Electronic Supplementary Material (ESI) for RSC Advances

Efficient One-Pot Synthesis of Mono and Bis *N*-Cyclohexyl-3-alkyl(aryl)-quinoxaline-2-amines Using *N*-halo Catalysts

Supporting Information

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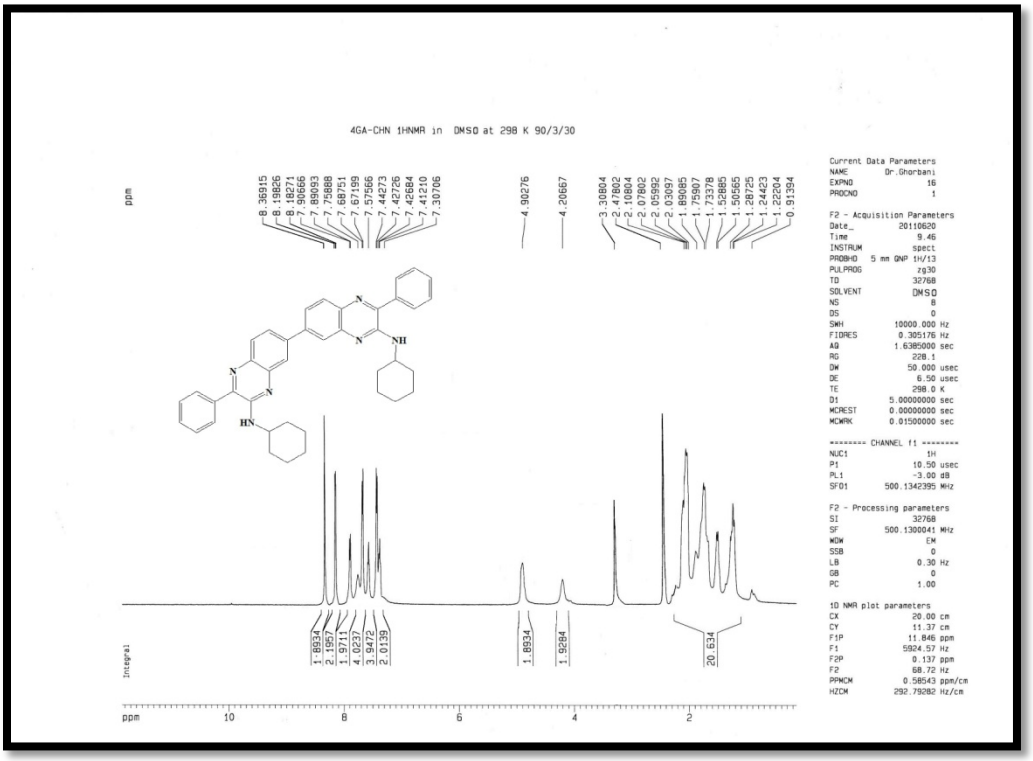
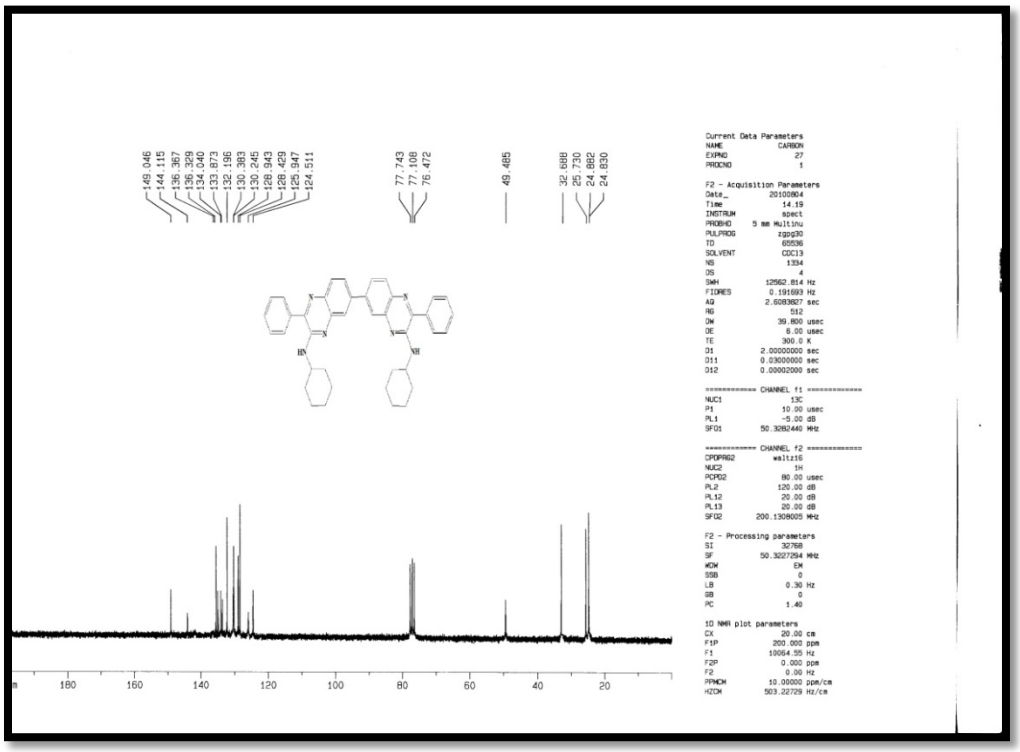
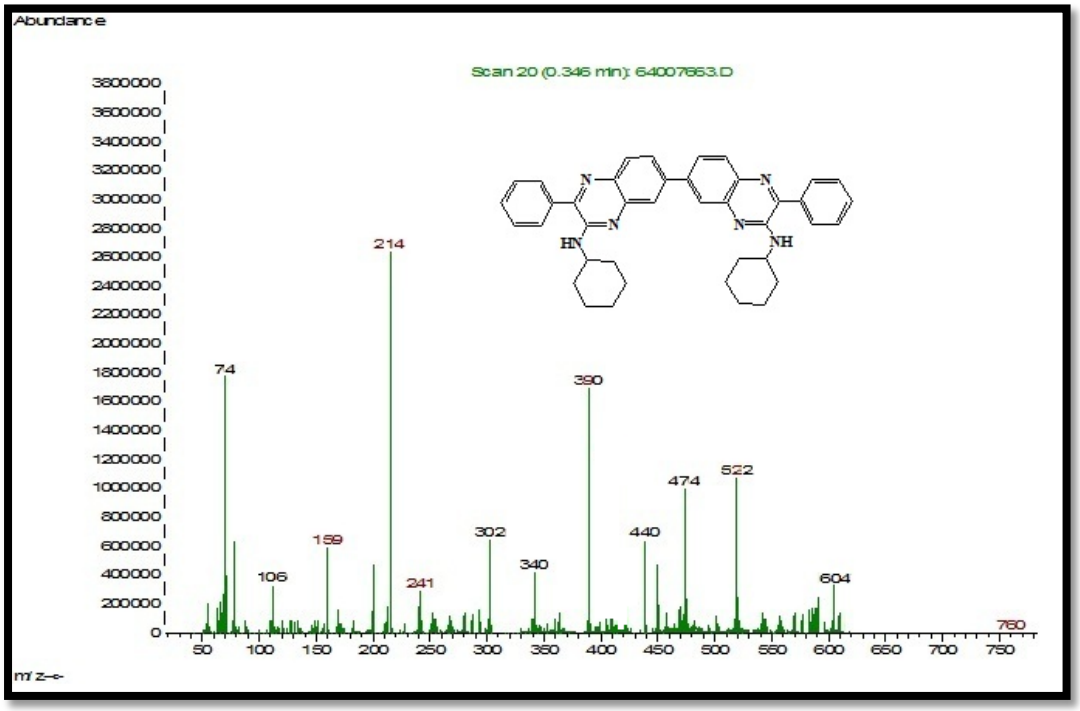
^{1}H NMR



^{13}C NMR



Mass



CHN

DATE 15 12 90 TIME 11 30 24 OPERATOR ID GHAEMI

RUN 13 ID MO14 WEIGHT 2.464

SIGNALS

ZR 2106
NR 3851
CR 19984
HR 24955

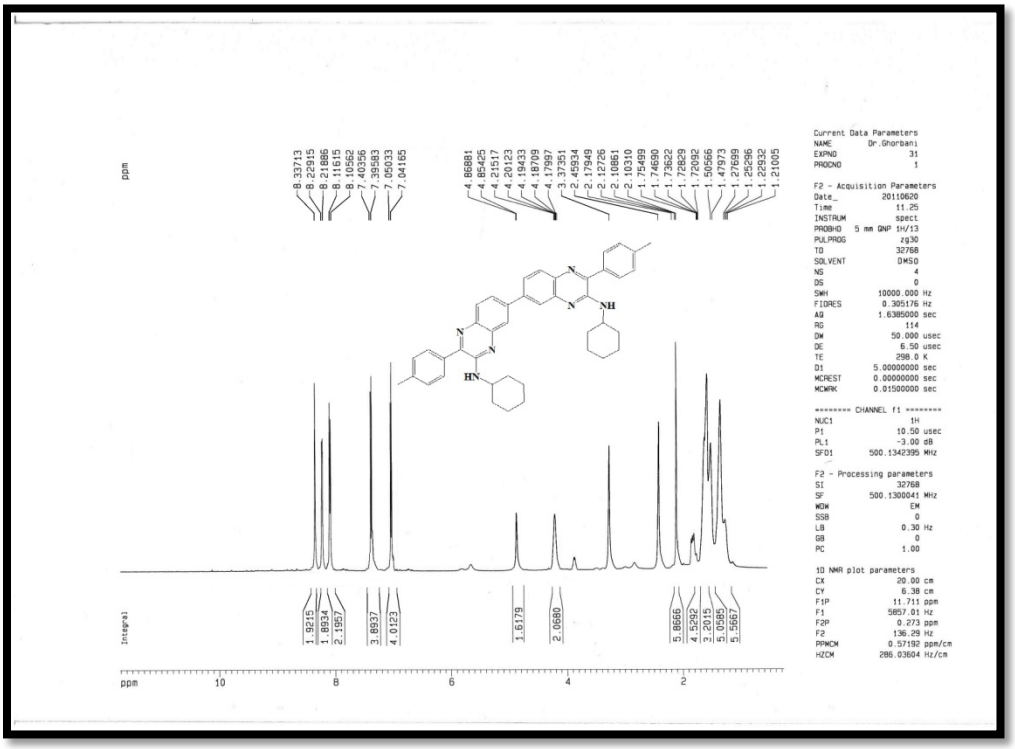
CARBON 79.85%
HYDROGEN 6.85%
NITROGEN 14.06%

BLANKS -206 221 162
KFACTORS 15.055 36.649 5.086

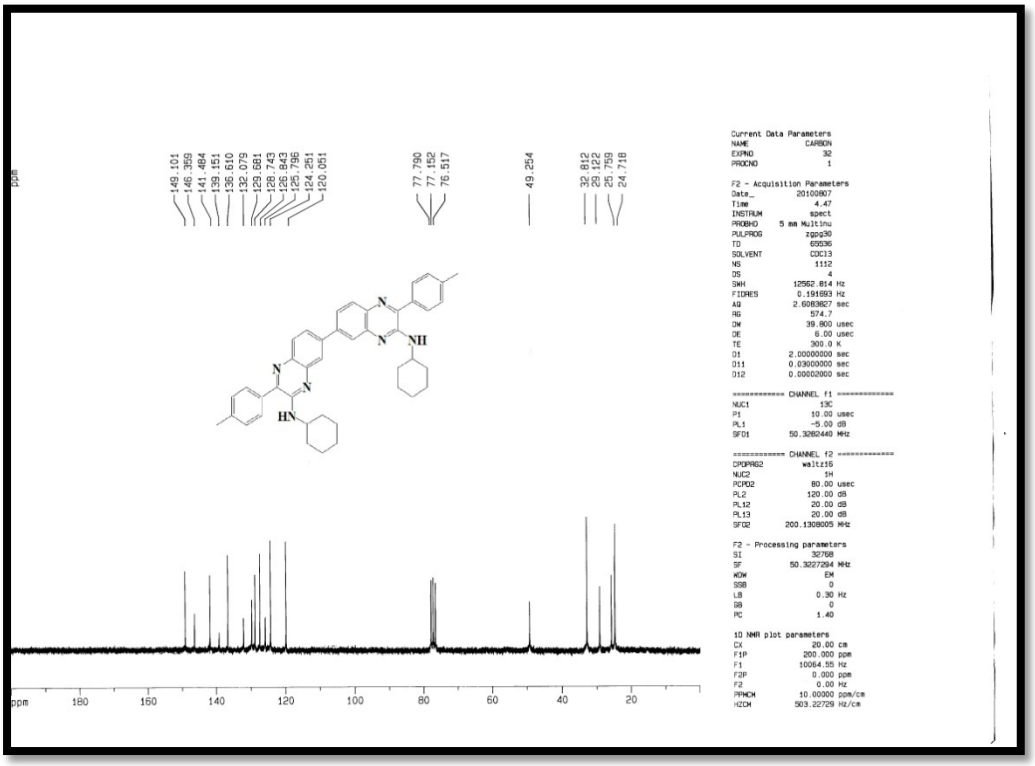
OXFILL COMB BOOST1 BOOST2
0 0 0 0

FILL TIME 13 SECONDS

^{1}H NMR



^{13}C NMR



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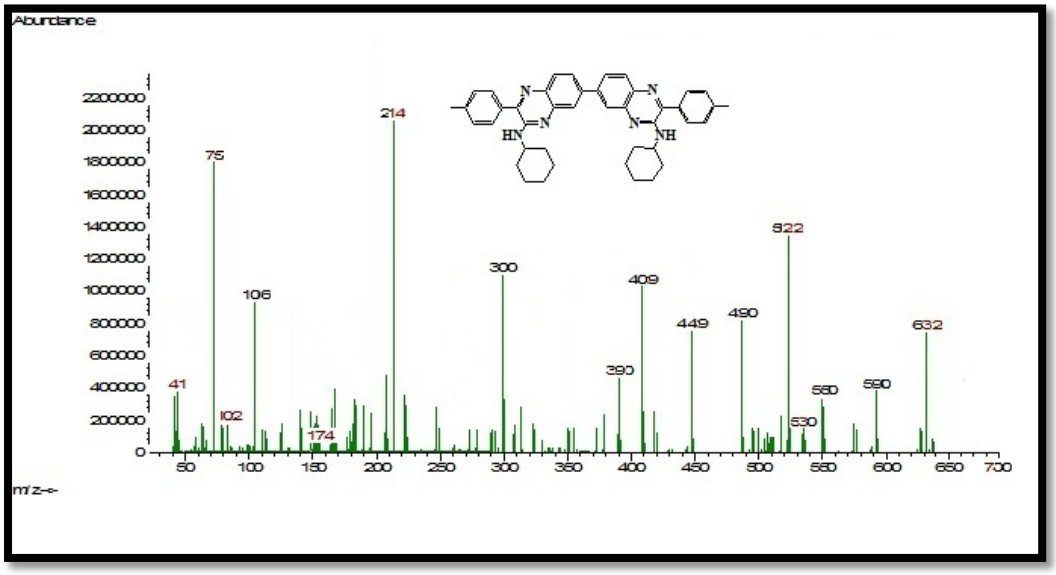

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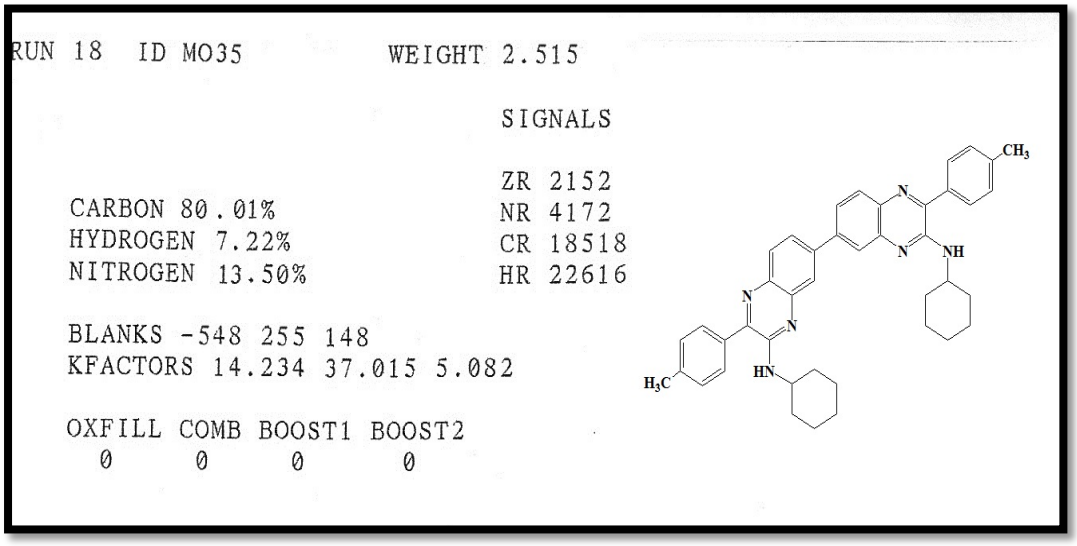
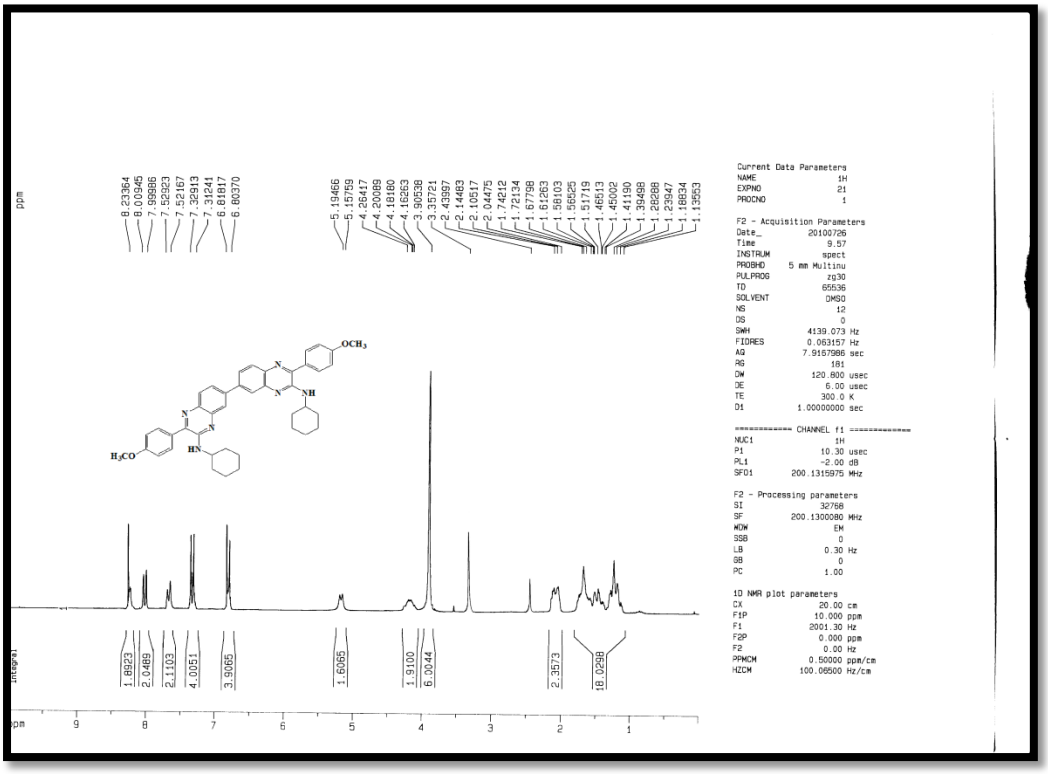
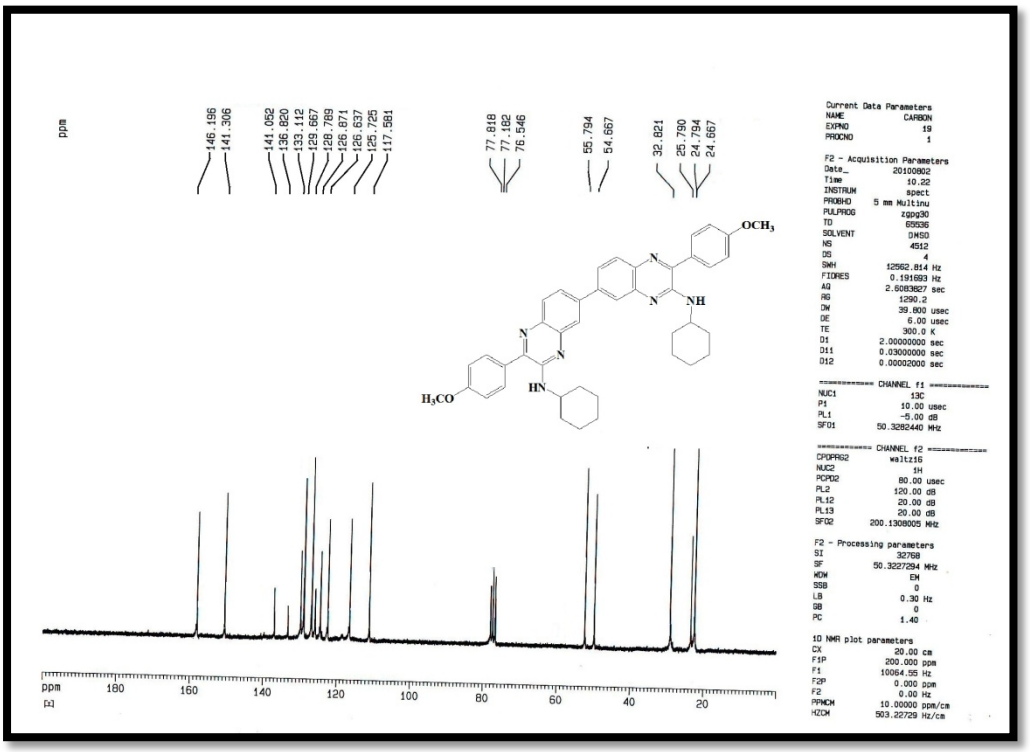


1H NMR



^{13}C NMR



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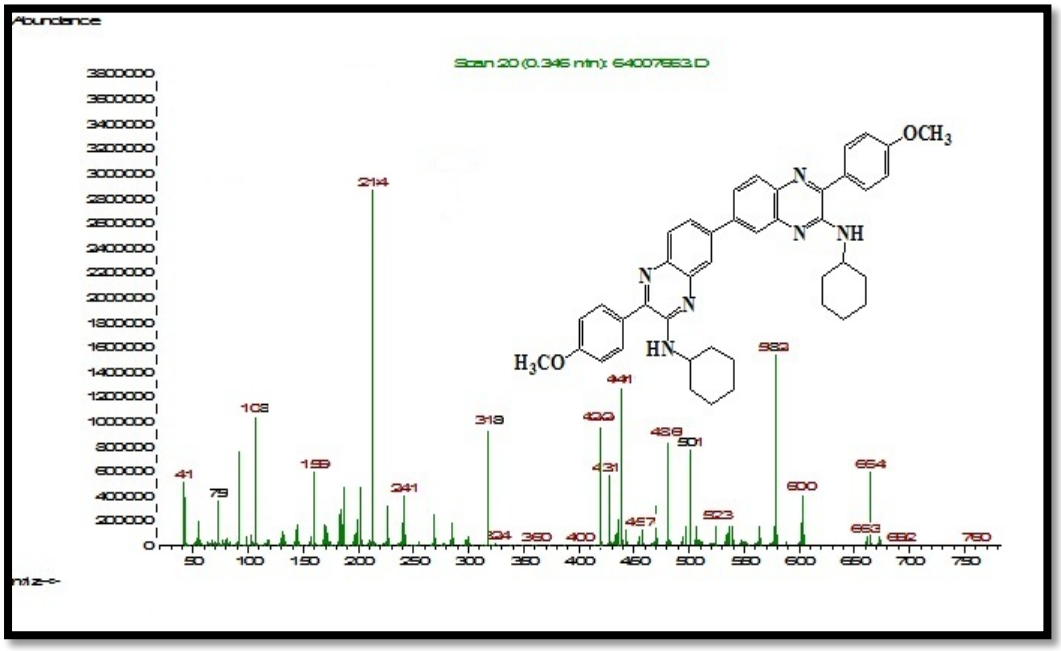

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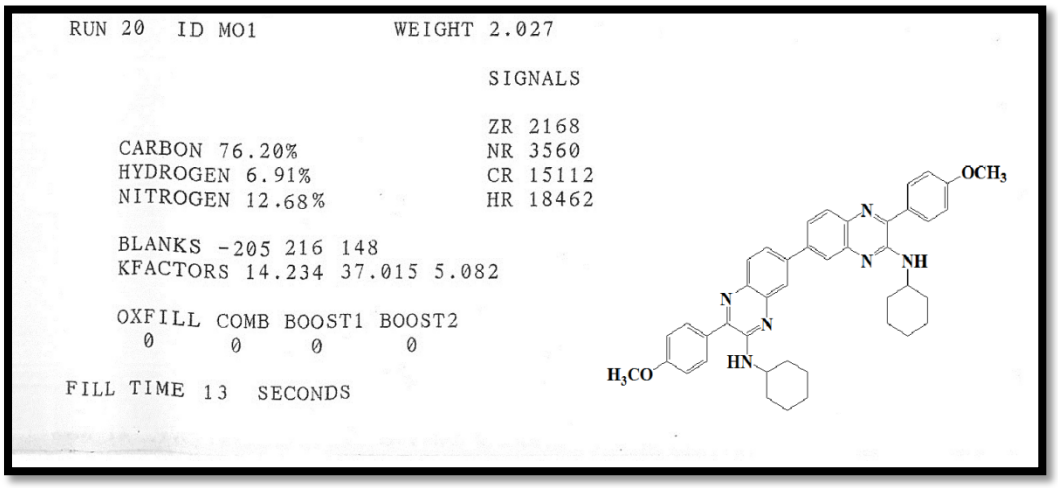
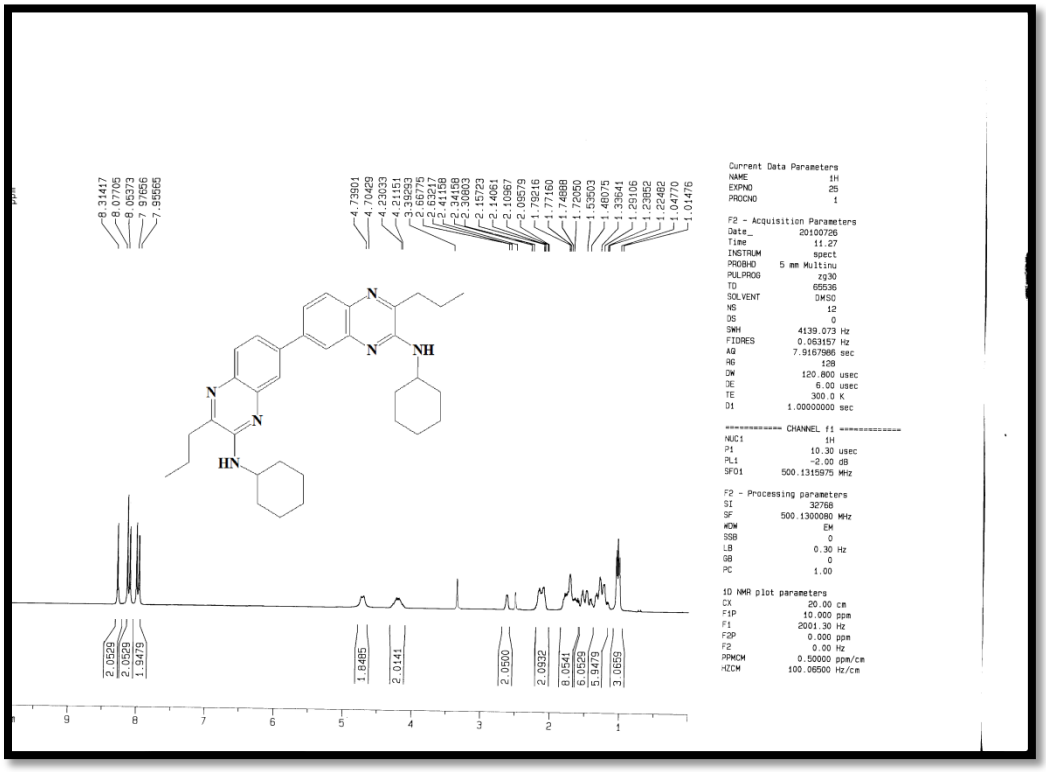
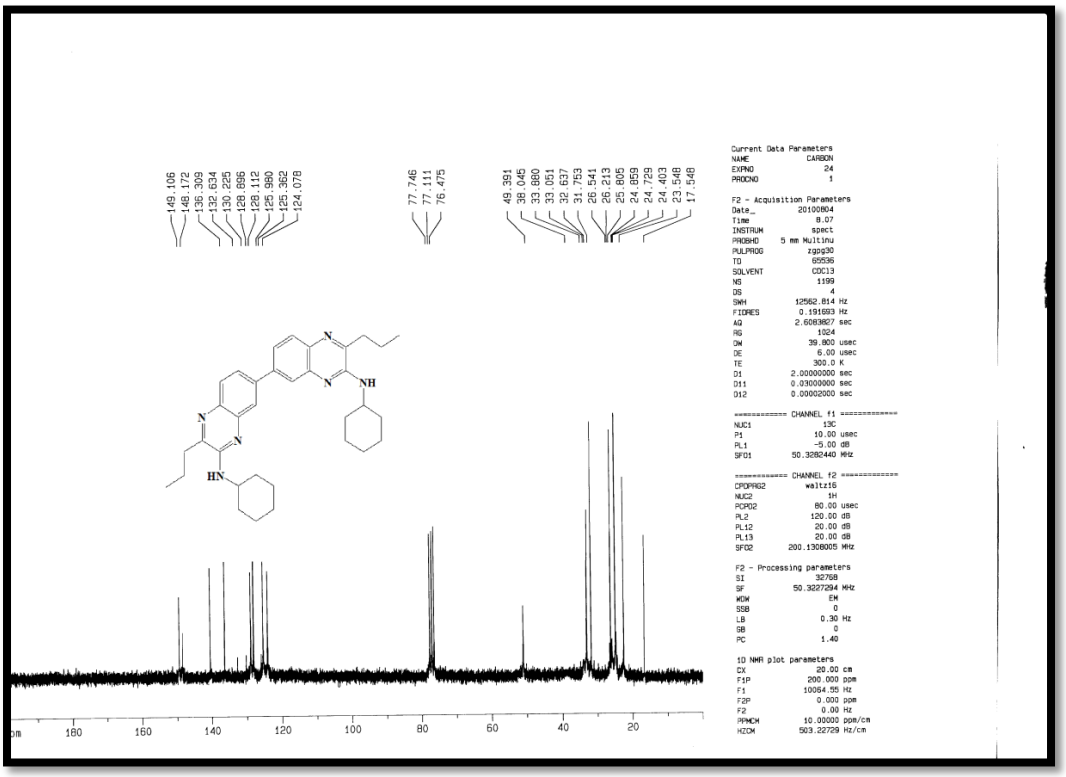


^{1}H NMR



^{13}C NMR



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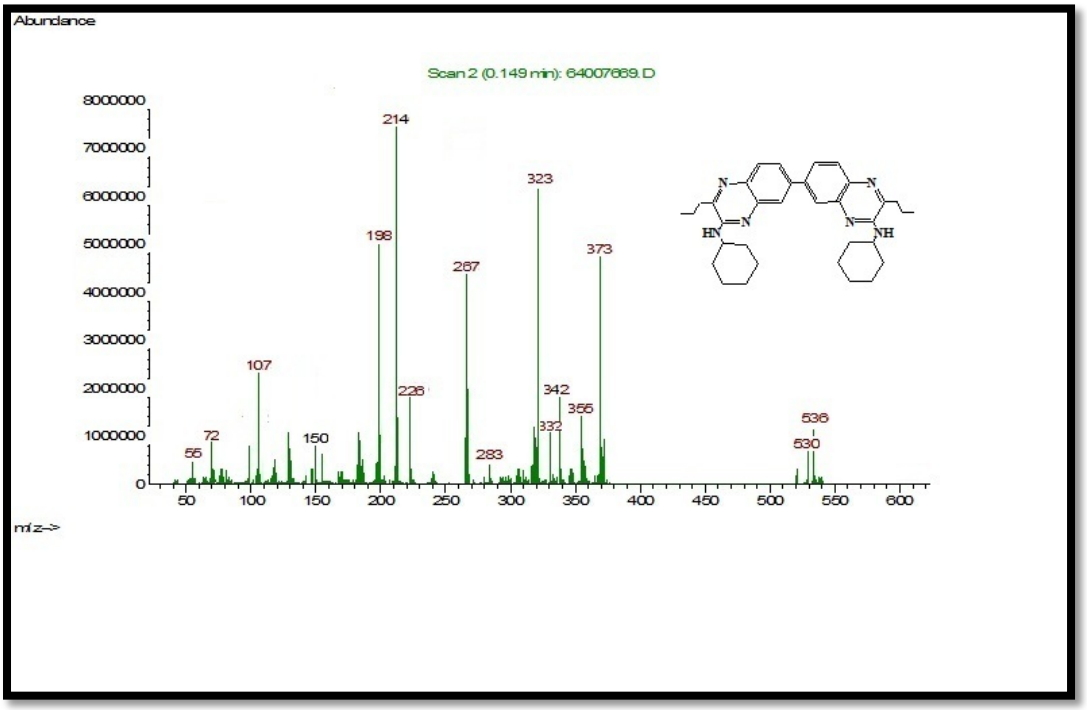
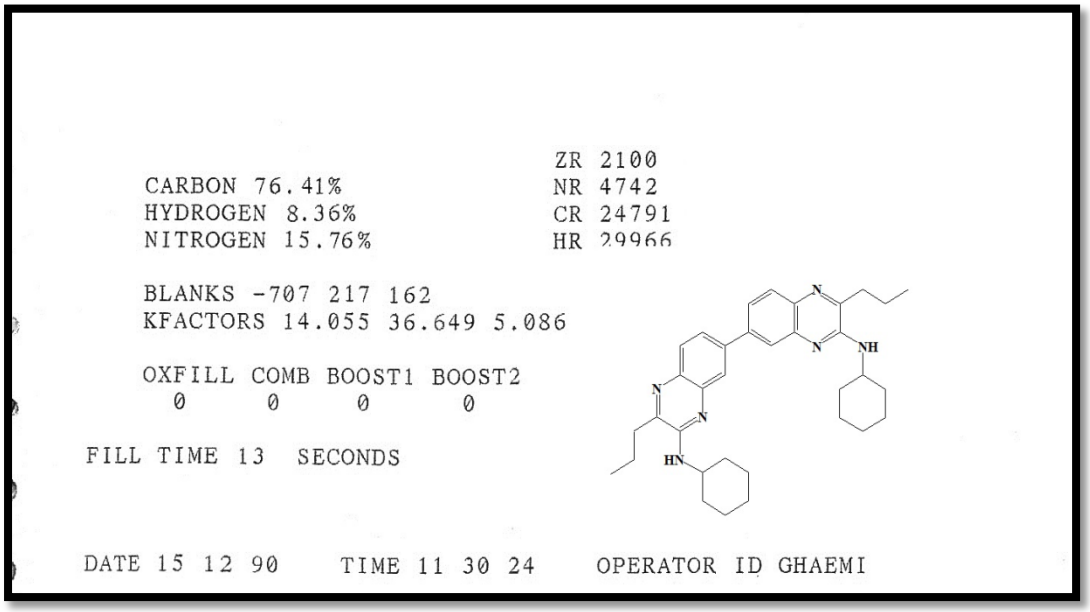
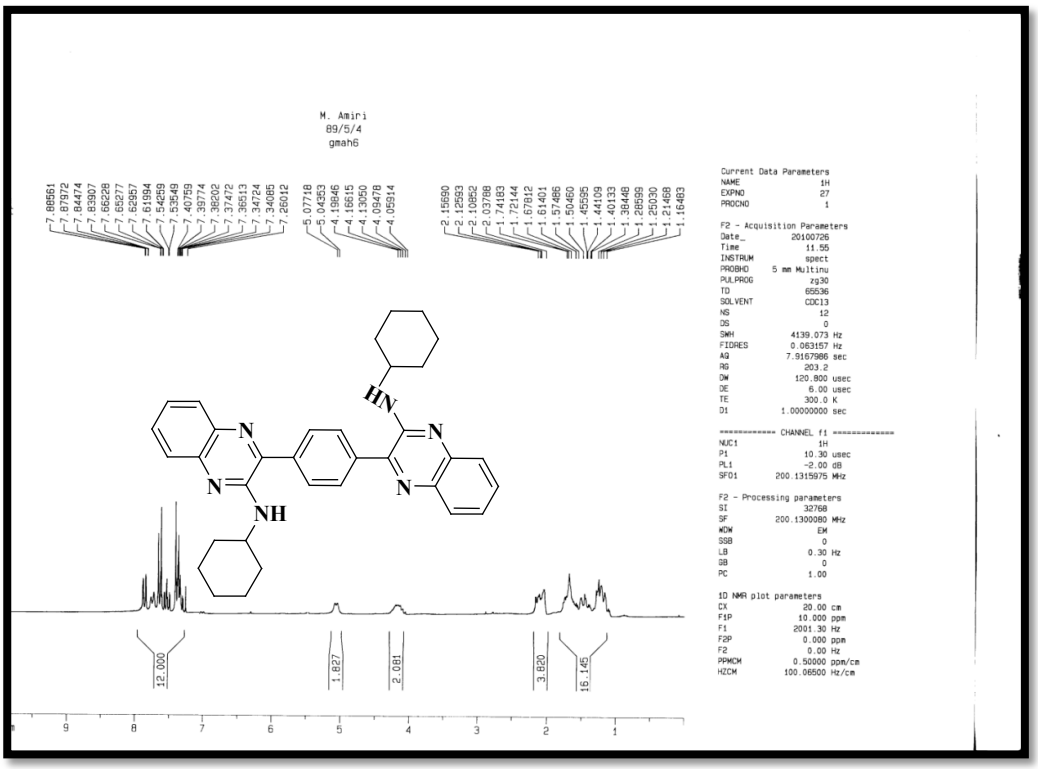


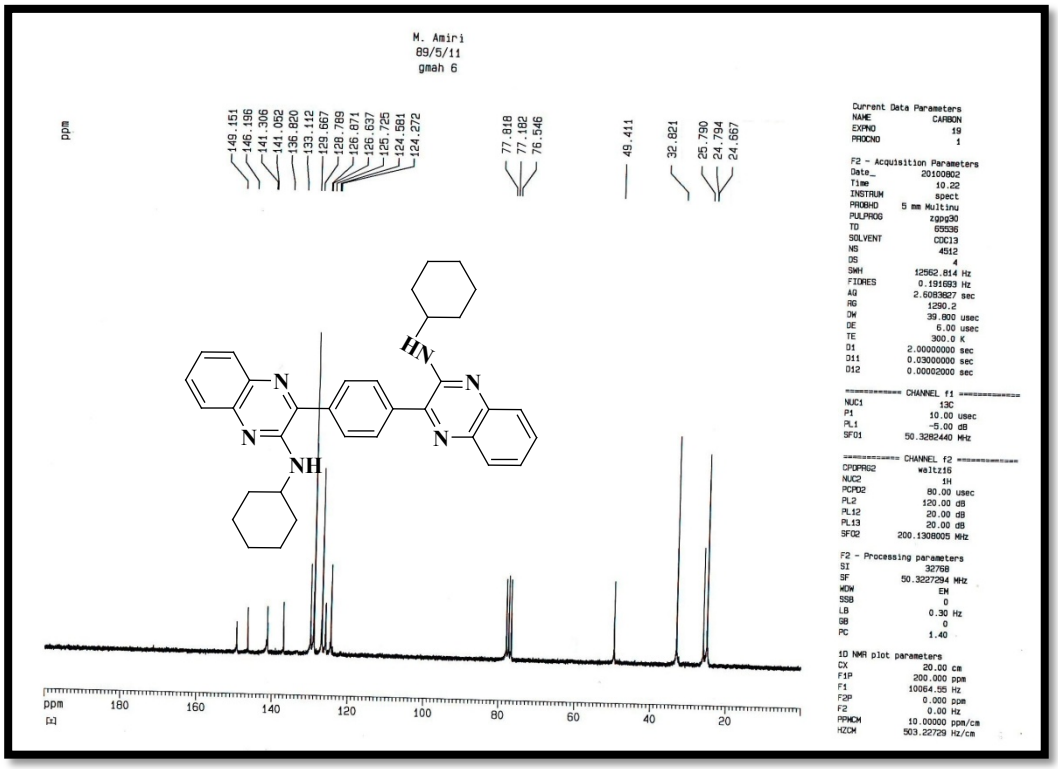
CHN



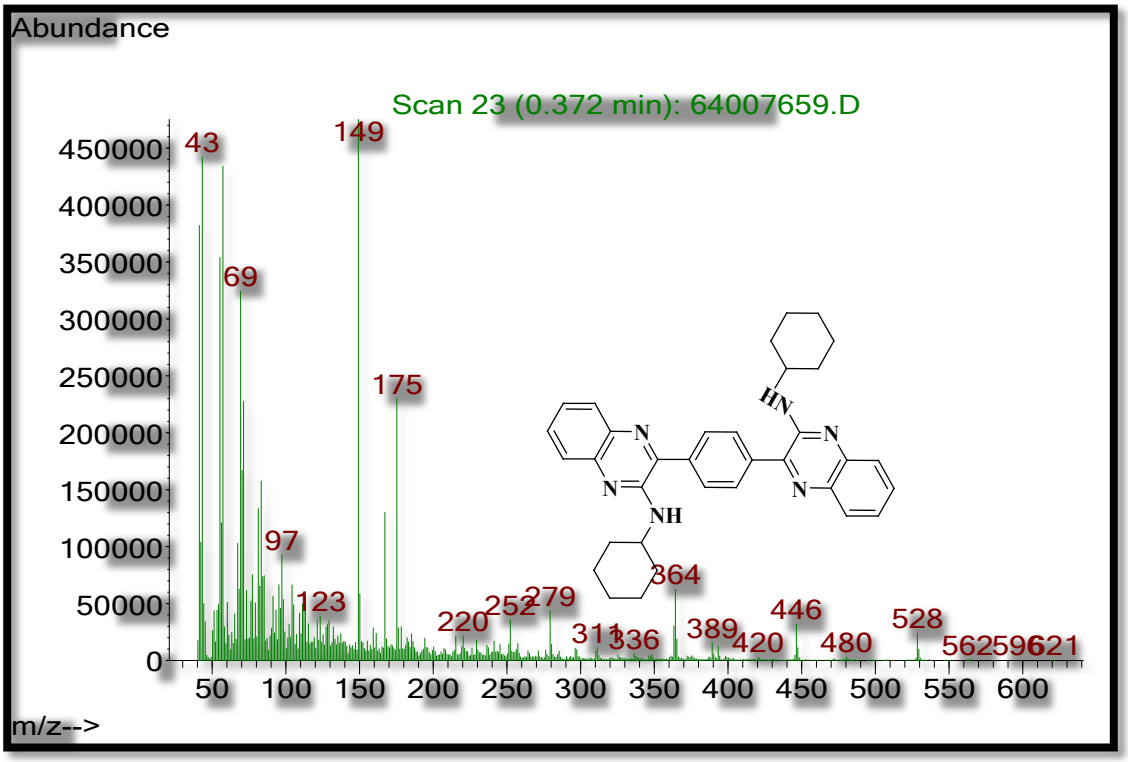
^{1}H NMR



^{13}C NMR



Mass



CHN

RUN 49 ID DGA6 WEIGHT 2.066

SIGNALS

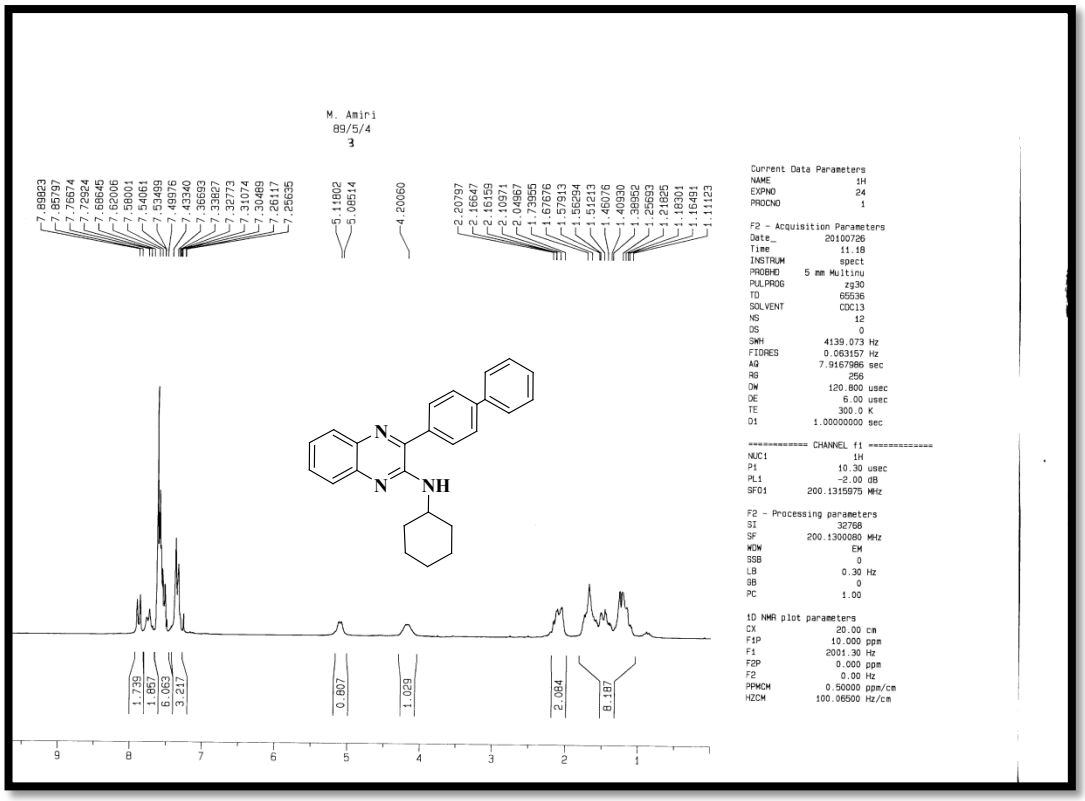
ZR 1680
NR 3714
CR 25345
HR 30172

CARBON 77.63%
HYDROGEN 6.63%
NITROGEN 16.02%

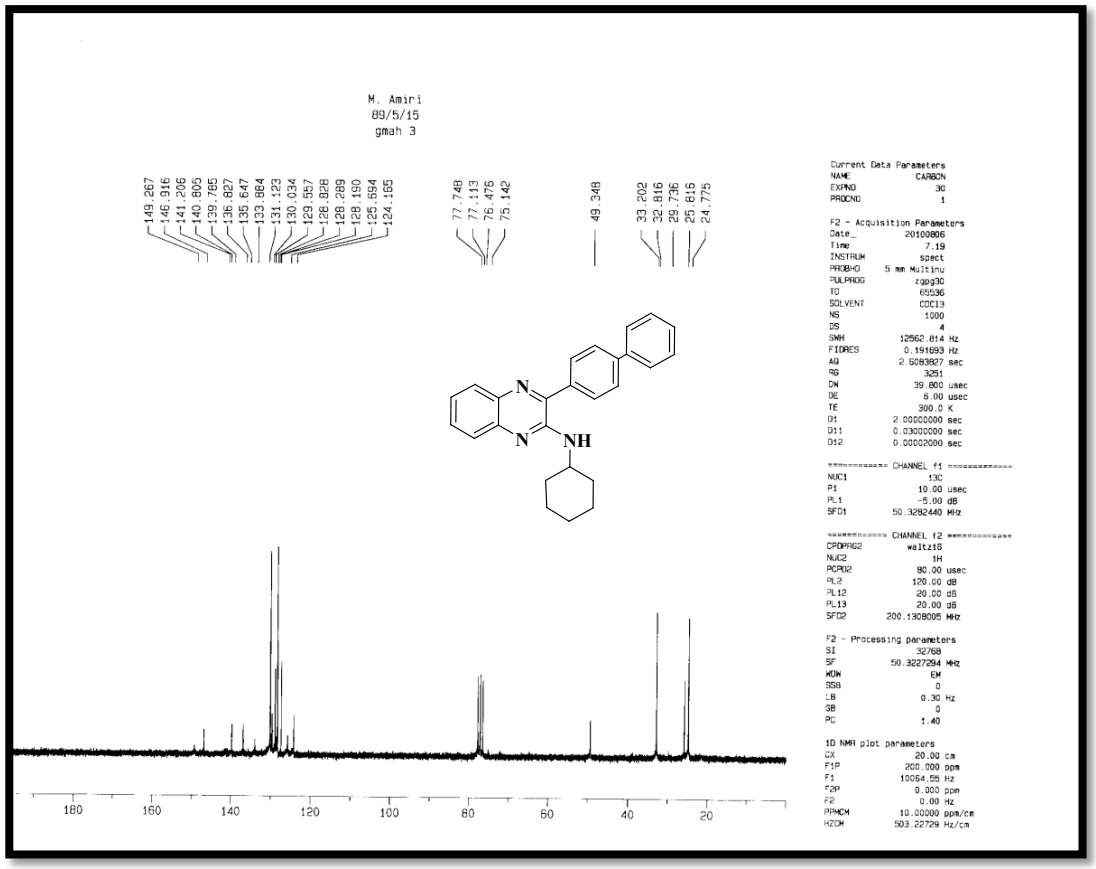
BLANKS 27 167 320
KFACTORS 14.555 36.606 5.179

OXFILL COMB BOOST1 BOOST2
0 0 0 0

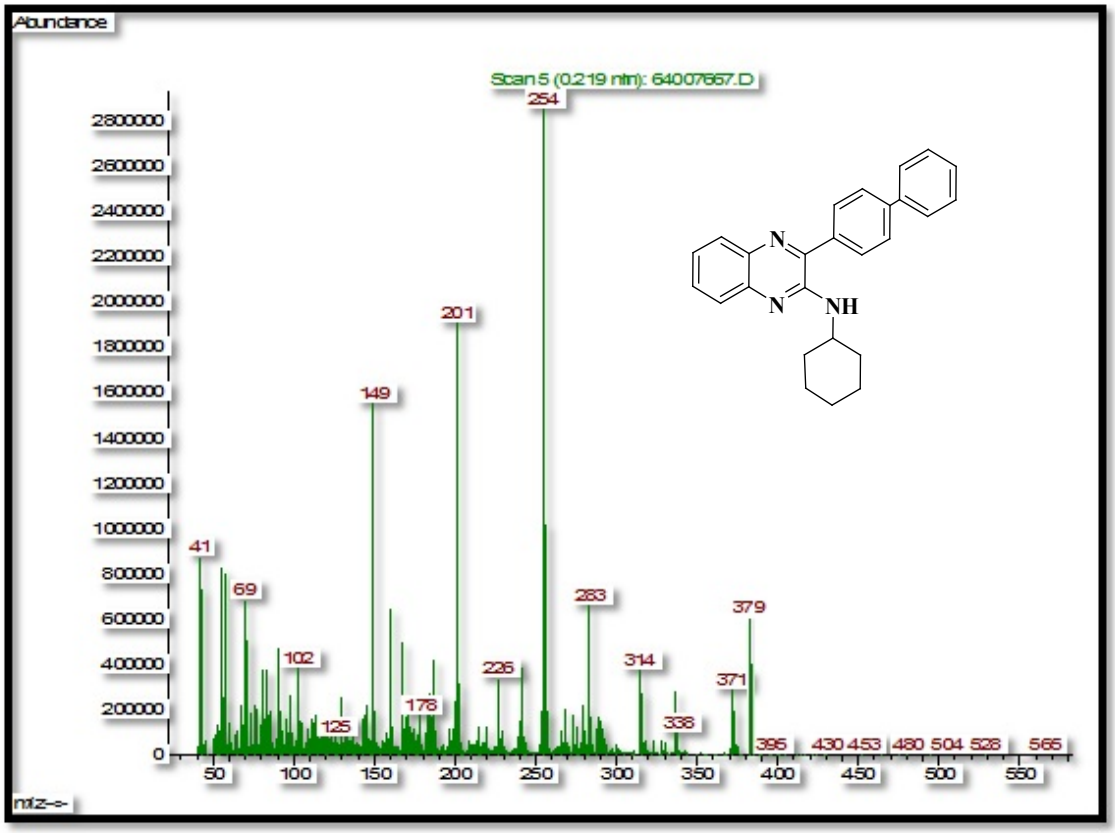
^{1}H NMR



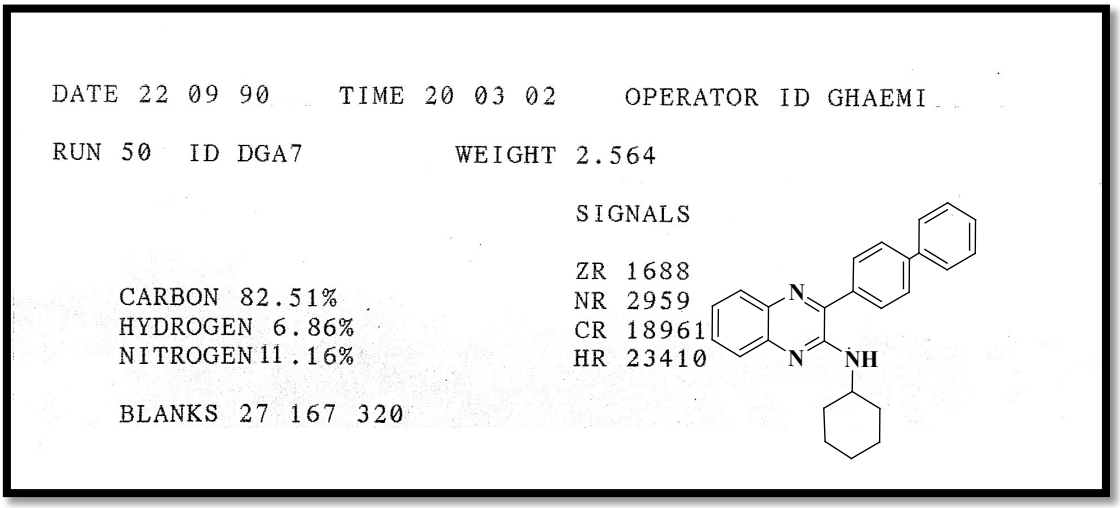
^{13}C NMR



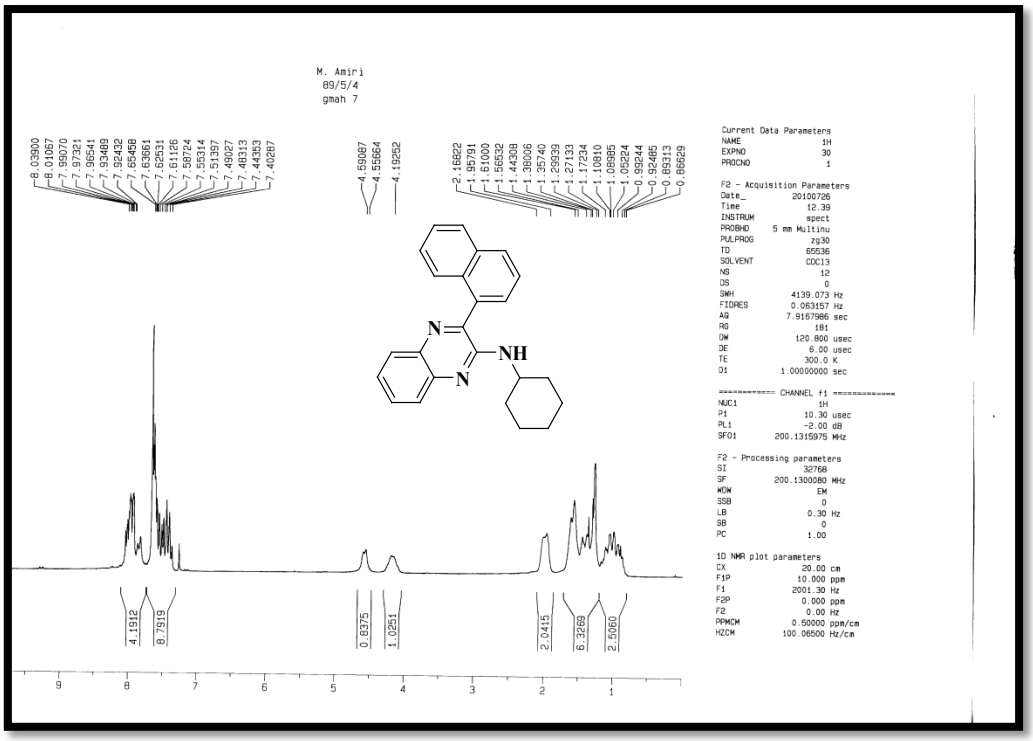
Mass



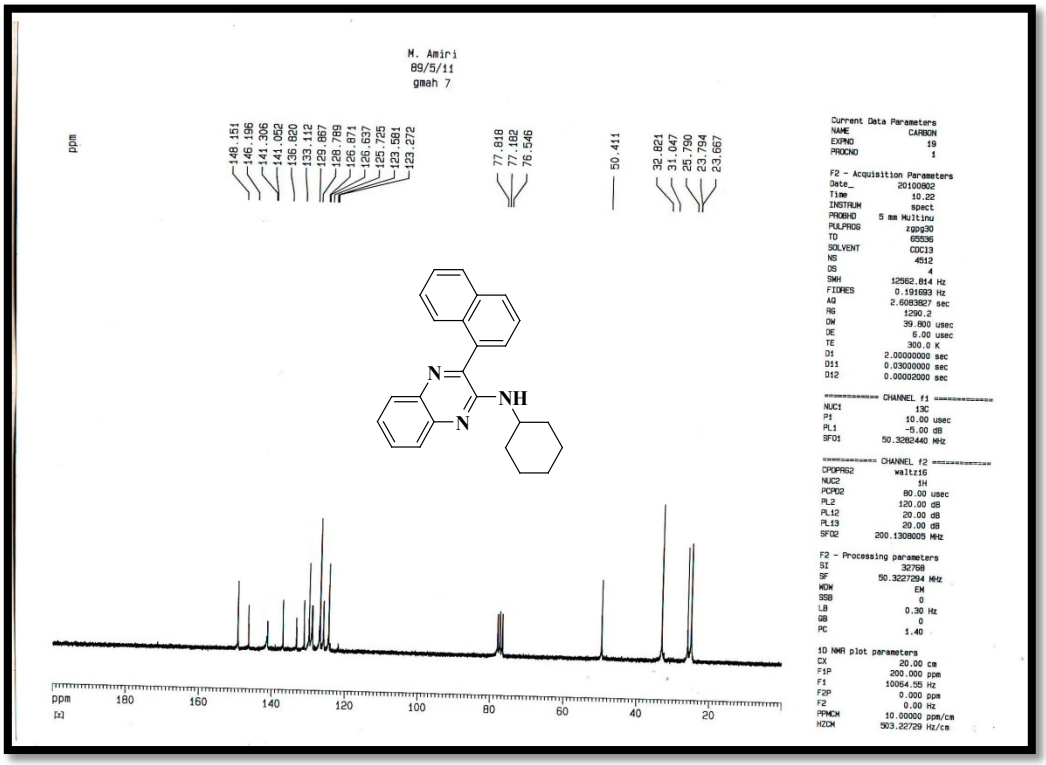
CHN



^{1}H NMR



^{13}C NMR



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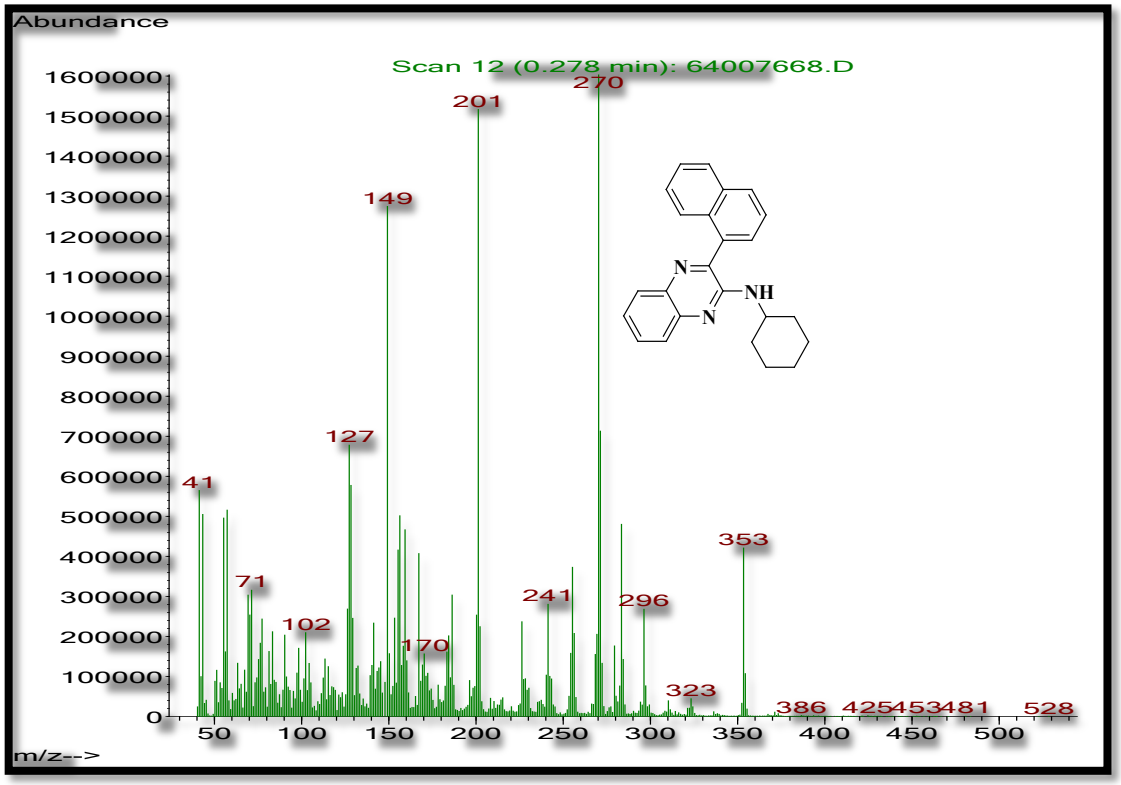


CHN

RUN 67 ID DGA8 WEIGHT 2.830

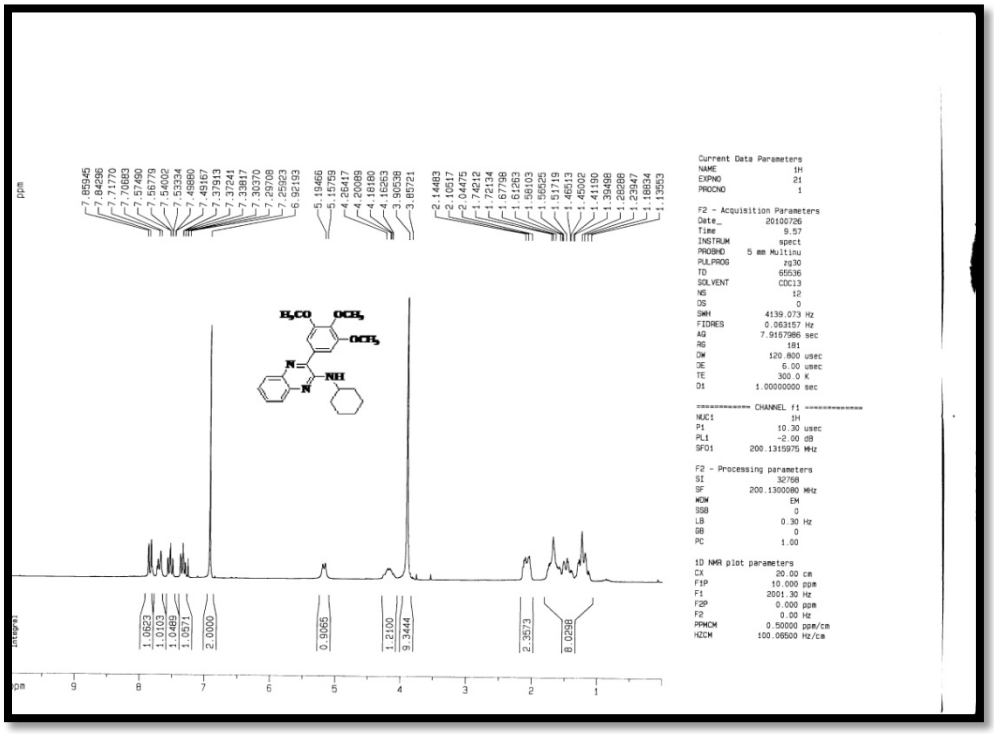
SIGNALS

CARBON 81.84%
HYDROGEN 6.60%
NITROGEN 11.90%

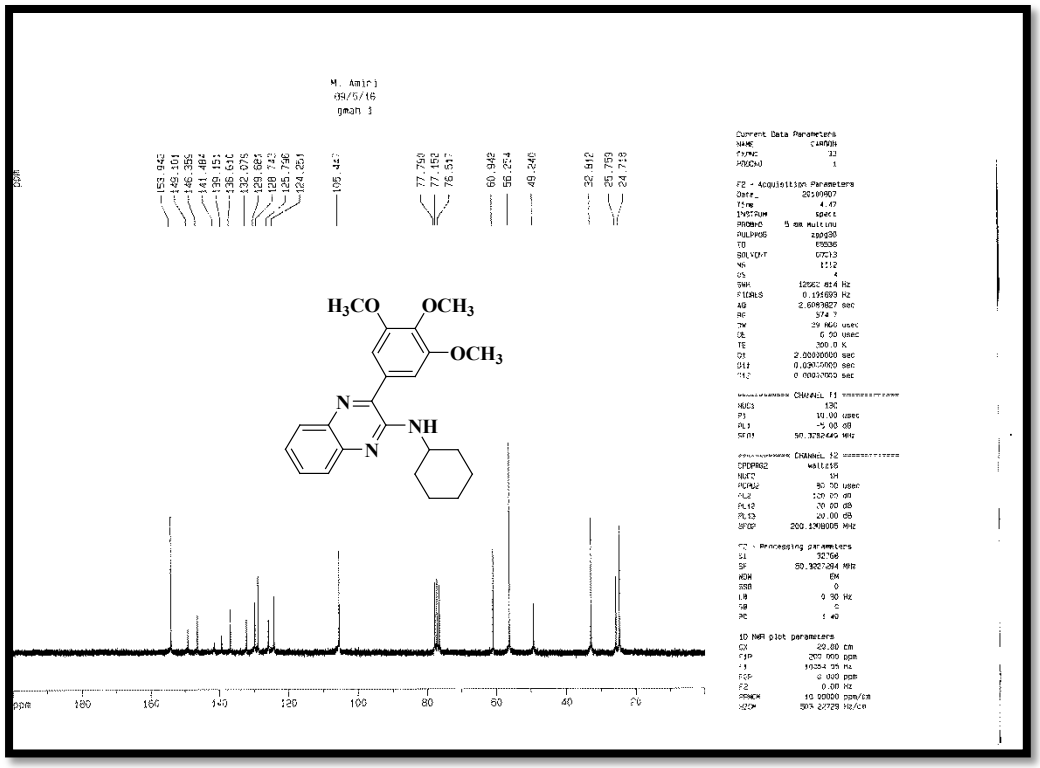
ZR 1669
NR 2883
CR 2092
HR 2573

BLANKS 20 35 357
KFACTORS 14.834 37.027 5.231

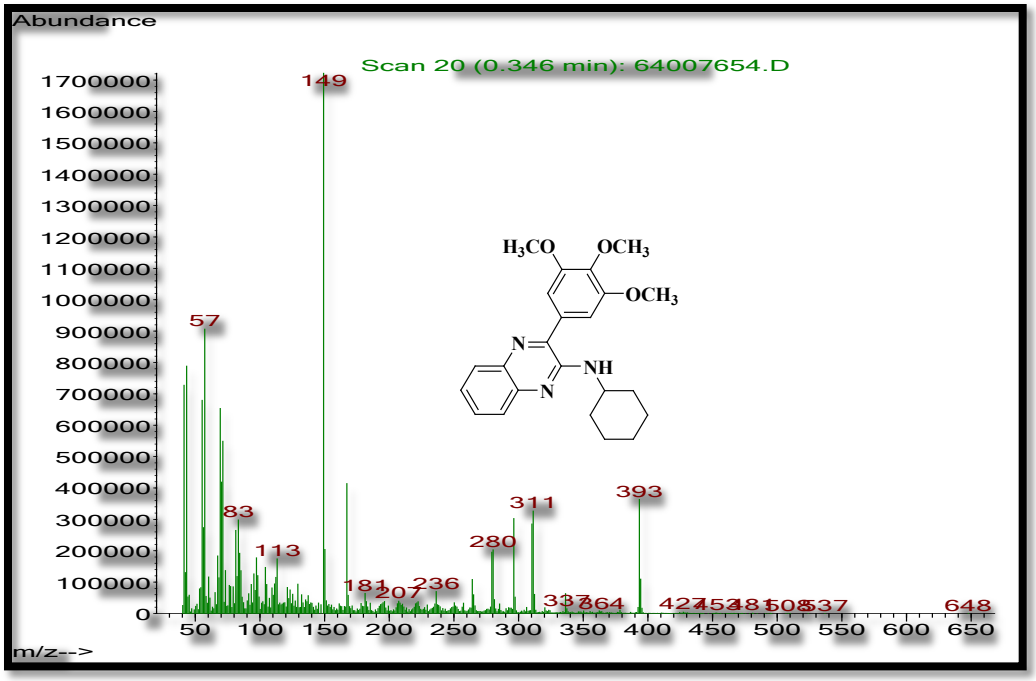
^{1}H NMR



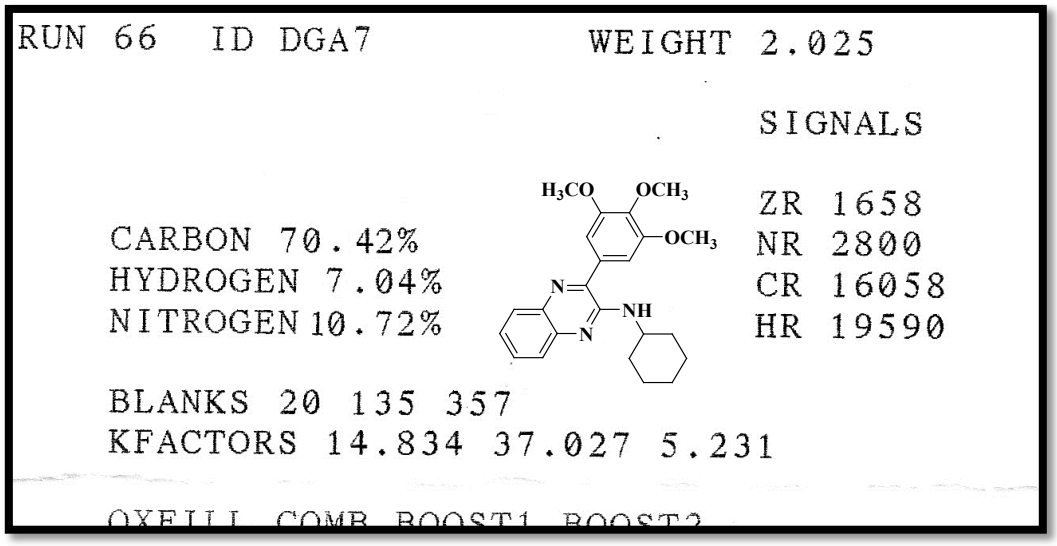
^{13}C NMR



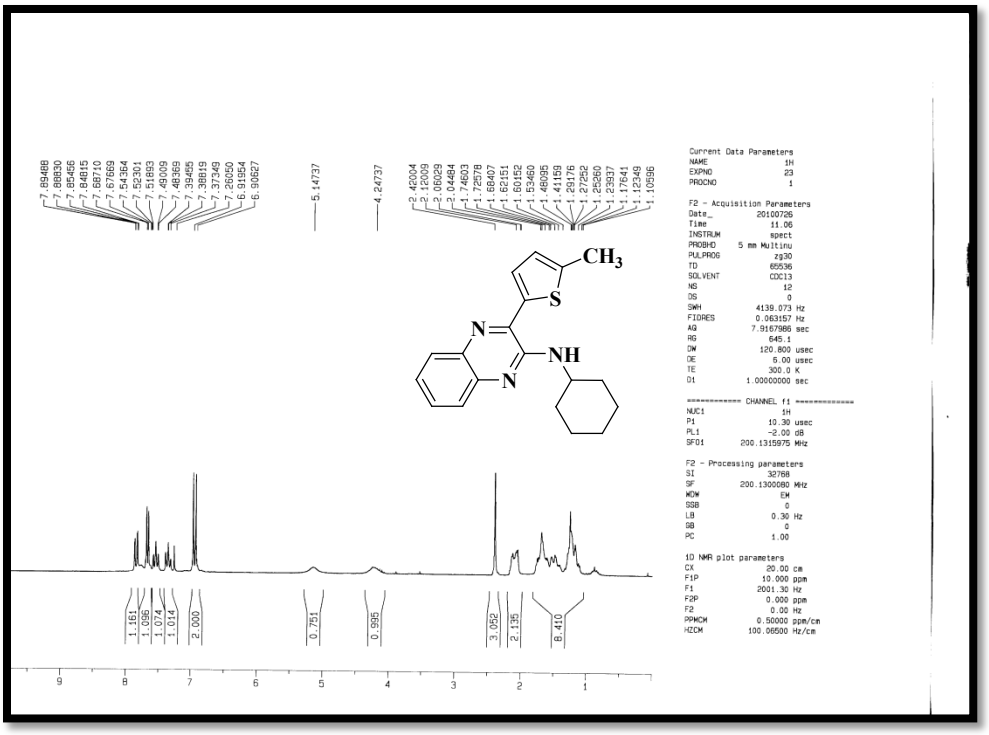
Mass



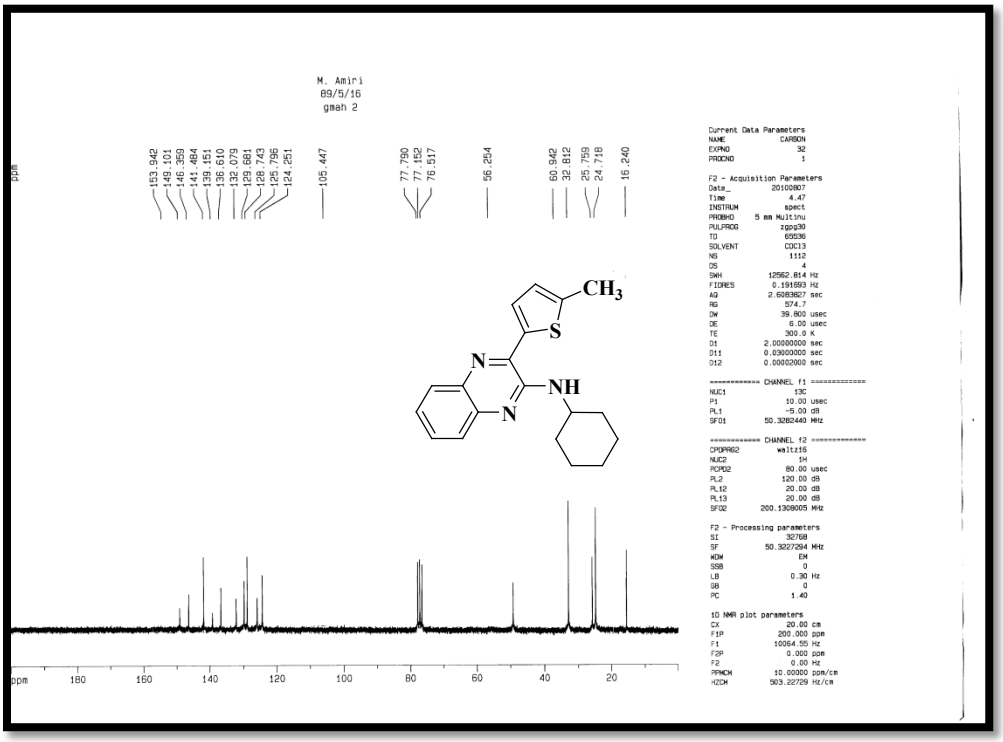
CHN



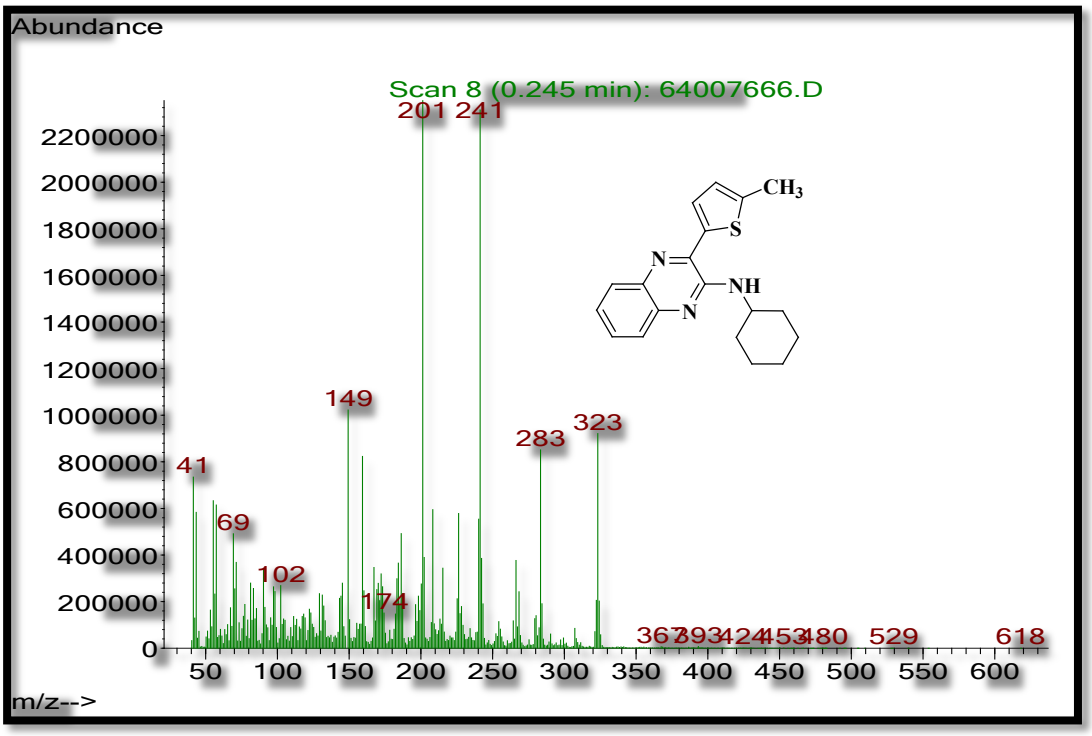
^{1}H NMR



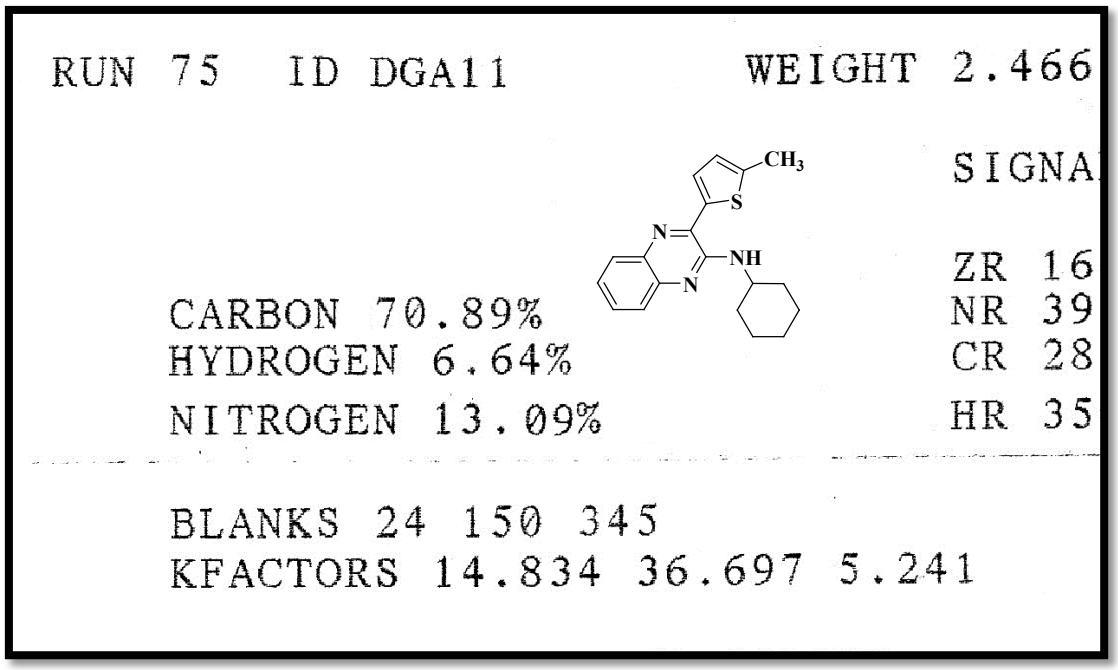
^{13}C NMR



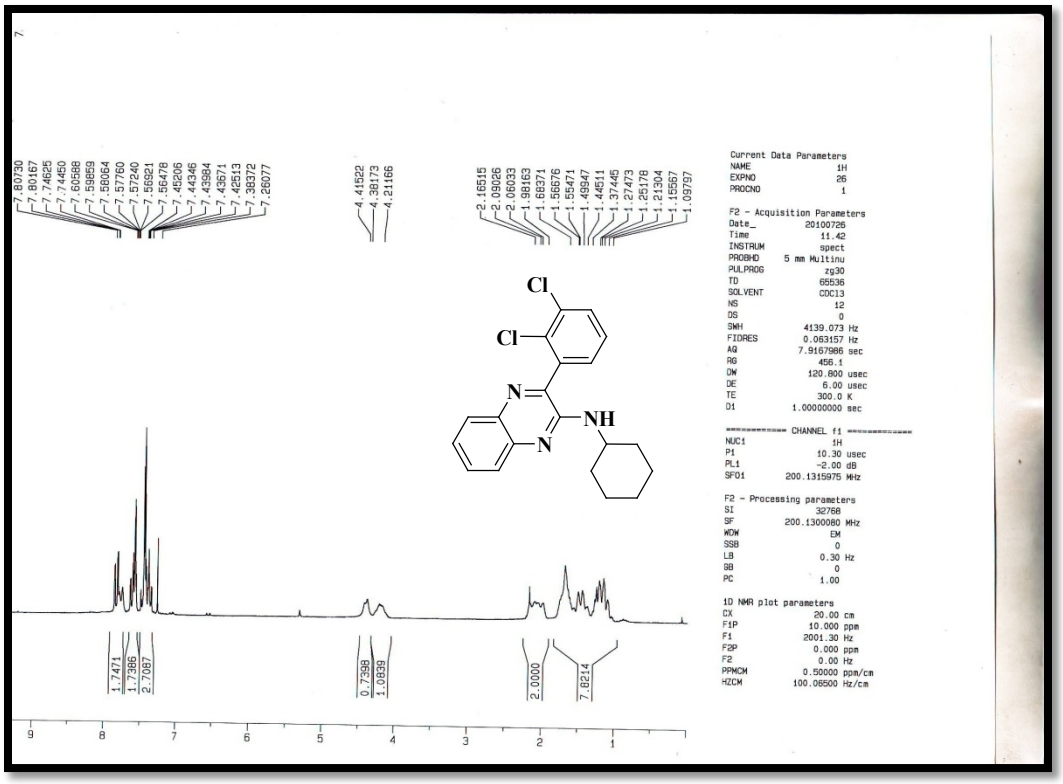
Mass



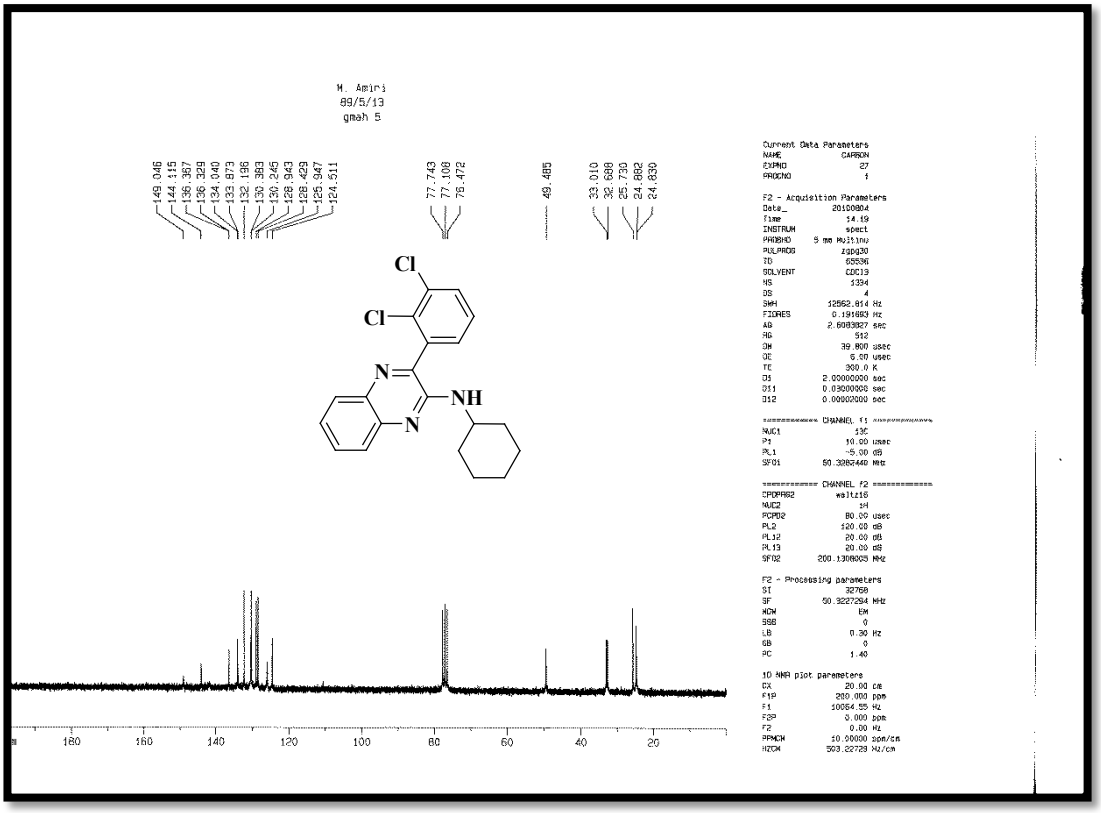
CHN



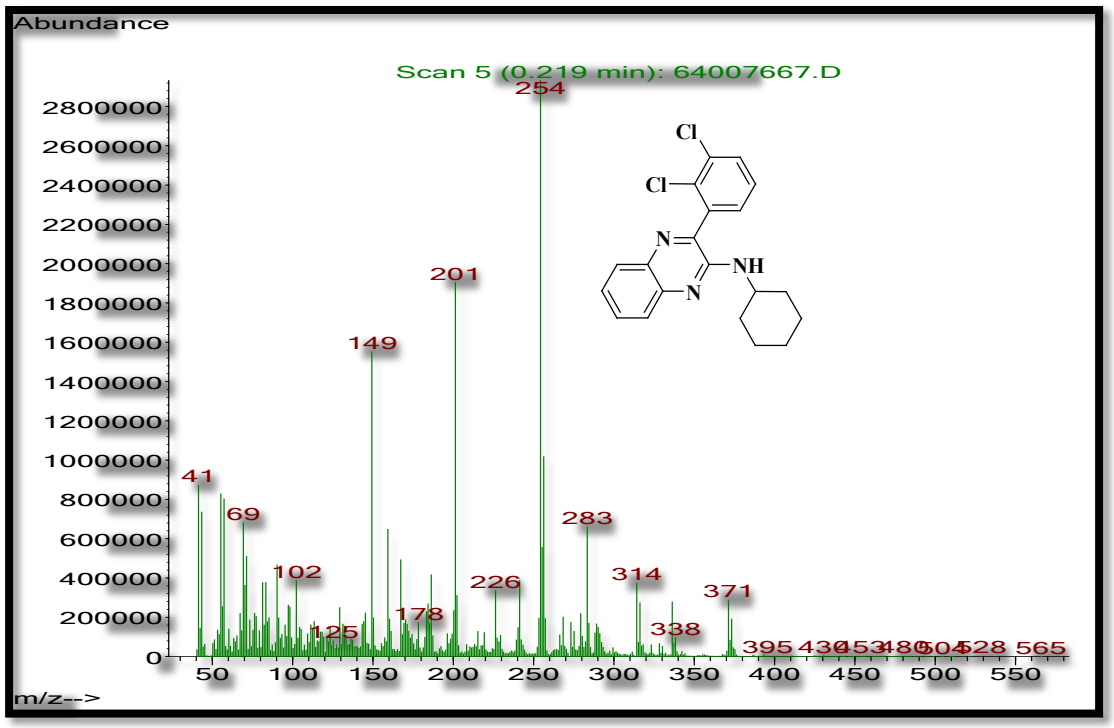
^{1}H NMR



^{13}C NMR

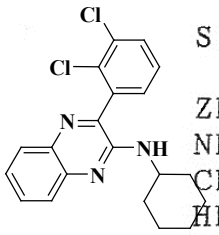


Mass



CHN

RUN 18 ID DGA31 WEIGHT 2.015



SIGNALS

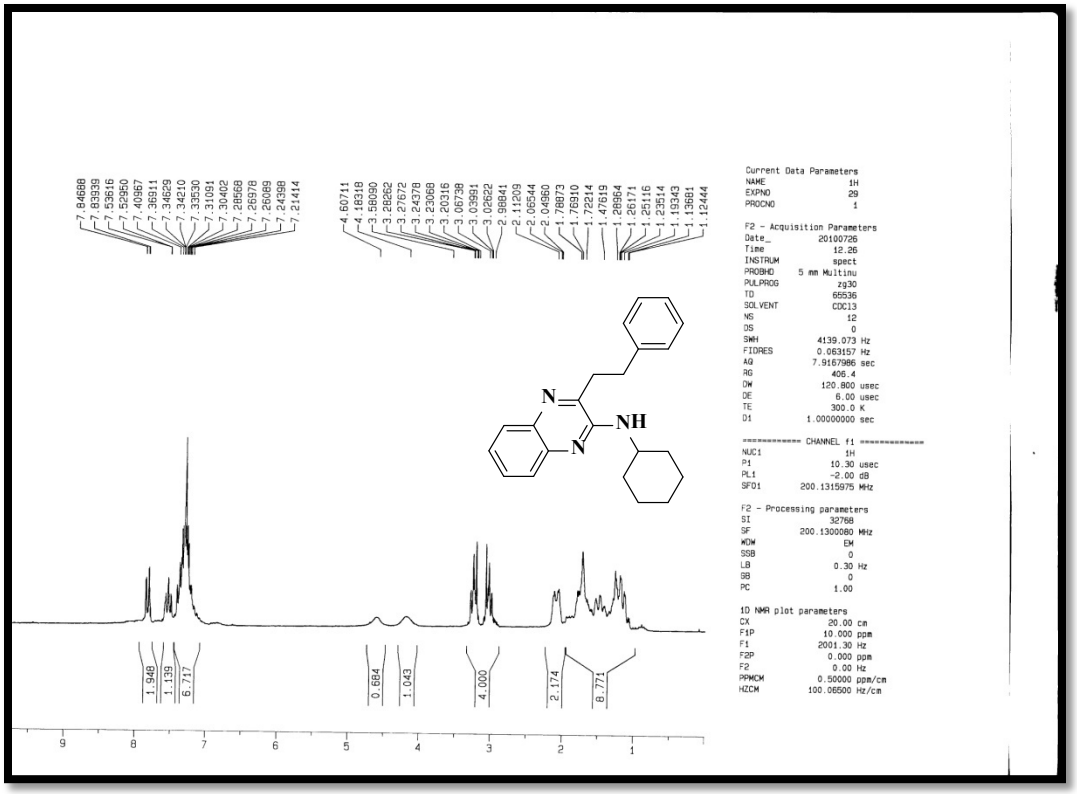
ZR 2152
NR 4172
CR 18518
HR 22616

CARBON 64.78%
HYDROGEN 5.12%
NITROGEN 11.30%

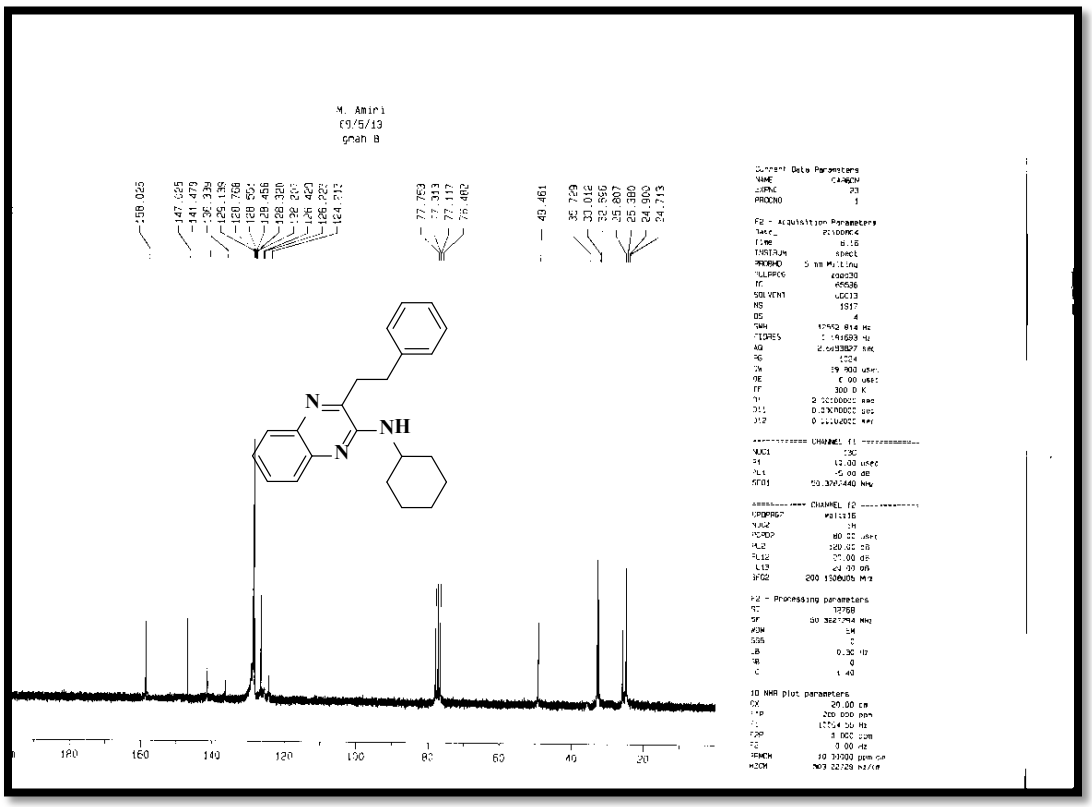
BLANKS -248 205 148
KFACTORS 14.234 37.015 5.082

OXFILL	COMB	BOOST1	BOOST2
0	0	0	0

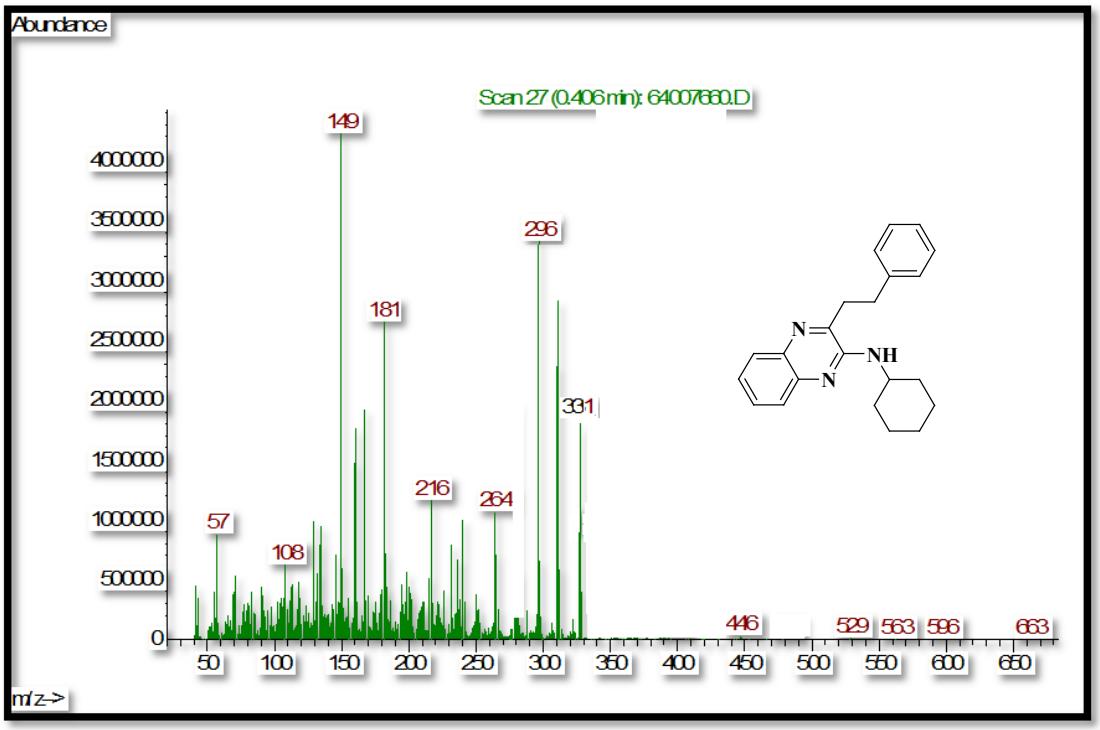
^{1}H NMR



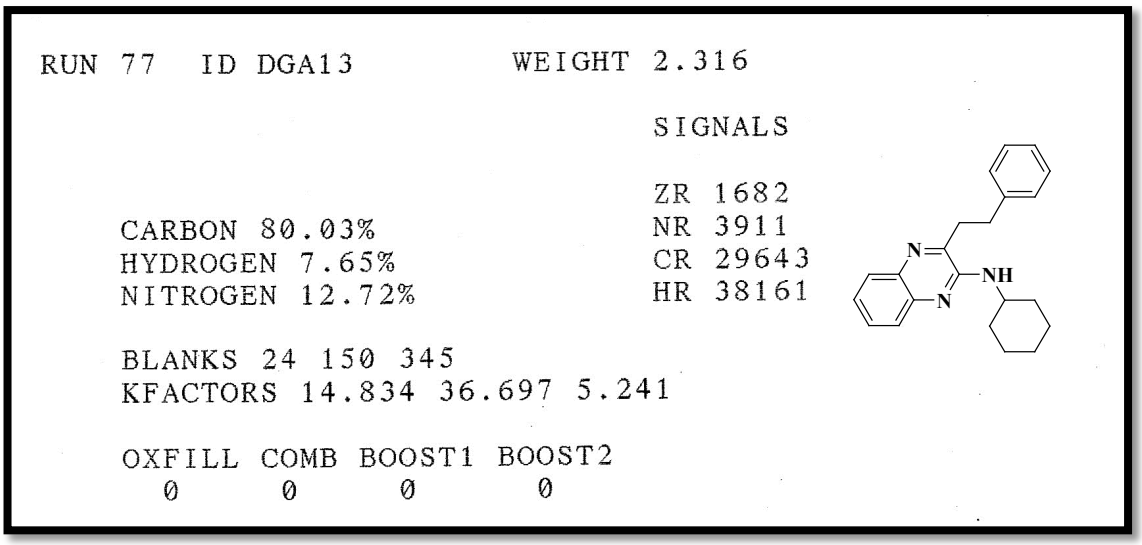
^{13}C NMR



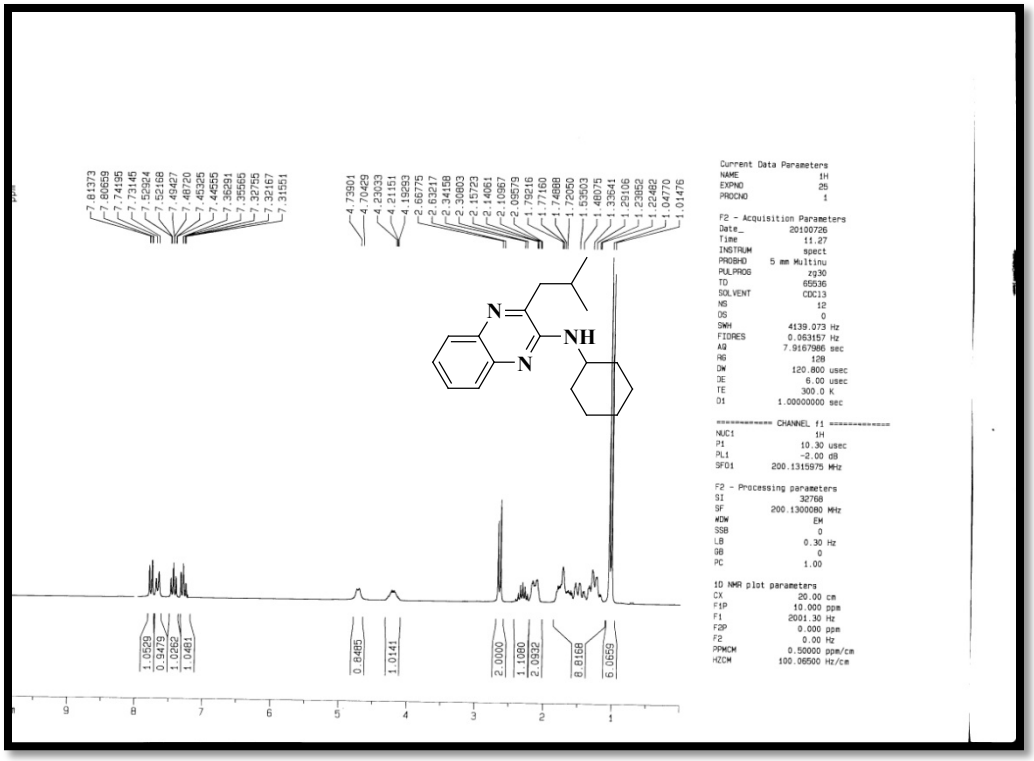
Mass



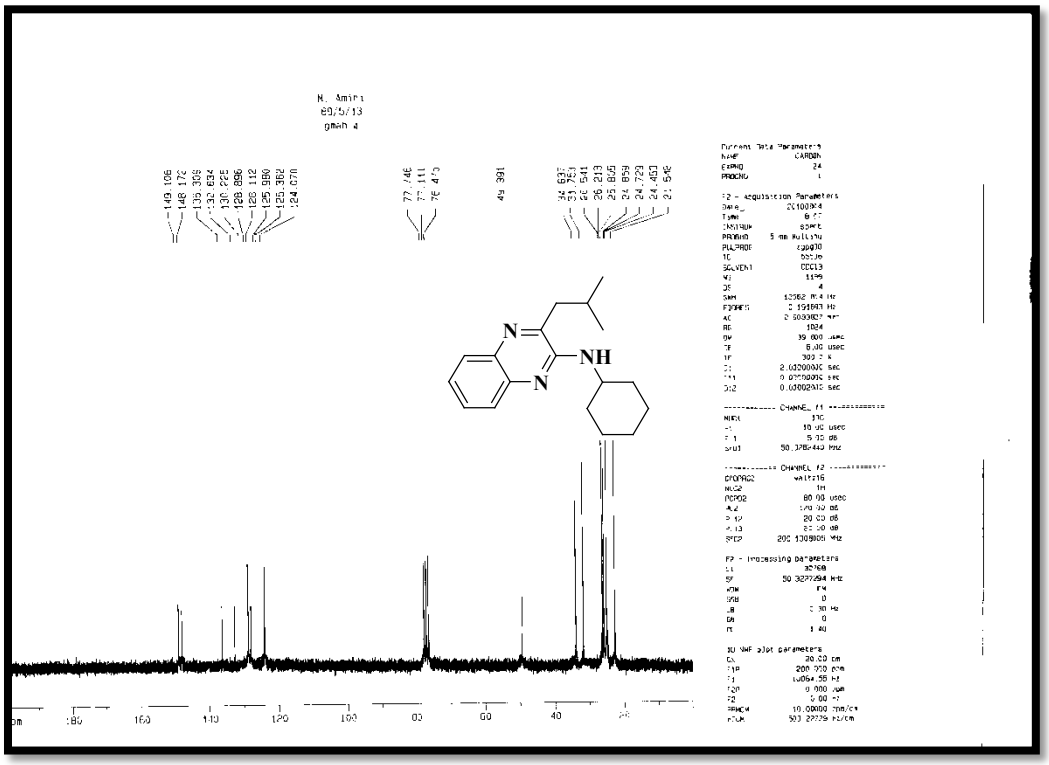
CHN



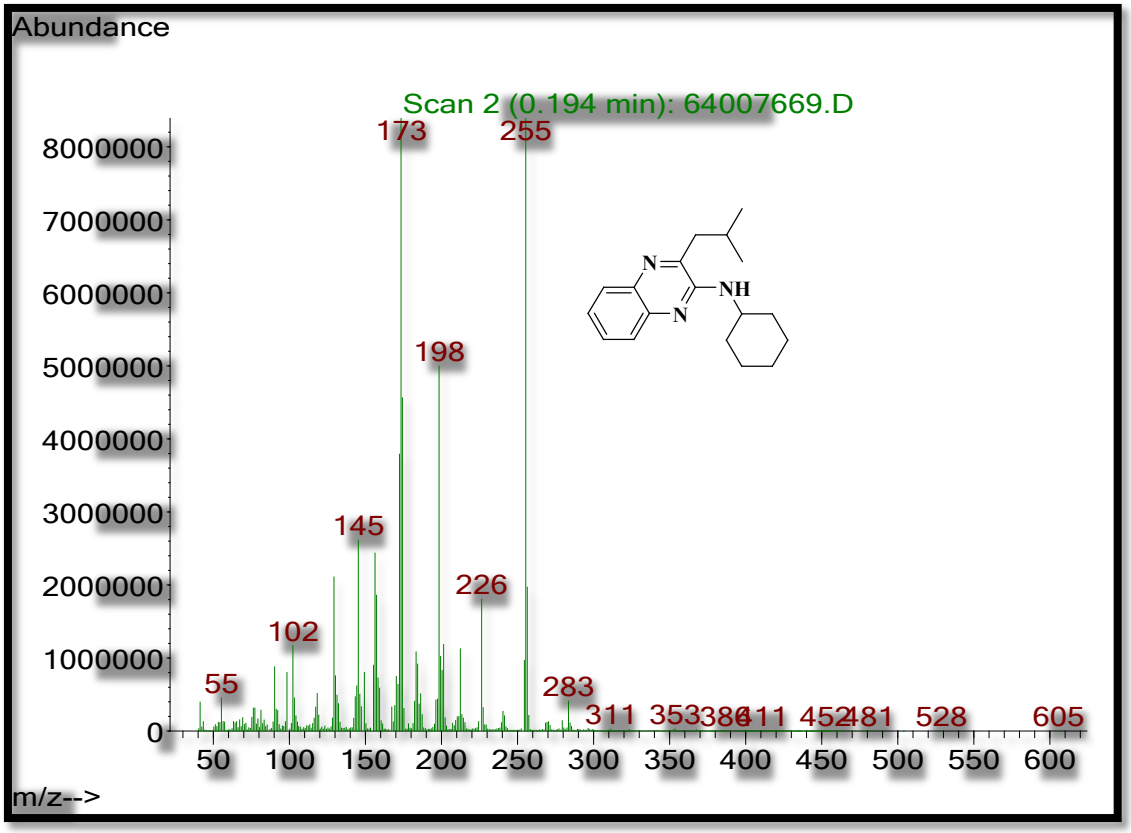
^{1}H NMR



^{13}CNMR



Mass



CHN

RUN 21 ID DGA3 WEIGHT 2.386

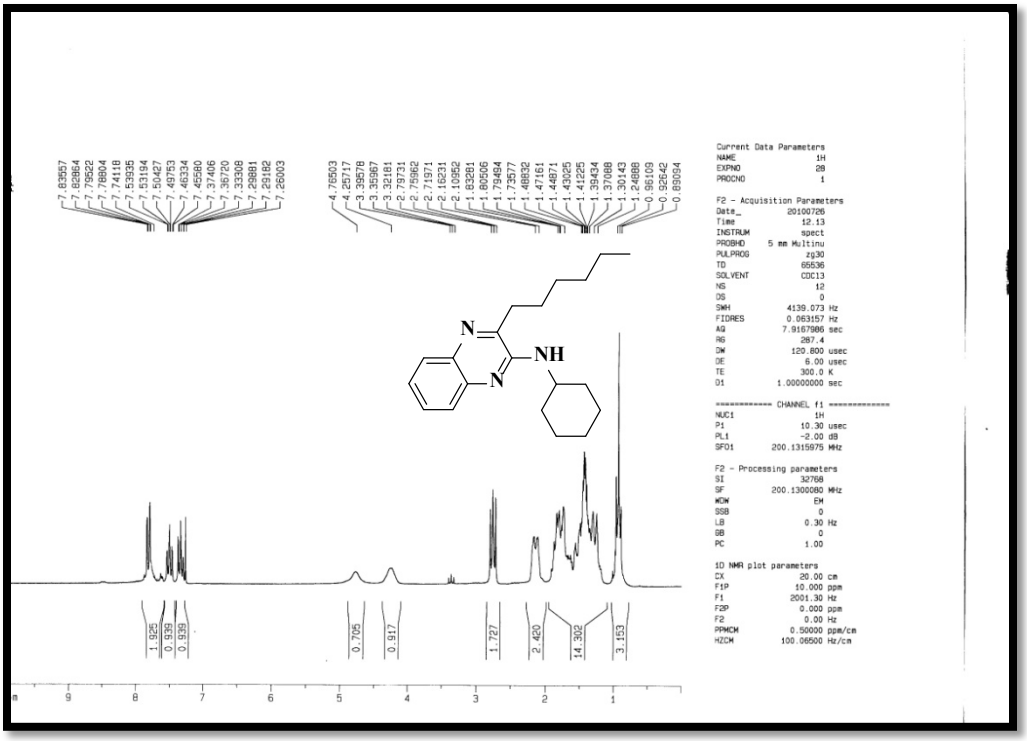
SIGNALS

ZR 2168
NR 5853
CR 26157
HR 32580

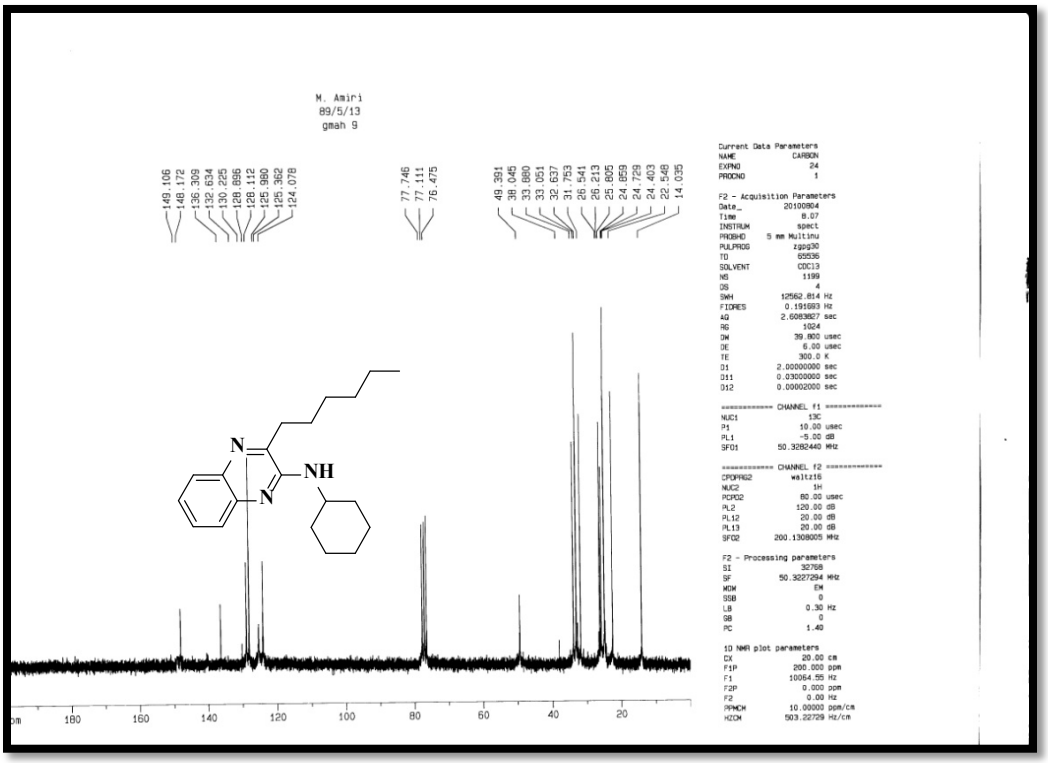
CARBON 76.48%
HYDROGEN 8.92%
NITROGEN 14.94%

BLANKS -248 205 148
KFACTORS 14.234 37.015 5.082

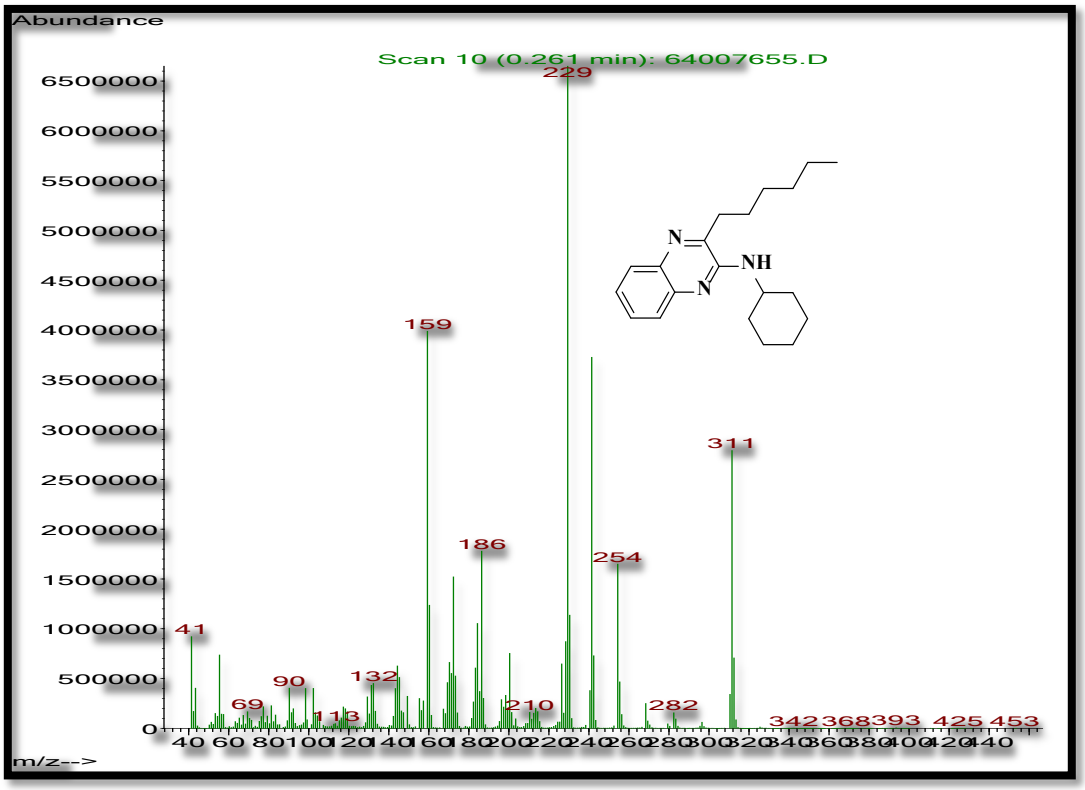
^{1}H NMR



13 CNMR



Mass



CHN