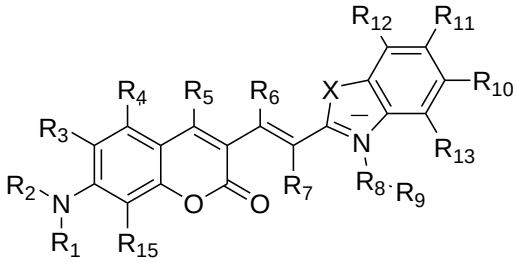
We Claim:

1. A Compound of Formula I:



I

Wherein,

X is selected from group comprising oxygen, sulphur and Selenium;

R1 is selected from group comprising methyl, ethyl, propyl and chloroethyl;

R2 is selected from group comprising methyl, ethyl, propyl and chloroethyl;

R3, R4 and R5 is H;

R6 is H;

R7 is H;

R8 is selected from group comprising CH_3 and $(CH_2)_n$, wherein 'n' is 1, 2, 3, 4, 5 or 6;

and wherein when R8 is $(CH_2)_n$, R8 is linked to R9;

R9 is selected from group comprising bromine, quaternary ammonium, ethyne and carboxylic acid;

R10, R11, R12 and R13 is H;

R15 is H;

Wherein, optionally R2 and R3, R1 and R15 form a 2, 3, 6, 7 tetrahydro-quninolizine (quinolizidine).

2. The compound as claimed in claim 1, wherein the compound is selected from group comprising, (E)-3-(2-(N-methyl-benzo [d] oxazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-methyl-benzo[d][1,3]selenazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(prop-2-ynyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(N, N, N-trimethyl-2-aminoethyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(2-aminium ethyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(N, N, N-trimethyl-3-aminopropyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(prop-2-ynyl)-benzo[d]oxazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(N, N, N-trimethyl-2-aminoethyl)- benzo[d]oxazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(2-aminium ethyl)- benzo[d]oxazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(N, N, N-trimethyl-3-aminopropyl)- benzo[d]oxazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-methyl-benzo[d]thiazol-2-yl)vinyl)-7-(dimethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-methyl-benzo[d]thiazol-2-yl)vinyl)-7-(dipropylamino)-2 H -chromen-2-one, 2,3,6,7-Tetrahydro-8-hydroxy-1*H*,5*H*-benzo[*ij*]quinolizine-9-carboxaldehyde (Thiazole Julidinal), (E)-3-(2-(N-(prop-2-ynyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, (E)-3-(2-(N-(4-bromobutyl)-benzo[d]thiazol-2-yl)vinyl)-7-(diethylamino)-2 H -chromen-2-one, and (E)-3-(N-Methyl2-(benzo[d]thiazol-2-yl)vinyl)-7(bis(2-chloroethyl)amino)-2H-chromen-2-one.

3. The compound as claimed in claim 1, wherein the compound exists in monomeric or dimeric form.

4. A process of preparing compound as claimed in claim 1, wherein the process comprises step of reacting a carbaldehyde derivative with heteroaryl derivative in presence of catalyst and solvent to obtain the compound.

5. The process as claimed in claim 4, wherein the carbaldehyde derivative is 7-(dialkylamino)-2-oxo-2H-chromene-3-carbaldehyde or 7-(bis(2-chloroalkyl)amino)-2-oxo-2H-chromene-3-carbaldehyde.

6. The process as claimed in claim 4, wherein the heteroaryl derivative is selected from group comprising N-alkylated 2-methyl benzthiazole, N-alkynylated 2-methyl benzthiazole, N-alkylated 2-methyl benzoxazole and 2-methyl benzoselinazole.

7. A process of preparing dimer of compound as claimed in claim 1, wherein the process comprises step of combining two monomers of formula I as claimed in claim 1 using linker.

8. The process as claimed in claim 4, wherein the catalyst is selected from group comprising base, acid, salt and combinations thereof.

9. The process as claimed in claim 8, wherein the base is selected from group comprising piperidine, sodium acetate, sodium methoxide, potasium tert-butoxide and combinations thereof.

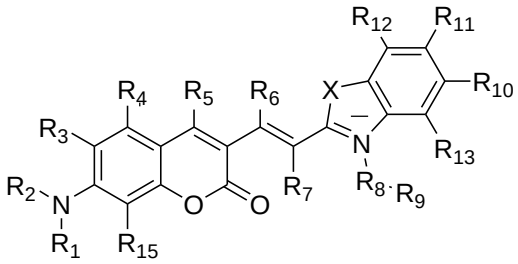
10. The process as claimed in claim 4, wherein the solvent is selected from a group comprising ethanol, methanol, dichloromethane and combinations thereof.

11. The process as claimed in claim 4, wherein the process is carried out at a temperature ranging from about 25 °C to about 90 °C, and for a time period ranging from about 3 hours to about 10 hours.

12. The process as claimed in claim 4, wherein the compound obtained is optionally purified.

13. A method for detecting DNA comprising AT bases in a sample, the method comprising steps of:

a) incubating the sample with compound of formula I



I

Wherein,

X is selected from group comprising nitrogen, oxygen, sulphur, Se, -NH- and dimethylmethylene;

R1 and R2 are selected from group comprising H, alkyl chain (C1-C5) and substituted alkyl, preferably halogen substituted alkyl;

R3, R4 and R5 are selected from group comprising H, OH, halogen, alkyl or substituted alkyl; wherein, halogen is selected from a group comprising bromide, chloride and iodide;

R6 and R7 are selected from group comprising H, alkyl, aryl, cyano, acid and halogen; wherein halogen is selected from a group comprising Chloride, Fluoride, Bromide and Iodide; and wherein acid is carboxylic acid;

R8 is selected from group comprising H and $(CH_2)_n$, wherein 'n' is 1 -6;

R9 is selected from group comprising hydrogen, aryl, halogen, methyl, amines, terminal alkynes, alkenes, carboxylic acid, –OH and sulfonates(SO_3^-);

R10, R11, R12 and R13 are selected from group comprising H, OH, Alkyl, aryl, halogen, Nitro, sulfonates (SO_3^-) and cyano group;

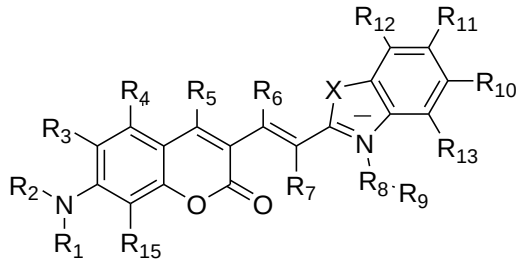
R15 is selected from group comprising H, OH, halogen, alkyl or alkyl substituted with halogen or hydroxyl groups; wherein, halogen is selected from a group comprising bromide, chloride and iodide; Alkyl is selected from a group comprising methyl, ethyl, propyl and butyl; Alkyl substituted with halogen or hydroxyl groups is selected from group comprising CH_2X and CH_2OH, wherein X is either bromide, chloride or iodide;

wherein, optionally R2 and R3, R1 and R15 form a cyclic structure; and

b) detecting binding by flurescence enhancement resulting from the binding of the compound with the DNA comprising AT bases.

14. A method for detecting presence of a parasite in a sample, the method comprising steps of:

a) incubating the sample with compound of formula I,



I

Wherein,

X is selected from group comprising nitrogen, oxygen, sulphur, Se, -NH- and dimethylmethylene;

R1 and R2 are selected from group comprising H, alkyl chain (C1-C5) and substituted alkyl, preferably halogen substituted alkyl;

R3, R4 and R5 are selected from group comprising H, OH, halogen, alkyl or substituted alkyl; wherein,halogen is selected from a group comprising bromide, chloride and iodide;

R6 and R7 are selected from group comprising H, alkyl, aryl, cyano, acid and halogen; wherein halogen is selected from a group comprising Chloride, Fluoride, Bromide and Iodide; and wherein acid is carboxylic acid;

R8 is selected from group comprising H and $(-CH_2-)_n$, wherein 'n' is 1 -6;

R9 is selected from group comprising hydrogen, aryl, halogen, methyl, amines, terminal alkynes, alkenes, carboxylic acid, –OH and sulfonates(SO_3^-);

R10, R11, R12 and R13 are selected from group comprising H, OH, Alkyl, aryl, halogen, Nitro, sulfonates (SO_3^-) and cyano group;

R15 is selected from group comprising H, OH, halogen, alkyl or alkyl substituted with halogen or hydroxyl groups; wherein, halogen is selected from a group comprising

bromide, chloride and iodide; Alkyl is selected from a group comprising methyl, ethyl, propyl and butyl; Alkyl substituted with halogen or hydroxyl groups is selected from group comprising CH2X and CH2OH, wherein X is either bromide, chloride or iodide;

wherein, optionally R2 and R3, R1 and R15 form a cyclic structure; and

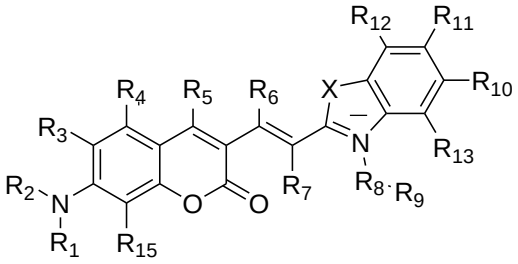
b) detecting binding by fluorescence enhancement resulting from the binding of the compound withthe parasite.

15. The method as claimed in claim 14, wherein the parasite is selected from group comprising P.falcipuram, P. vivax, P. ovale and P. malariae.

16. The method as claimed in claim 14, wherein the sample is selected from group comprising blood, urine, serum, plasma and saliva.

17. A method for detecting Amyloid β and its aggregates in a sample, the method comprising steps of:

a) incubating the sample with compound of formula I



I

wherein,

X is selected from group comprising nitrogen, oxygen, sulphur, Se, -NH- and dimethylmethylene;

R1 and R2 are selected from group comprising H, alkyl chain (C1-C5) and substituted alkyl, preferably halogen substituted alkyl;

R3, R4 and R5 are selected from group comprising H, OH, halogen, alkyl or substituted alkyl; wherein, halogen is selected from a group comprising bromide, chloride and iodide;

R6 and R7 are selected from group comprising H, alkyl, aryl, cyano, acid and halogen; wherein halogen is selected from a group comprising, Chloride, Fluoride, Bromide and Iodide; and wherein acid is carboxylic acid;

R8 is selected from group comprising H and $(CH_2)_n$, wherein 'n' is 1 -6;

R9 is selected from group comprising, hydrogen, aryl, halogen, methyl, amines, terminal alkynes, alkenes, carboxylic acid, –OH and sulfonates(SO_3^-);

R10, R11, R12 and R13 are selected from group comprising H, OH, Alkyl, aryl, halogen, Nitro, sulfonates (SO_3^-) and cyano group;

R15 is selected from group comprising H, OH, halogen, alkyl or alkyl substituted with halogen or hydroxyl groups; wherein, halogen is selected from a group comprising bromide, chloride and iodide; Alkyl is selected from a group comprising methyl, ethyl, propyl and butyl; Alkyl substituted with halogen or hydroxyl groups is selected from group comprising CH2X and CH2OH, wherein X is either bromide, chloride or iodide;

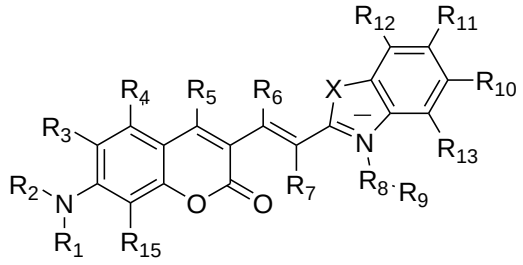
Wherein, optionally R2 and R3, R1 and R15 form a cyclic structure; and

b) detecting binding by fluorescence enhancement resulting from the binding of the compound with the Amyloid β and itsaggregates.

18. The method as claimed in claims 13, 14 or 17, wherein the method of detection involves spectroscopy, Fluorescence Resonance Energy Transfer (FRET), polymerase chain reaction, flow cytometry, gel electrophoresis, nuclear staining and imaging or any combinations thereof.

19. A method for diagnosing disease selected from group comprising Malaria, Alzheimer's disease, Frontotemporal Dementia and a combination thereof in a subject; wherein the method comprises steps of:

a) incubating sample obtained from the subject with compound of formula I



I

wherein,

X is selected from group comprising nitrogen, oxygen, sulphur, Se, -NH- and dimethylmethylene;

R1 and R2 are selected from group comprising H, alkyl chain (C1-C5) and substituted alkyl, preferably halogen substituted alkyl;

R3, R4 and R5 are selected from group comprising H, OH, halogen, alkyl or substituted alkyl; wherein, halogen is selected from a group comprising bromide, chloride and iodide;

R6 and R7 are selected from group comprising H, alkyl, aryl, cyano, acid and halogen; wherein halogen is selected from a group comprising, Chloride, Fluoride, Bromide and Iodide; and wherein acid is carboxylic acid;

R8 is selected from group comprising H and $(-CH_2-)_n$, wherein 'n' is 1 -6;

R9 is selected from group comprising, hydrogen, aryl, halogen, methyl, amines, terminal alkynes, alkenes, carboxylic acid, –OH and sulfonates(SO_3^-);

R10, R11, R12 and R13 are selected from group comprising H, OH, Alkyl, aryl, halogen, Nitro, sulfonates (SO_3^-) and cyano group;

R15 is selected from group comprising H, OH, halogen, alkyl or alkyl substituted with halogen or hydroxyl groups; wherein, halogen is selected from a group comprising bromide, chloride and iodide; Alkyl is selected from a group comprising methyl, ethyl,

propyl and butyl; Alkyl substituted with halogen or hydroxyl groups is selected from group comprising CH2X and CH2OH, wherein X is either bromide, chloride or iodide;

Wherein, optionally R2 and R3, R1 and R15 form a cyclic structure; and

b) detecting fluorescence intensity in the sample incubated with said compound for diagnosing said disease.

20. The method as claimed in claim 19, wherein the subject is a mammal; and wherein the sample is selected from group comprising blood, urine, serum, plasma, cerebrospinal fluid and brain tissue.

21.A kit comprising compound as claimed in claim 1, optionally along with an instruction manual.