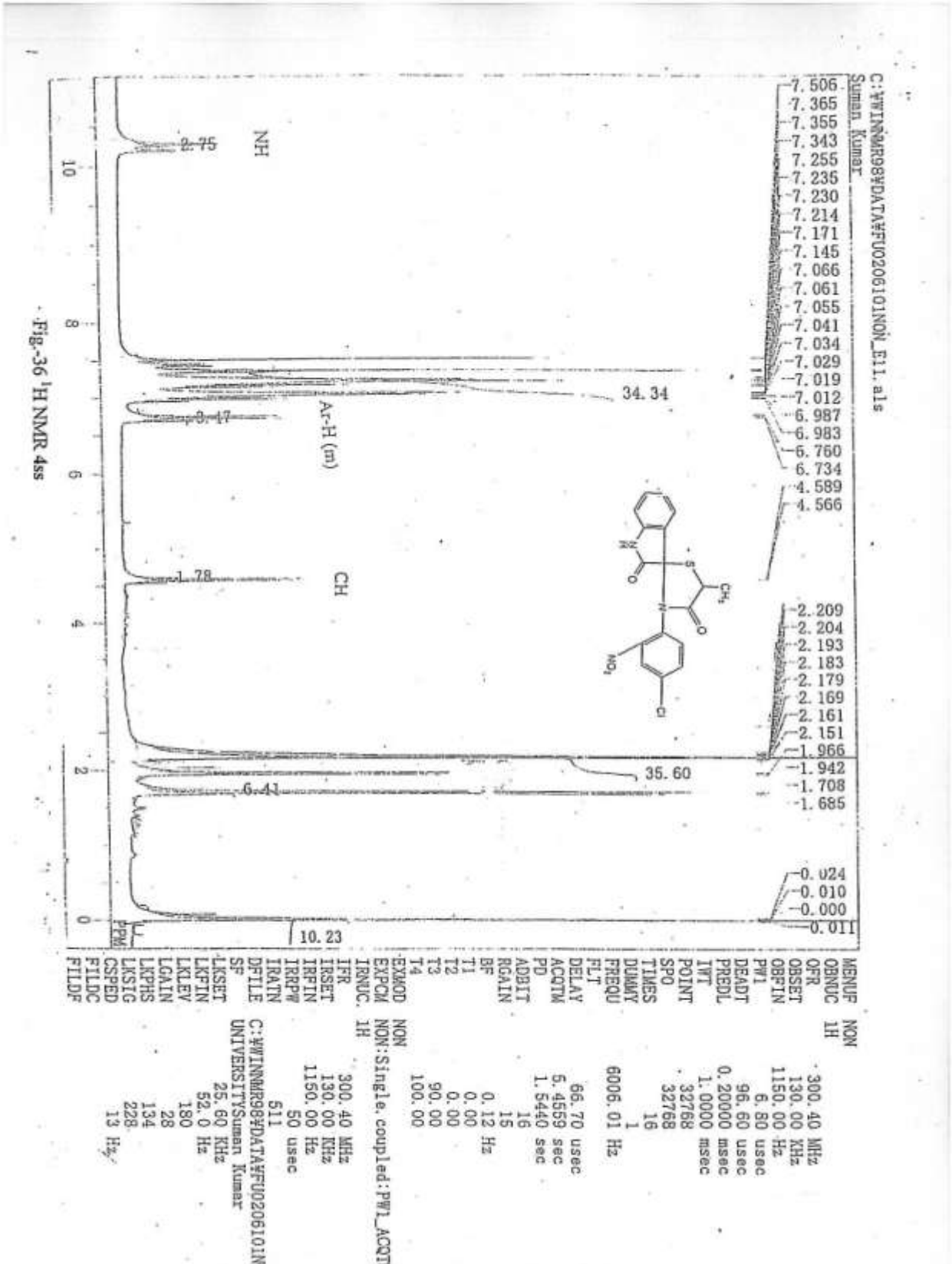

Fig.-36 ^{1}H NMR 4ss

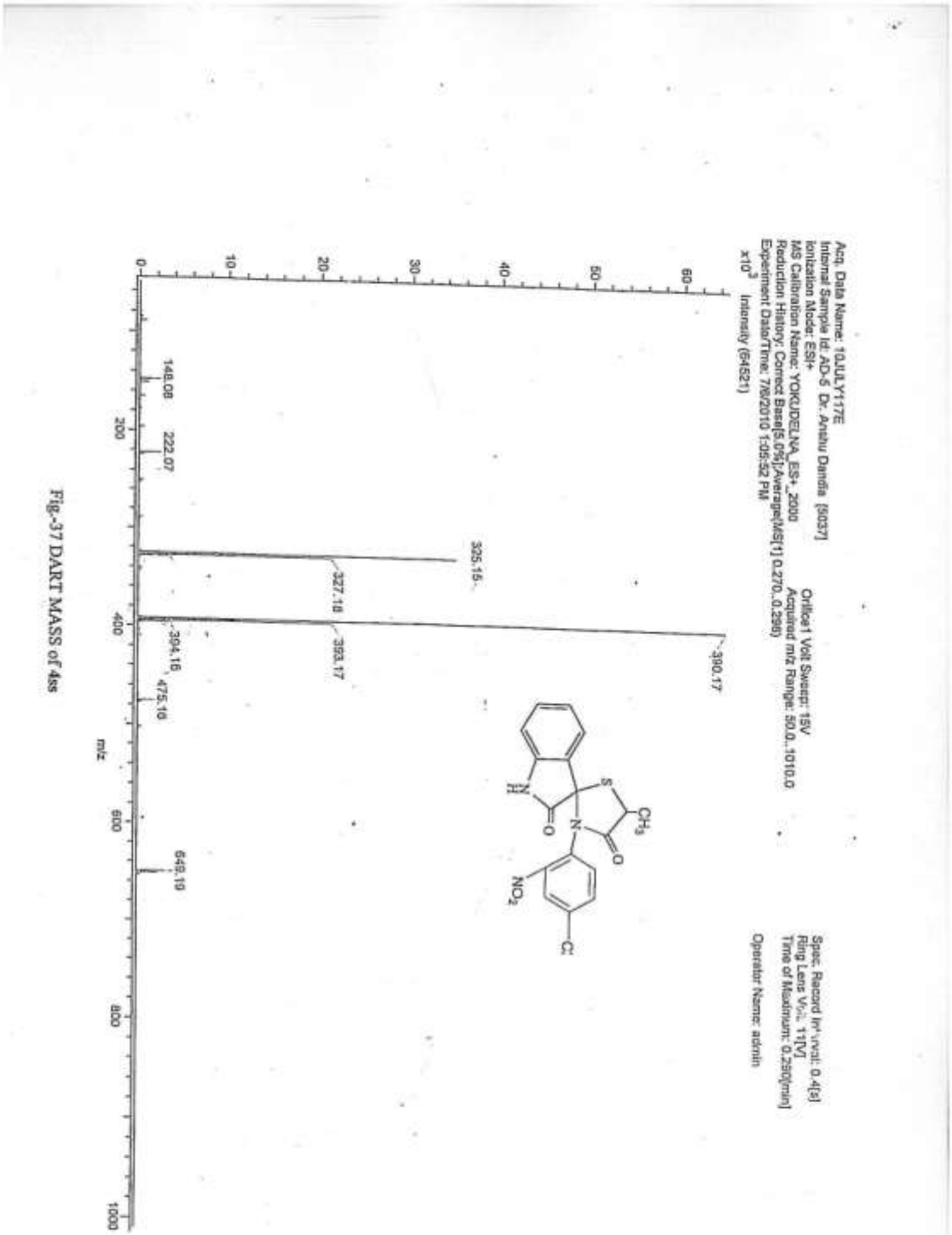

Fig.-37 DART MASS of 4ss

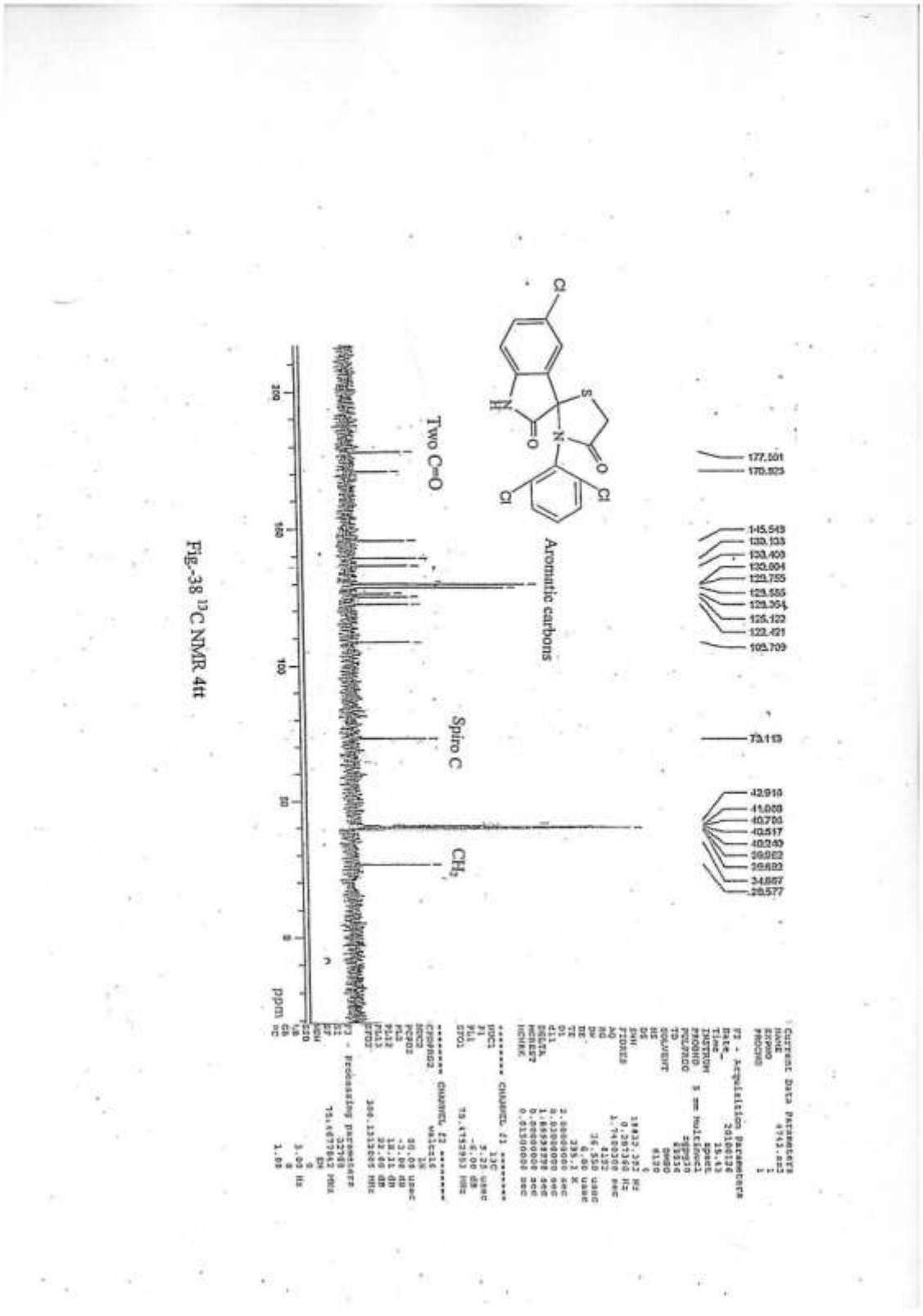

Fig.-38 ^{13}C NMR 4ft

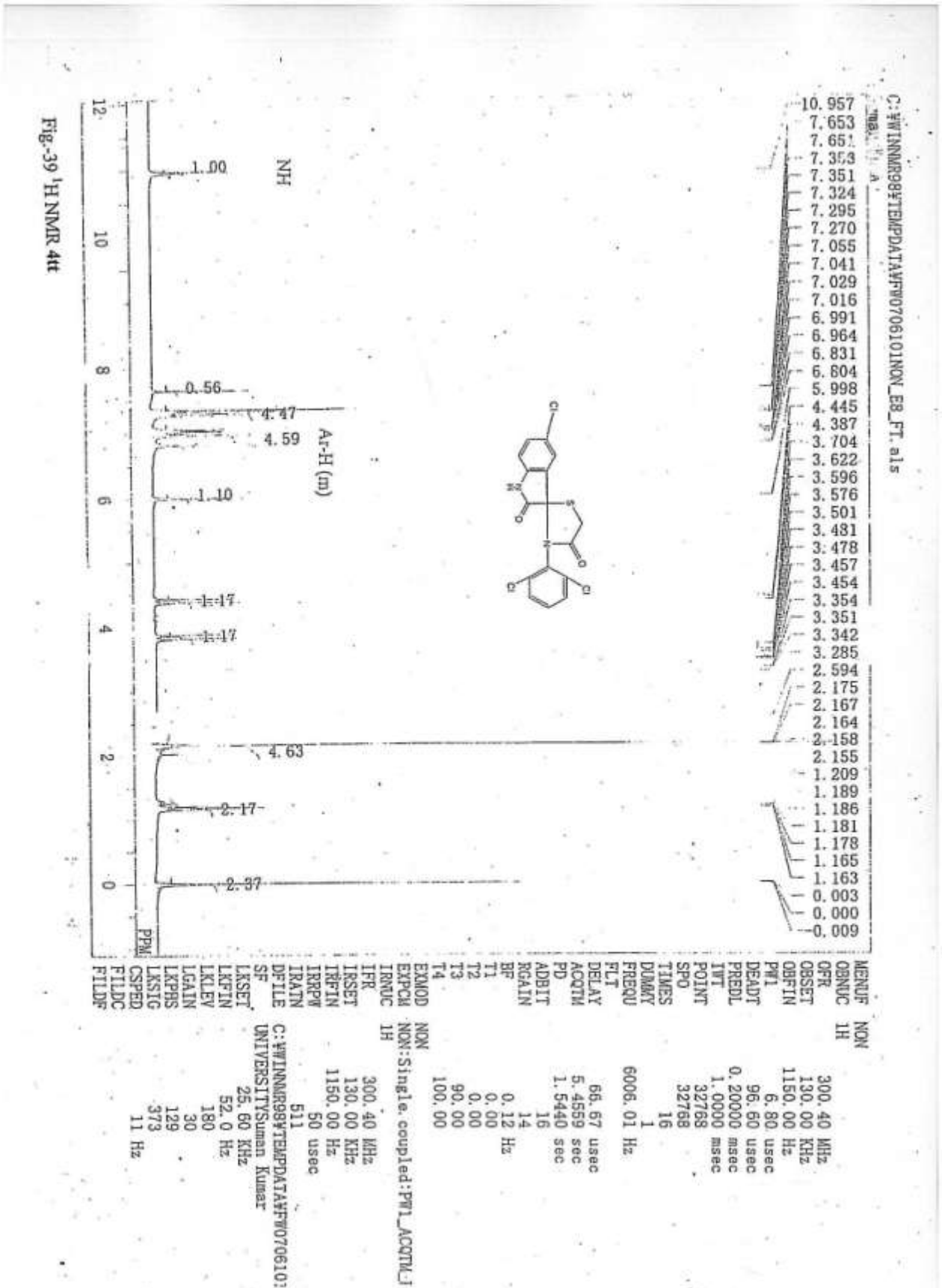

Fig-39 ^{1}H NMR 4tt

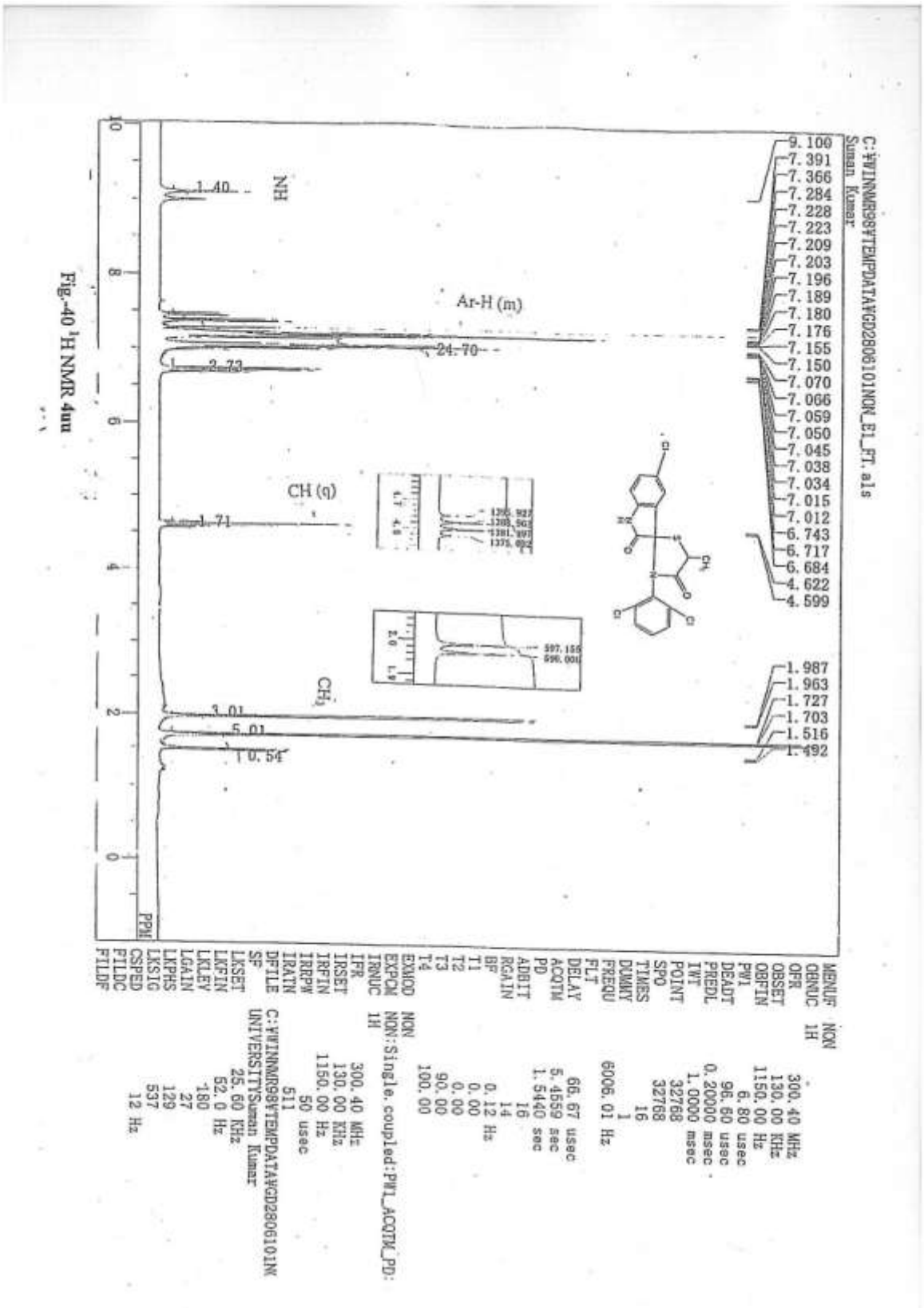

Fig.-40 ^{1}H NMR 4uu

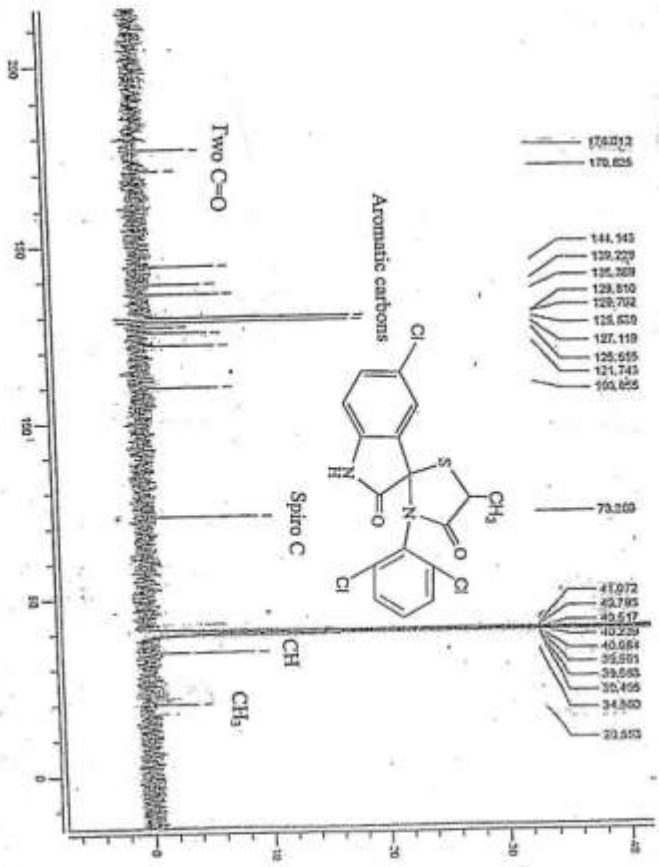

Fig.-41 ^{13}C NMR 4m