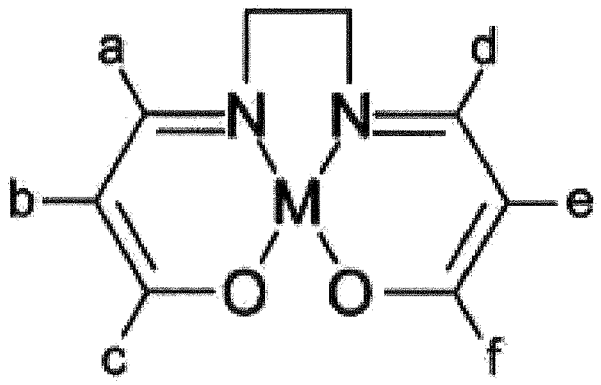
[Document Name] Claims

[Claim 1]

A radical inhibitor containing a complex compound of a bivalent metal as a radical inhibiting component,

wherein the metal complex compound is represented by a formula (II),



(II)

wherein M is a bivalent metallic element composed of Fe, Cr, Mn, Co, Ni, Mo, Ru, Rh, Pd, W, Re, Os, Ir, Pt, Nd, Sm, Eu or Gd, and

wherein at least one of a-f is hydrogen or methyl group.

[Claim 2]

The radical inhibitor according to claim 1, wherein each of a-f is hydrogen.

[Claim 3]

The radical inhibitor according to claim 1,wherein each of a-f is methyl group.

[Claim 4]

The radical inhibitor according to claim 1, wherein each of a, c, d and f is methyl group.

[Claim 5]

The radical inhibitor according to any of the preceding claim, wherein M is Fe.

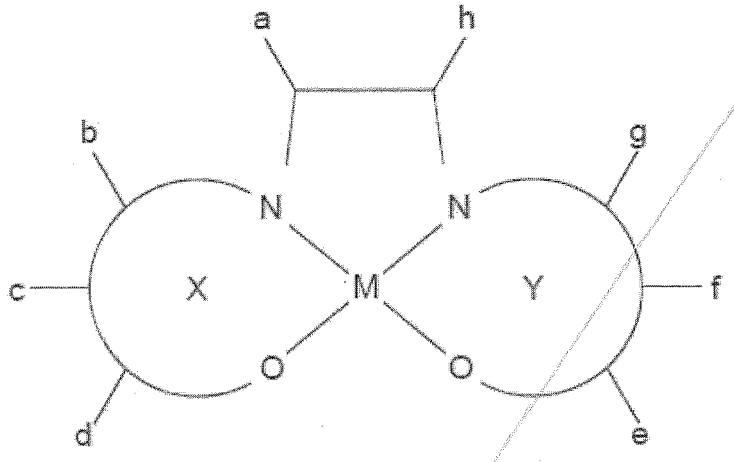
[Document Name] Claims

[Claim 1]

A radical inhibitor containing a complex compound of a bivalent metal as a radical inhibiting component,

wherein the metal complex compound is represented by a following formula (I),

(I)



wherein each of X and Y is a five-membered ring structure including a coordinate bond between N and M, or its six-membered ring structure,

wherein M is a bivalent metallic element composed of Fe, Cr, Mn, Co, Ni, Mo, Ru, Rh, Pd, W, Re, Os, Ir, Pt, Nd, Sm, Eu or Gd, and

wherein when both X and Y are the five-membered ring structure, b and g do not exist and the formula (I) is any one of (i) to (iv):

(i) each of a to h is hydrogen or any one of (A) to (G) mentioned below and -C(=O)m (where m is hydrogen or any one of (A) to (G) mentioned below);

(ii) each of (c, d) and (f, e) forms part of a heterocyclic structure and constitutes a condensate of the compound represented by the formula (I) and the heterocyclic structure,

each of a, b, g, and h is hydrogen or any one of (A) to (G) mentioned below and -C(=O)m (where m is hydrogen or any one of (A) to (G) mentioned below),

the heterocyclic structure is any one of three-membered to seven-membered ring structures containing furan, theophene, pyrrole, pyrrolidine, pyrazole, pyrazolone, imidazole, 2-isoimidazole, oxazole, isoxazole, thiazole, imidazole, imidazolidine, oxazoline, oxazolidine, 1,2-pyran, thiazine, pyridine, pyridazine, pyrimidine, pyrazine, orthoxadine, oxazine, piperidine, piperazine, triazine, dioxane, or morpholine, and

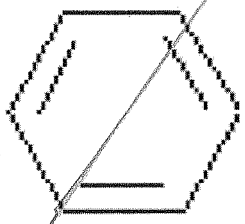
a side chain for the heterocyclic structure is halogen, -R, -O-R (where R is one functional group selected from a hydrocarbon group including a methyl group), or hydrogen;

(iii) each of (c, d) and (f, e) forms part of one of condensed ring structures containing benzene or naphthalene and anthracene and forms a condensate of the compound represented by the formula (I) and the condensed ring structure,

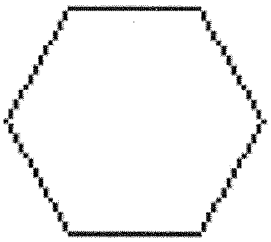
each of a, b, g, and h is hydrogen or any one of (A) to (G) mentioned below, and

a side chain for the condensed ring structure is halogen, R-O-: (where R is one functional group selected from a hydrocarbon group including a methyl group), or hydrogen;

(iv) each of a and h forms part of a cyclic hydrocarbon structure containing a compound mentioned below and forms a condensate of the compound represented by the formula (I) and the cyclic hydrocarbon structure



or

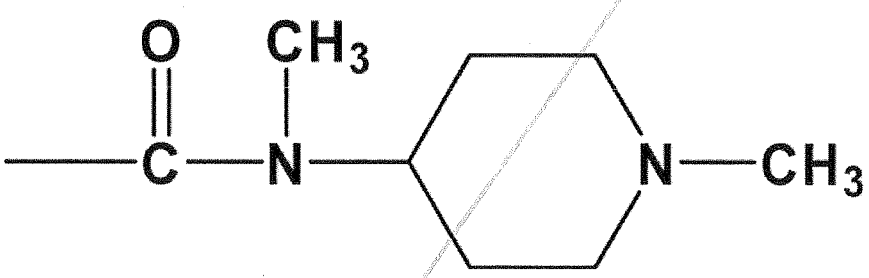


b to g and a side chain for the cyclic hydrocarbon structure is hydrogen or any one of (A) to (G) mentioned below:

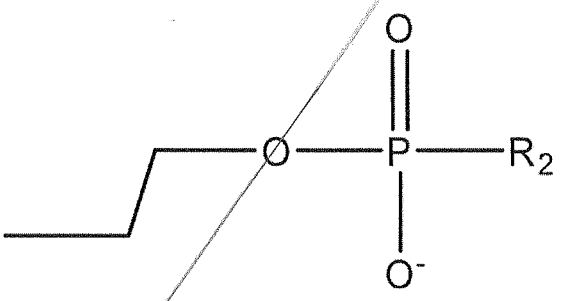
(A) $-CO_2R$,-C(=O)R (where R represents hydrogen or chain or cyclic hydrocarbon having a saturated structure with carbon number 1 to 6 or an unsaturated structure (alkane or alkyne))

(B) $-CO(OCH_2CH_2)_2OCH_3$

(C)



(D)



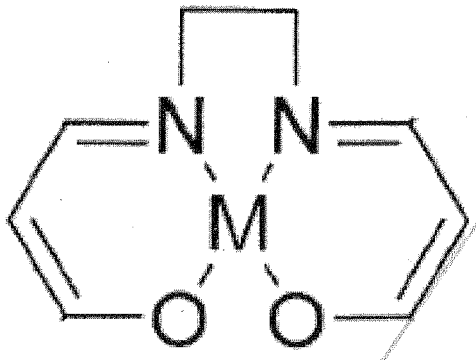
(where R_2 represents one of nucleic acids which are formed of adenine, guanine, thymine, cytosine, or uracil, or a plurality of the nucleic acids which are combined together);

(E) -NHCOH or -NR_1R_2 (where R_1 and R_2 represent hydrogen or chain or cyclic hydrocarbon with the same or different saturated structure with carbon number 1 to 6 or unsaturated structure (alkane or alkyne));
(F) -NHR_3-, -$NHCOR_3$, -CO_2-R_3, -S-S-R_3 or -R_3 (where R_3 represents hydrogen or a substituted compound condensed as a result of elimination of a leaving group such as a hydroxyl group; and the substituted compound is functional molecules including at least one of enzymes, antibodies, antigens, peptides, amino acids, oligonucleotides, proteins, nucleic acids, and medical molecules); and
(G) halogen atoms such as chlorine, bromine, or fluorine.

[Claim 2]

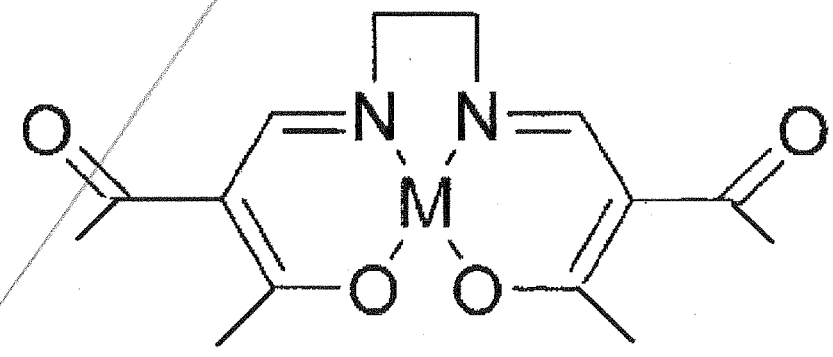
The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (II).

(II)



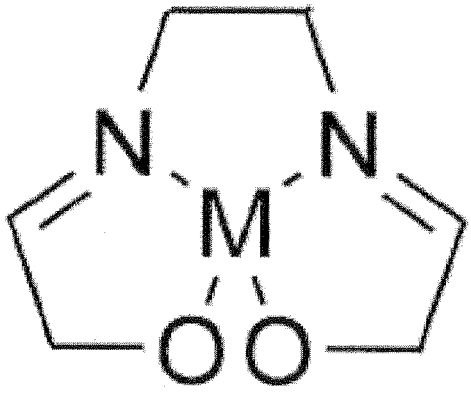
[Claim 3]

The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (III).



[Claim 4]

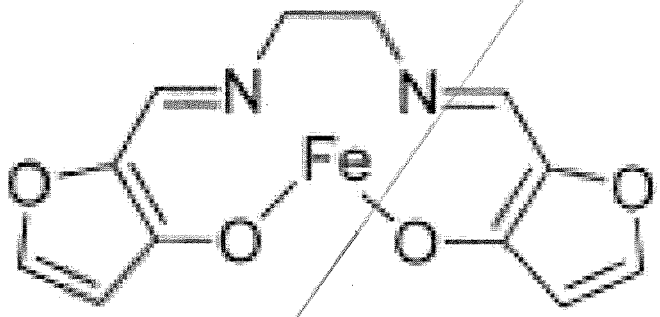
The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (IV).



[Claim 5]

The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (V).

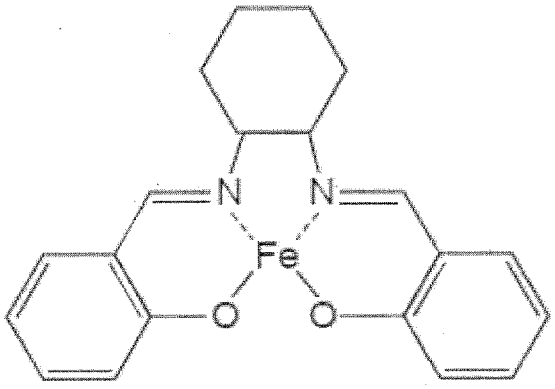
(V)



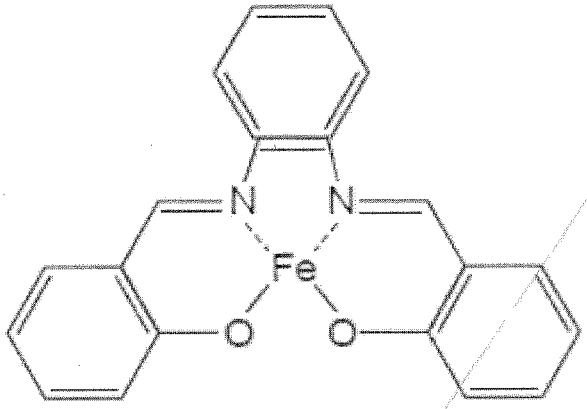
[Claim 6]

The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (VI) or (VII).

(VI)



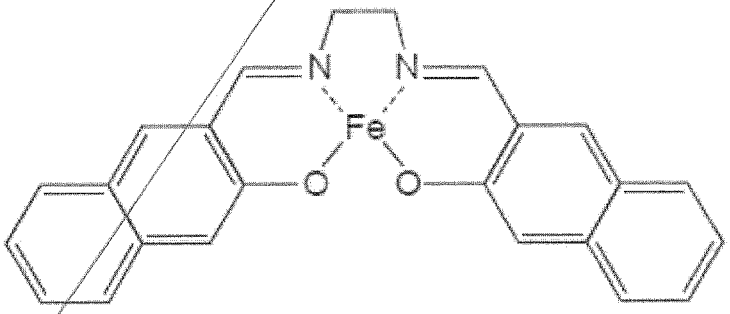
(VII)



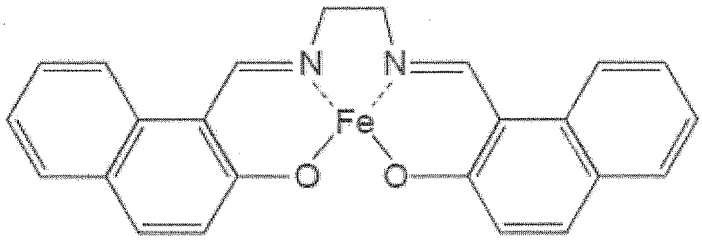
[Claim 7]

The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (VIII) or (IX).

(VIII)



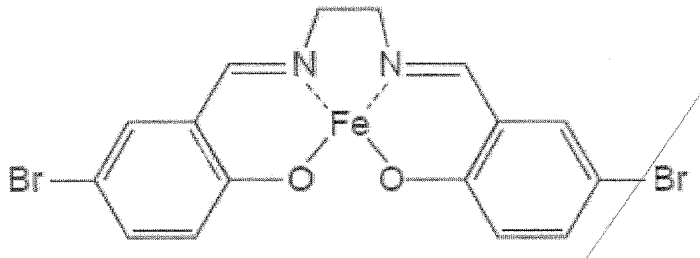
(IX)



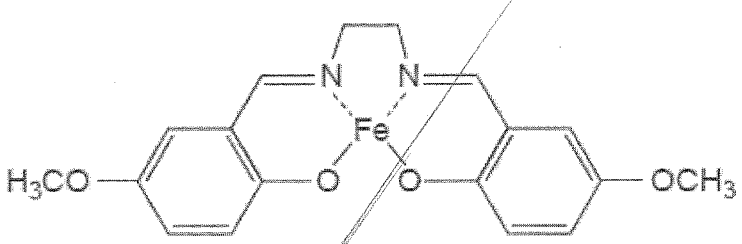
[Claim 8]

The radical inhibitor according to claim 1, wherein the formula (I) is a following compound (X) or (XI).

(X)



(XI)



[Claim 9]

A radical inhibitor containing a metal-salen complex compound as a radical inhibiting component.

[Claim 10]

A composition having an anti-radical action, the composition containing the radical inhibitor stated in any one of claims 1 to 9.

[Claim 11]

A radical inhibition method using the radical inhibitor stated in any one of claims 1 to 9.