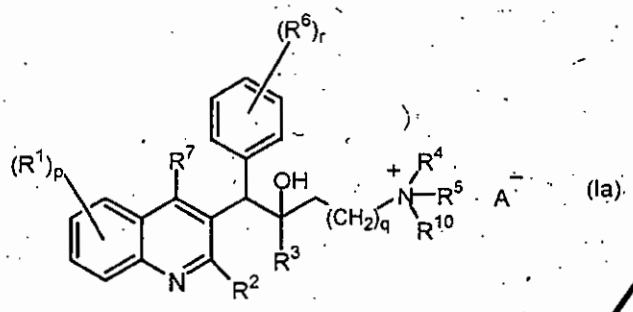
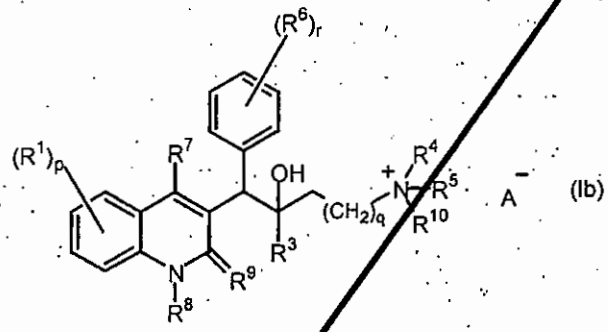
Claims

1. Use of a compound for the manufacture of a medicament for the treatment of a bacterial infection, said compound being a compound of formula (Ia) or (Ib)



(Ia)



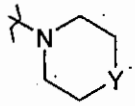
(Ib)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof wherein

A^- is a pharmaceutically acceptable counter ion;

R^1 is hydrogen, halo, haloalkyl, cyano, hydroxy, Ar, Het, alkyl, alkyloxy, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or di(Ar)alkyl ;

p is an integer equal to 1, 2, 3 or 4 ;

R^2 is hydrogen, hydroxy, mercapto, alkyloxy, alkyloxyalkyloxy, alkylthio, mono or di(alkyl)amino or a radical of formula  wherein Y is CH_2, O, S, NH or *N*-alkyl ;

R^3 is alkyl, Ar, Ar-alkyl, Het or Het-alkyl;

q is an integer equal to zero, 1, 2, 3 or 4 ;

R^4 and R^5 each independently are hydrogen, alkyl or benzyl;

R^4 and R^5 together and including the N to which they are attached may form a radical selected from the group of pyrrolidinyl, 2-pyrrolinyl, 3-pyrrolinyl, pyrrolyl, imidazolidinyl, pyrazolidinyl, 2-imidazolinyl, 2-pyrazolinyl, imidazolyl,

pyrazolyl, triazolyl, piperidinyl, pyridinyl, piperazinyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazinyl, morpholinyl and thiomorpholinyl, each of said rings may optionally be substituted with alkyl, halo, haloalkyl, hydroxy, alkyloxy, amino, mono- or dialkylamino, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or pyrimidinyl;

R^6 is hydrogen, halo, haloalkyl, hydroxy, Ar, alkyl, alkyloxy, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or di(Ar)alkyl ; or

two vicinal R^6 radicals may be taken together to form a bivalent radical of formula -CH=CH-CH=CH- ;

r is an integer equal to 1, 2, 3, 4 or 5 ;

R^7 is hydrogen, alkyl, Ar or Het ;

R^8 is hydrogen or alkyl ;

R^9 is oxo ; or

R^8 and R^9 together form the radical –CH=CH-N=;

R^{10} is alkyl, alkylcarbonyl, Ar, Ar-alkyl, Ar-carbonyl, Het^1-alkyl or Het^1-carbonyl;

alkyl is a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms ; or is a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms ; or is a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms attached to a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms ; wherein each carbon atom can be optionally substituted with hydroxy, alkyloxy or oxo ;

Ar is a homocycle selected from the group of phenyl, naphthyl, acenaphthyl, tetrahydronaphthyl, each homocycle optionally substituted with 1, 2 or 3 substituents, each substituent independently selected from the group of hydroxy, halo, cyano, nitro, amino, mono- or dialkylamino, alkyl, haloalkyl, alkyloxy, haloalkyloxy, carboxyl, alkyloxycarbonyl, aminocarbonyl, morpholinyl and mono- or dialkylaminocarbonyl ;

Het is a monocyclic heterocycle selected from the group of *N*-phenoxypiperidinyl, piperidinyl, pyrrolyl, pyrazolyl, imidazolyl, furanyl, thienyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, pyridinyl, pyrimidinyl, pyrazinyl and pyridazinyl; or a bicyclic heterocycle selected from the group of quinolinyl, quinoxalinyl, indolyl, benzimidazolyl, benzoxazolyl, benzisoxazolyl, benzothiazolyl, benzisothiazolyl, benzofuranyl, benzothienyl, 2,3-dihydrobenzo[1,4]dioxinyl and benzo[1,3]dioxolyl ; each monocyclic and bicyclic heterocycle may optionally be substituted with 1, 2 or 3 substituents, each substituent independently selected from the group of halo, hydroxy, alkyl, alkyloxy, and Ar-carbonyl;

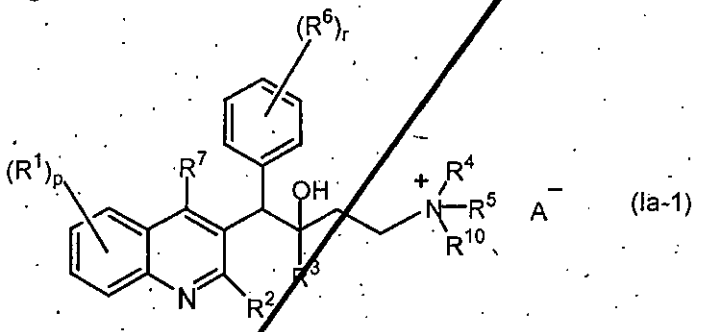
Het^1 is a monocyclic heterocylce selected from furanyl or thienyl; or a bicyclic heterocycle selected from benzofuranyl or benzothienyl; each monocyclic and bicyclic heterocycle may optionally be substituted with 1, 2 or 3 substituents, each substituent independently selected from the group of halo, alkyl and Ar;

halo is a substituent selected from the group of fluoro, chloro, bromo and iodo; and

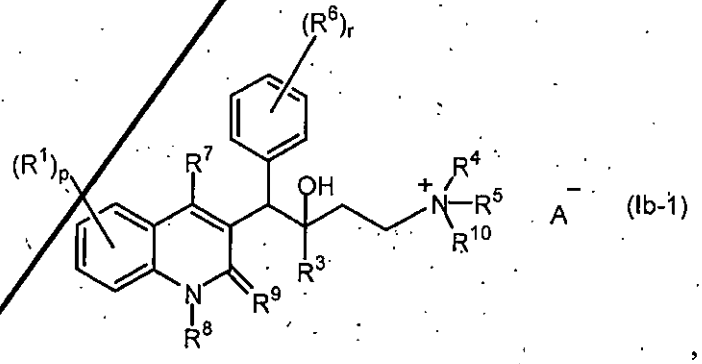
haloalkyl is a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms or a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms or a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms attached to a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms; wherein one or more carbon atoms are substituted with one or more halo atoms;

provided that the bacterial infection is other than a Mycobacterial infection.

2. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



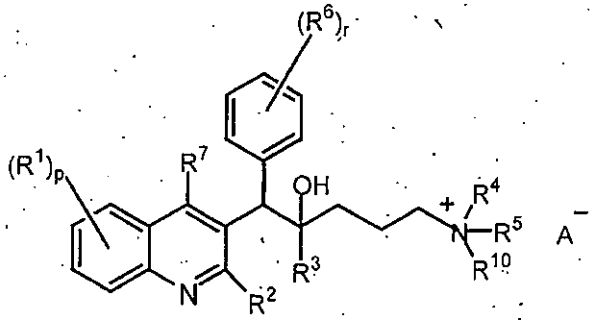
(Ia-1)



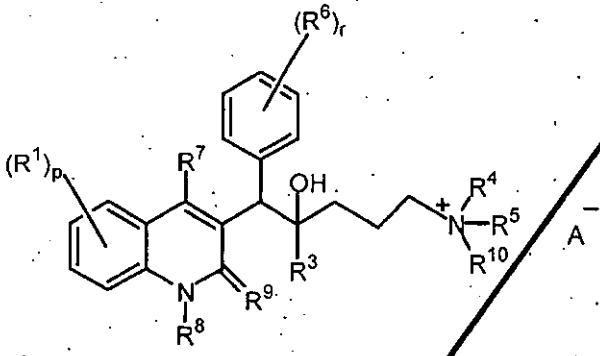
(Ib-1)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

3. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



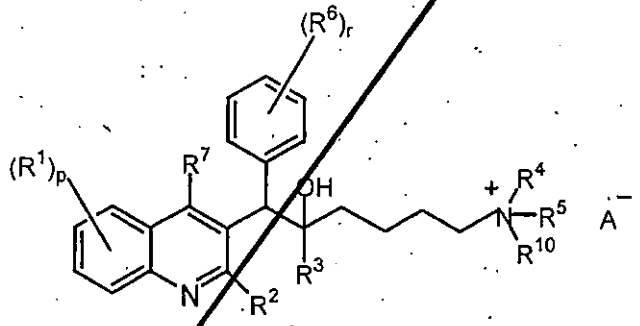
(Ia-2)



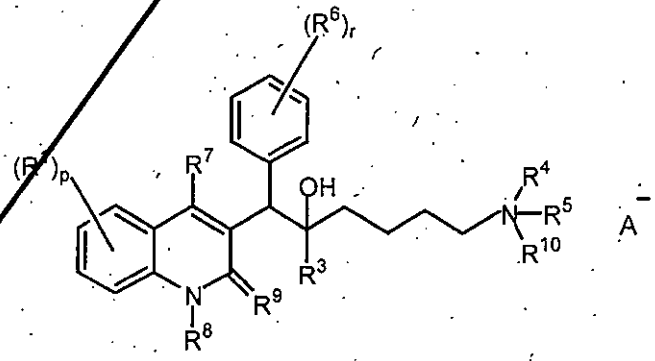
(Ib-2)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

4. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



(Ia-3)



(Ib-3)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

5. Use according to any one of the preceding claims wherein R^1 is halo.

6. Use according to any one of the preceding claims wherein p is equal to 1.

7. Use according to any one of the preceding claims wherein R^2 is alkyloxy or alkylthio.

8. Use according to claim 7 wherein R^2 is C_{1-4}alkyloxy.

9. Use according to any one of the preceding claims wherein R^3 is Het, Ar or Ar-alkyl.

10. Use according to claim 9 wherein R^3 is Ar or Ar-alkyl.

11. Use according to claim 9 wherein R^3 is thienyl, naphthyl, phenyl, naphthylC_{1-4}alkyl or phenylC_{1-4}alkyl.

12. Use according to claim 11 wherein R^3 is naphthyl, phenyl or phenylC_{1-4}alkyl.

13. Use according to any one of the preceding claims wherein R^4 and R^5 are C_{1-4}alkyl or R^4 and R^5 together and including the N to which they are attached may form a radical selected from imidazolyl or piperidinyl.

14. Use according to claim 13 wherein R^4 and R^5 are C_{1-4}alkyl.

15. Use according to any one of the preceding claims wherein R^6 is hydrogen or halo.

16. Use according to any one of the preceding claims wherein r is equal to 1.

17. Use according to any one of the preceding claims wherein R^7 is hydrogen.

18. Use according to any one of the preceding claims wherein R^{10} is alkyl.

19. Use according to claim 18 wherein R^{10} is C_{1-6}alkyl.

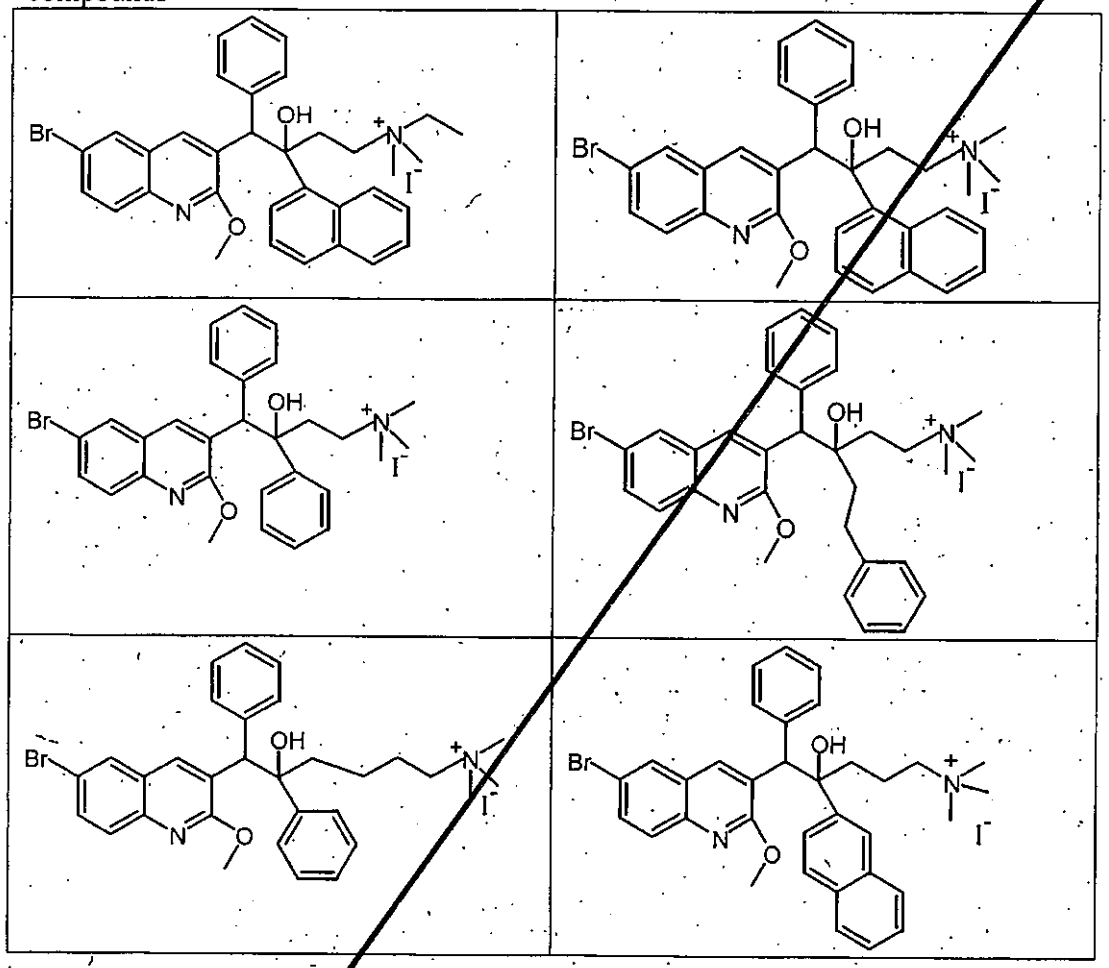
20. Use according to any one of the preceding claims wherein A^- is iodo.

21. Use according to any one of the preceding claims wherein the compound is a compound according to formula (Ia).

22. Use of a compound of formula (Ia) according to claim 1 wherein R^1 is halo; p = 1; R^2 is alkyloxy or alkylthio; R^3 is naphthyl, phenyl, phenylethyl or thienyl; q = 1, 2 or 3; R^4 and R^5

are C_{1-4}alkyl or R^4 and R^5 together and including the N to which they are attached may form a radical selected from imidazolyl or piperidinyl; R^6 is hydrogen or halo; r is equal to 1; R^7 is hydrogen; R^{10} is C_{1-6}alkyl; A^- is iodo.

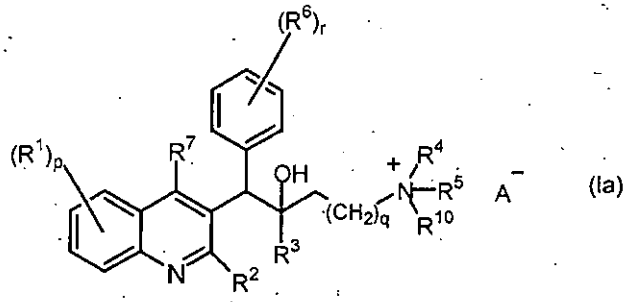
23. Use according to claim 1 wherein the compound is selected from the following compounds



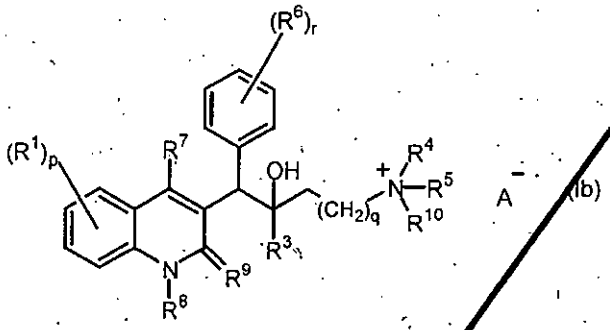
a *N*-oxide thereof or a stereochemically isomeric form thereof.

24. Use according to any one of the preceding claims wherein the bacterial infection is an infection with a gram-positive bacterium.

25. A compound of formula (Ia) or (Ib)

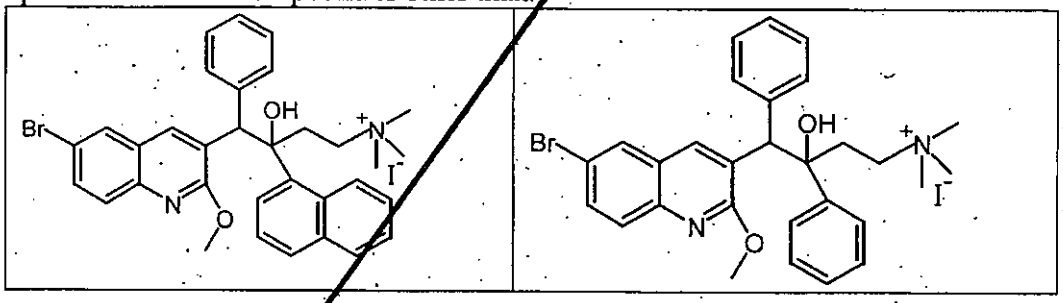


(Ia)



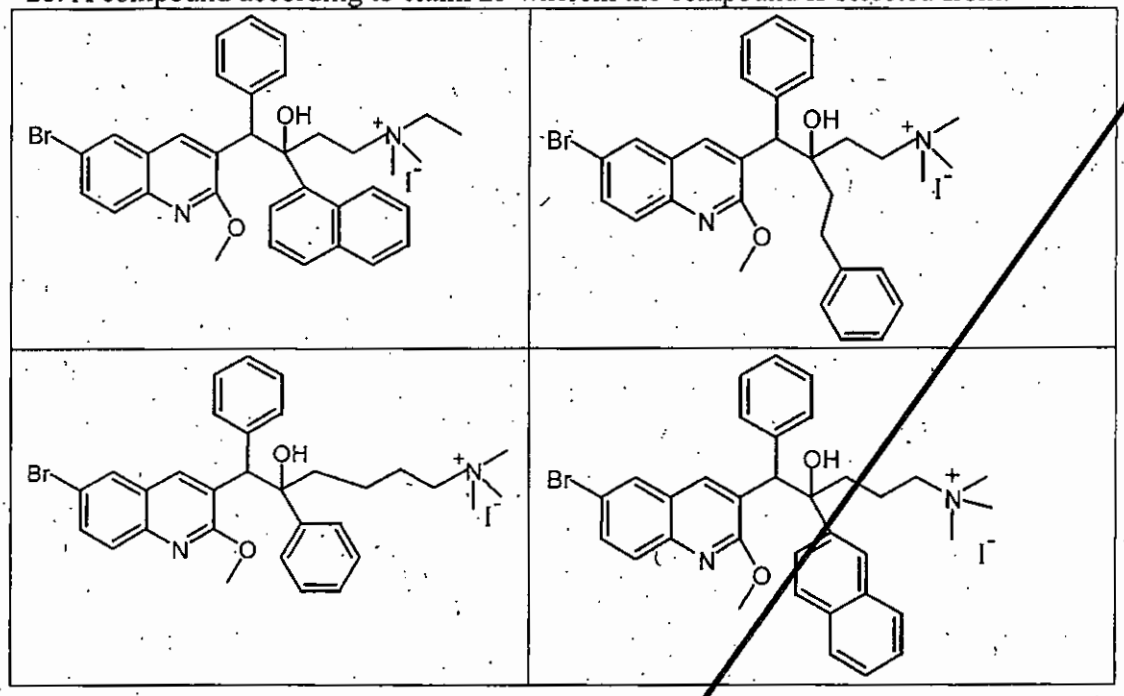
(Ib)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof wherein R^1, p, R^2, R^3, q, R^4, R^5, R^6, r, R^7, R^8, R^9, R^{10} and A^- are defined as in claim 1; provided that when R^{10} is alkyl or benzyl, then R^4 and R^5 are other than hydrogen; and provided that the compound is other than



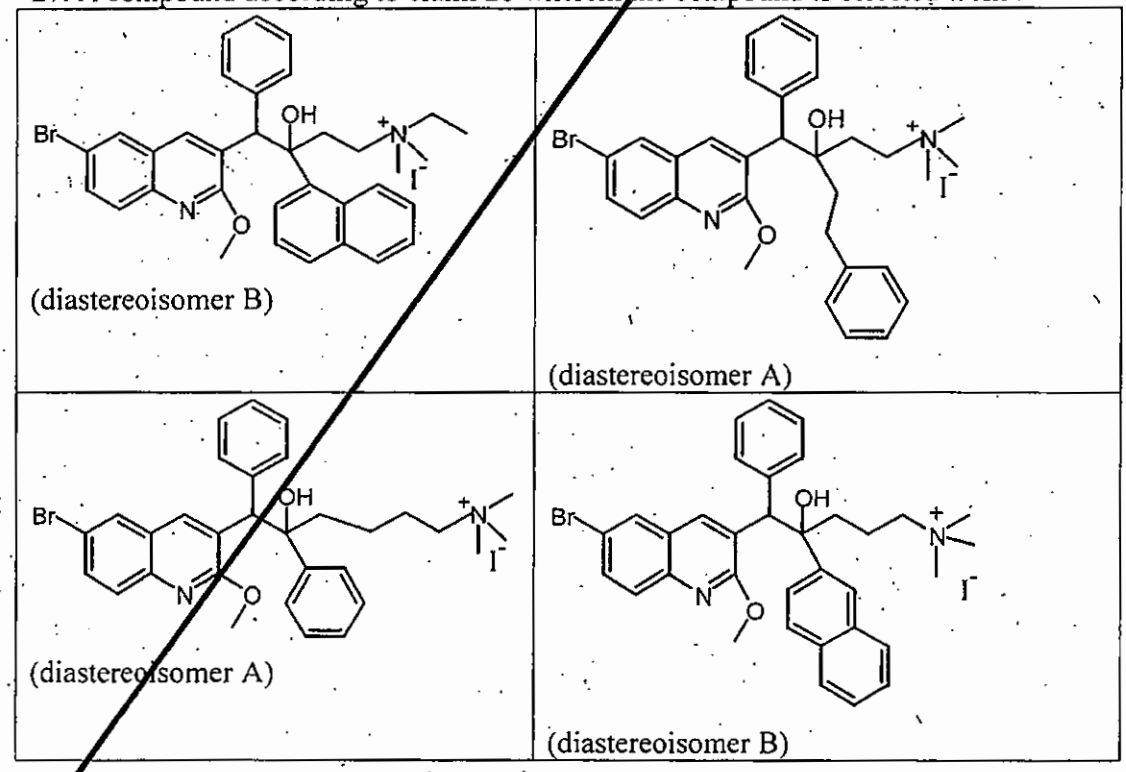
a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

26. A compound according to claim 25 wherein the compound is selected from:



a *N*-oxide thereof or a stereochemically isomeric form thereof.

27. A compound according to claim 26 wherein the compound is selected from :



or a stereochemically isomeric form thereof.

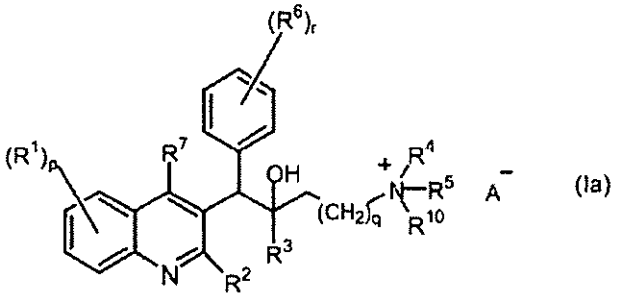
28. A combination of (a) a compound of formula (Ia) or (Ib) as defined in any one of the preceding claims, and (b) one or more other antibacterial agents provided that the one or more other antibacterial agents are other than antimycobacterial agents.

29. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and, as active ingredient, a therapeutically effective amount of (a) a compound of formula (Ia) or (Ib) as defined in any one of claims 1 to 27, and (b) one or more other antibacterial agents provided that the one or more other antibacterial agents are other than antimycobacterial agents.

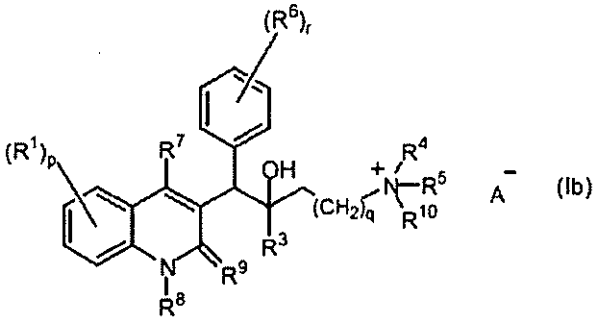
30. The use of a combination as claimed in claim 28 or a pharmaceutical composition as claimed in claim 29 for the manufacture of a medicament for the treatment of a bacterial infection.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. Use of a compound for the manufacture of a medicament for the treatment of a bacterial infection, said compound being a compound of formula (Ia) or (Ib)



(Ia)



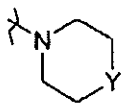
(Ib)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof wherein

A^- is a pharmaceutically acceptable counter ion;

R^1 is hydrogen, halo, haloalkyl, cyano, hydroxy, Ar, Het, alkyl, alkyloxy, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or di(Ar)alkyl ;

p is an integer equal to 1, 2, 3 or 4 ;

R^2 is hydrogen, hydroxy, mercapto, alkyloxy, alkyloxyalkyloxy, alkylthio, mono or di(alkyl)amino or a radical of formula  wherein Y is CH_2, O, S, NH or *N*-alkyl ;

R^3 is alkyl, Ar, Ar-alkyl, Het or Het-alkyl;

q is an integer equal to zero, 1, 2, 3 or 4 ;

R^4 and R^5 each independently are alkyl or benzyl;

R^4 and R^5 together and including the N to which they are attached may form a radical selected from the group of pyrrolidinyl, 2-pyrrolinyl, 3-pyrrolinyl, pyrrolyl, imidazolidinyl, pyrazolidinyl, 2-imidazolinyl, 2-pyrazolinyl,

imidazolyl, pyrazolyl, triazolyl, piperidinyl, pyridinyl, piperazinyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazinyl, morpholinyl and thiomorpholinyl, each of said rings may optionally be substituted with alkyl, halo, haloalkyl, hydroxy, alkyloxy, amino, mono- or dialkylamino, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or pyrimidinyl;

R^6 is hydrogen, halo, haloalkyl, hydroxy, Ar, alkyl, alkyloxy, alkylthio, alkyloxyalkyl, alkylthioalkyl, Ar-alkyl or di(Ar)alkyl ; or

two vicinal R^6 radicals may be taken together to form a bivalent radical of formula -CH=CH-CH=CH- ;

r is an integer equal to 1, 2, 3, 4 or 5 ;

R^7 is hydrogen, alkyl, Ar or Het ;

R^8 is hydrogen or alkyl ;

R^9 is oxo ; or

R^8 and R^9 together form the radical –CH=CH-N=;

R^{10} is alkyl, alkylcarbonyl, Ar, Ar-alkyl, Ar-carbonyl, Het^1-alkyl or Het^1-carbonyl;

alkyl is a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms ; or is a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms ; or is a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms attached to a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms ; wherein each carbon atom can be optionally substituted with hydroxy, alkyloxy or oxo ;

Ar is a homocycle selected from the group of phenyl, naphthyl, acenaphthyl, tetrahydronaphthyl, each homocycle optionally substituted with 1, 2 or 3 substituents, each substituent independently selected from the group of hydroxy, halo, cyano, nitro, amino, mono- or dialkylamino, alkyl, haloalkyl, alkyloxy, haloalkyloxy, carboxyl, alkyloxycarbonyl, aminocarbonyl, morpholinyl and mono- or dialkylaminocarbonyl ;

Het is a monocyclic heterocycle selected from the group of *N*-phenoxypiperidinyl, piperidinyl, pyrrolyl, pyrazolyl, imidazolyl, furanyl, thienyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, pyridinyl, pyrimidinyl, pyrazinyl and pyridazinyl; or a bicyclic heterocycle selected from the group of quinolinyl, quinoxalinyl, indolyl, benzimidazolyl, benzoxazolyl, benzisoxazolyl, benzothiazolyl, benzisothiazolyl, benzofuranyl, benzothienyl, 2,3-dihydrobenzo[1,4]dioxinyl and benzo[1,3]dioxolyl ; each monocyclic and bicyclic heterocycle may optionally be substituted with 1, 2 or 3 substituents,

each substituent independently selected from the group of halo, hydroxy, alkyl, alkyloxy, and Ar-carbonyl;

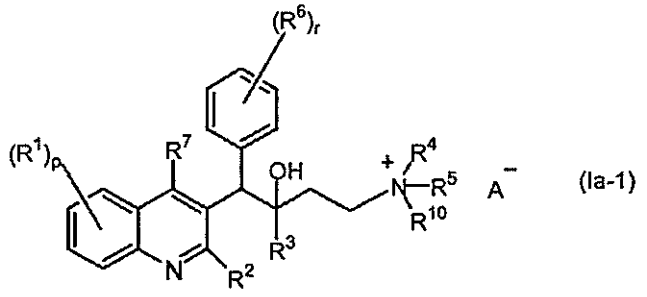
Het^1 is a monocyclic heterocylce selected from furanyl or thienyl; or a bicyclic heterocycle selected from benzofuranyl or benzothienyl; each monocyclic and bicyclic heterocycle may optionally be substituted with 1, 2 or 3 substituents, each substituent independently selected from the group of halo, alkyl and Ar;

halo is a substituent selected from the group of fluoro, chloro, bromo and iodo; and

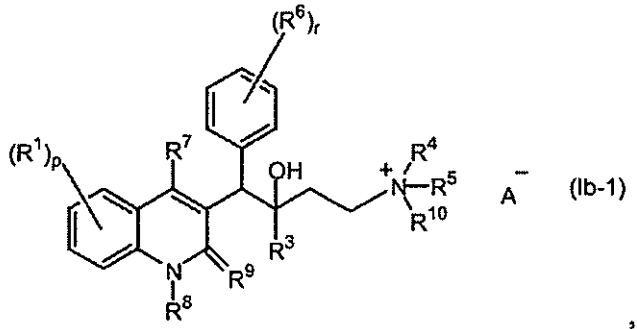
haloalkyl is a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms or a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms or a cyclic saturated hydrocarbon radical having from 3 to 6 carbon atoms attached to a straight or branched saturated hydrocarbon radical having from 1 to 6 carbon atoms; wherein one or more carbon atoms are substituted with one or more halo atoms;

provided that the bacterial infection is other than a Mycobacterial infection.

2. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



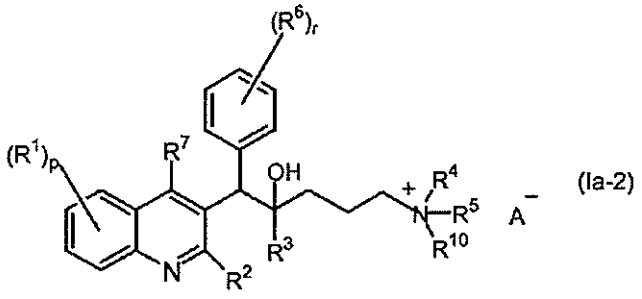
(Ia-1)



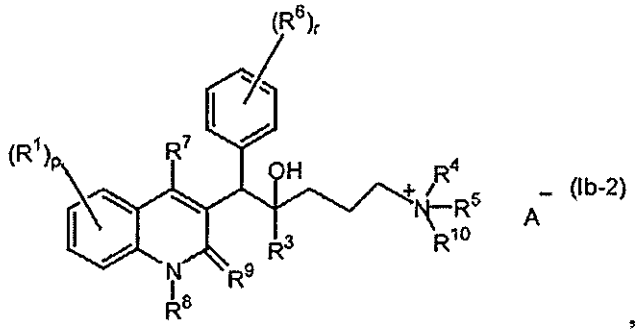
(Ib-1)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

3. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



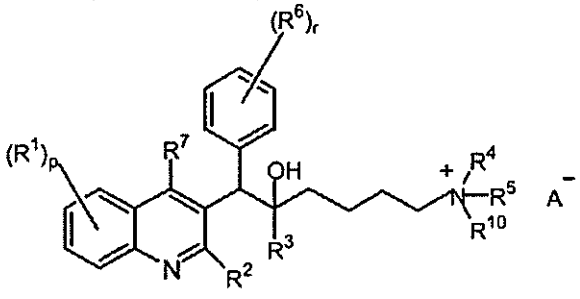
(Ia-2)



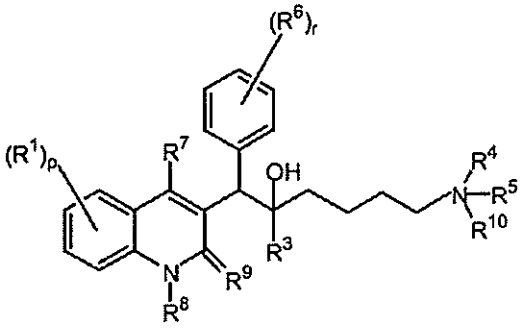
(Ib-2)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

4. Use according to claim 1 wherein the compound of formula (Ia) or (Ib) is a compound having the following formula



(Ia-3)



(Ib-3)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

5. Use according to any one of the preceding claims wherein R^1 is halo.

6. Use according to any one of the preceding claims wherein p is equal to 1.

7. Use according to any one of the preceding claims wherein R^2 is alkyloxy or alkylthio.

8. Use according to claim 7 wherein R^2 is C_{1-4}alkyloxy.

9. Use according to any one of the preceding claims wherein R^3 is Het, Ar or Ar-alkyl.

10. Use according to claim 9 wherein R^3 is Ar or Ar-alkyl.

11. Use according to claim 9 wherein R^3 is thienyl, naphthyl, phenyl, naphthylC_{1-4}alkyl or phenylC_{1-4}alkyl.

12. Use according to claim 11 wherein R^3 is naphthyl, phenyl or phenylC_{1-4}alkyl.

13. Use according to any one of the preceding claims wherein R^4 and R^5 are C_{1-4}alkyl or R^4 and R^5 together and including the N to which they are attached may form a radical selected from imidazolyl or piperidinyl.

14. Use according to claim 13 wherein R^4 and R^5 are C_{1-4}alkyl.

15. Use according to any one of the preceding claims wherein R^6 is hydrogen or halo.

16. Use according to any one of the preceding claims wherein r is equal to 1.

17. Use according to any one of the preceding claims wherein R^7 is hydrogen.

18. Use according to any one of the preceding claims wherein R^{10} is alkyl.

19. Use according to claim 18 wherein R^{10} is C_{1-6}alkyl.

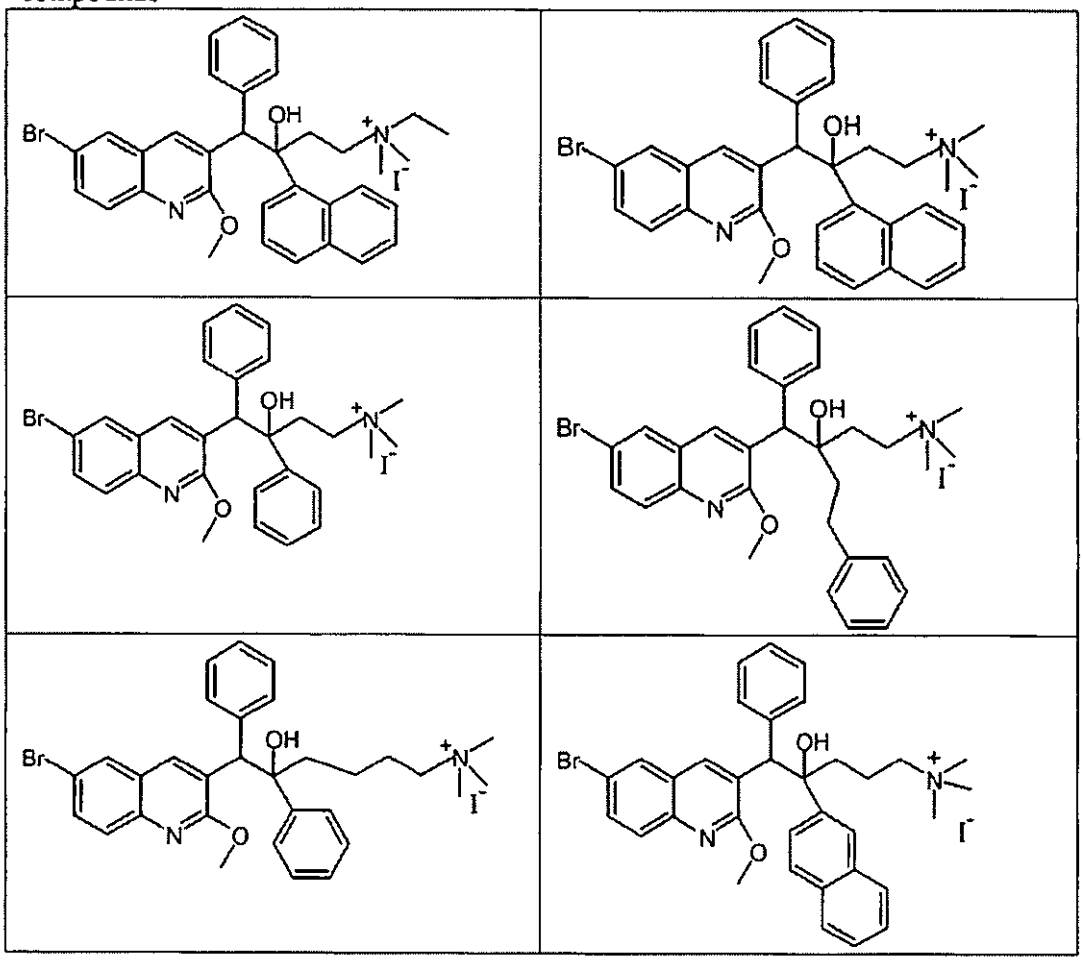
20. Use according to claims 1 to 7, 9, 10 and 15 to 18 wherein alkyl is C_{1-6}alkyl.

21. Use according to any one of the preceding claims wherein A^- is iodo.

22. Use according to any one of the preceding claims wherein the compound is a compound according to formula (Ia).

23. Use of a compound of formula (Ia) according to claim 1 wherein R^1 is halo; p = 1; R^2 is alkyloxy or alkylthio; R^3 is naphthyl, phenyl, phenylethyl or thienyl; q = 1, 2 or 3; R^4 and R^5 are C_{1-4}alkyl or R^4 and R^5 together and including the N to which they are attached may form a radical selected from imidazolyl or piperidinyl; R^6 is hydrogen or halo; r is equal to 1; R^7 is hydrogen; R^{10} is C_{1-6}alkyl; A^- is iodo.

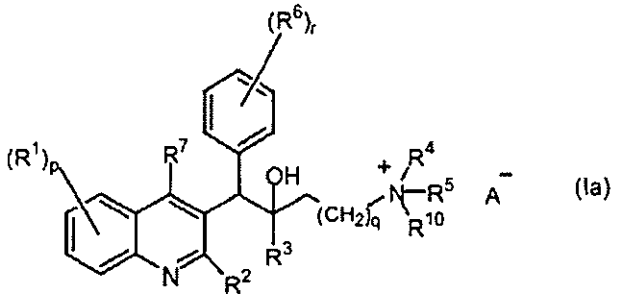
24. Use according to claim 1 wherein the compound is selected from the following compounds



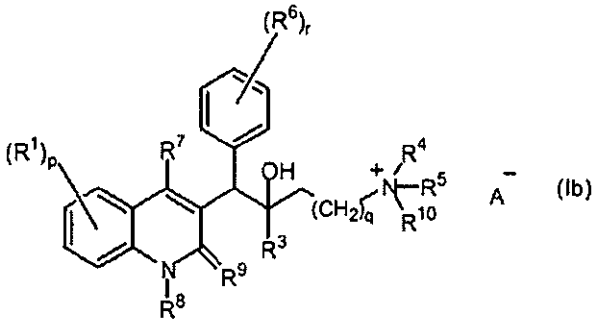
a *N*-oxide thereof or a stereochemically isomeric form thereof.

25. Use according to any one of the preceding claims wherein the bacterial infection is an infection with a gram-positive bacterium.

26. A compound of formula (Ia) or (Ib)

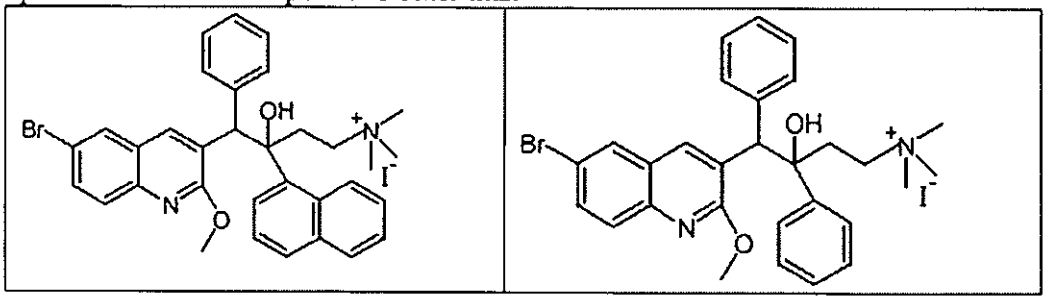


(Ia)



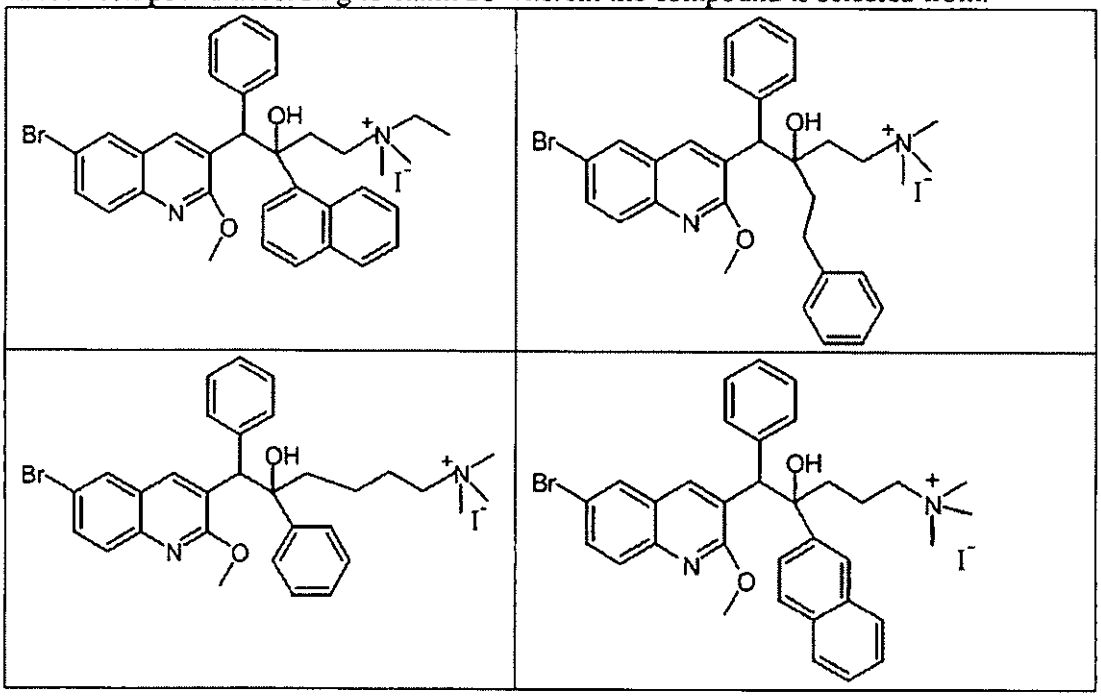
(Ib)

a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof wherein R^1, p, R^2, R^3, q, R^4, R^5, R^6, r, R^7, R^8, R^9, R^{10} and A^- are defined as in claim 1; provided that when R^{10} is alkyl or benzyl, then R^4 and R^5 are other than hydrogen; and provided that the compound is other than



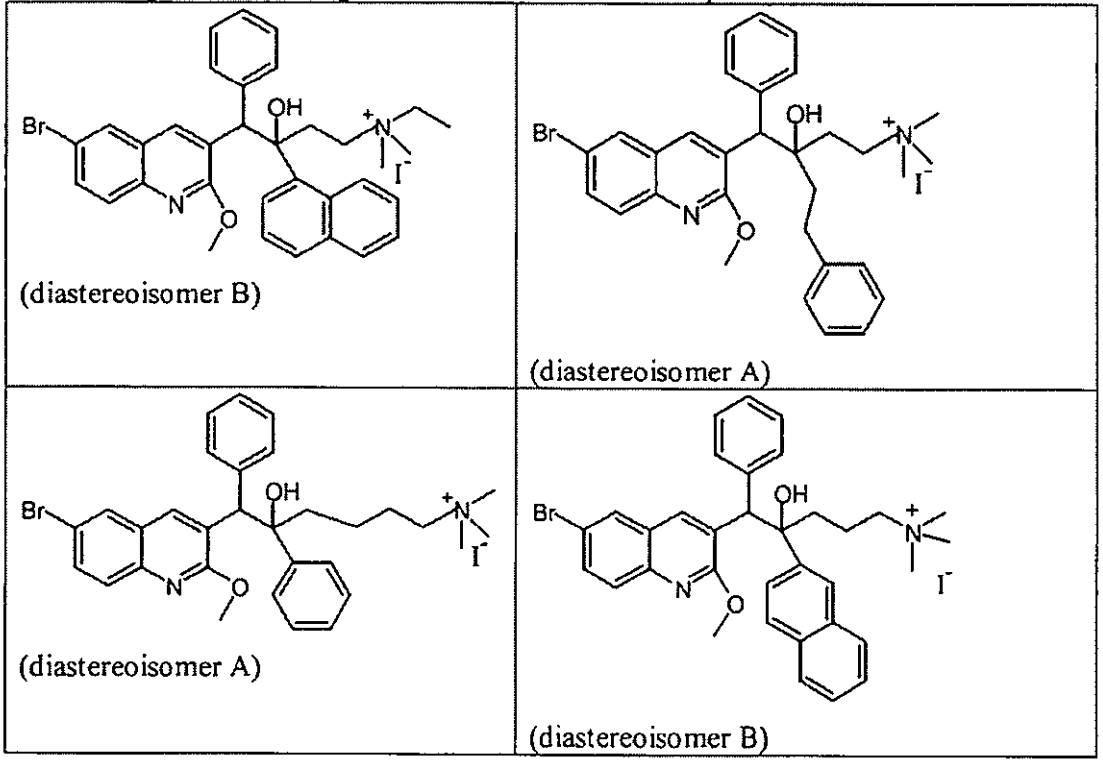
a *N*-oxide thereof, a tautomeric form thereof or a stereochemically isomeric form thereof.

27. A compound according to claim 26 wherein the compound is selected from:



a *N*-oxide thereof or a stereochemically isomeric form thereof.

28. A compound according to claim 26 wherein the compound is selected from :



or a stereochemically isomeric form thereof.

29. A combination of (a) a compound of formula (Ia) or (Ib) as defined in any one of claims 26 to 28, and (b) one or more other antibacterial agents provided that the one or more other antibacterial agents are other than antimycobacterial agents, and wherein the combination is for use in the treatment of a bacterial infection other than a mycobacterial infection.

30. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and, as active ingredient, a therapeutically effective amount of (a) a compound of formula (Ia) or (Ib) as defined in any one of claims 26 to 28, and (b) one or more other antibacterial agents provided that the one or more other antibacterial agents are other than antimycobacterial agents, and wherein the composition is for use in the treatment of a bacterial infection other than a mycobacterial infection.

31. The use of a combination as claimed in claim 29 or a pharmaceutical composition as claimed in claim 30 for the manufacture of a medicament for the treatment of a bacterial infection.

32. A product containing (a) a compound of formula (Ia) or (Ib) as defined in any one of claims 26 to 28, and (b) one or more other antibacterial agents provided that the one or more other antibacterial agents are other than antimycobacterial agents, as a combined preparation for simultaneous, separate or sequential use in the treatment of a bacterial infection, and wherein the product is for use in the treatment of a bacterial infection other than a mycobacterial infection.

33. Use according to any one of claims 1 to 25 and 31 wherein the bacterial infection is an infection with Staphylococci, Enterococci or Streptococci.

34. Use according to any one of claims 1 to 25 and 31 wherein the bacterial infection is an infection with methicillin resistant *Staphylococcus aureus* (MRSA), methicillin resistant coagulase negative staphylococci (MRCNS), penicillin resistant *Streptococcus pneumoniae* or multiple resistant *Enterococcus faecium*.

35. Use according to any one of claims 1 to 25 and 31 wherein the bacterial infection is an infection with *Staphylococcus aureus* or *Streptococcus pneumoniae*.

36. Use according to any one of claims 1 to 25 and 31 wherein the bacterial infection is an infection with methicillin resistant *Staphylococcus aureus (MRSA)*.