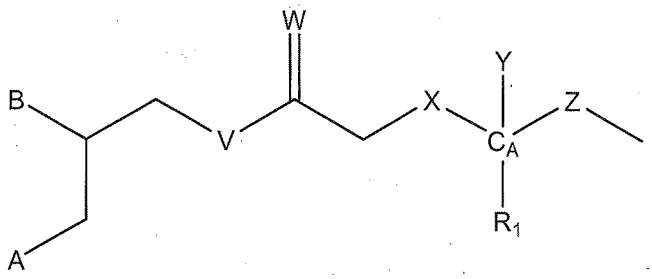
CLAIMS

1. A compound having the following the structure:



(1)

wherein:

A and B are independently -OH or -SH,

V and W are independently oxygen or sulfur and at least one of V and W is oxygen,

R_1 is $-(CH_2)_pCH_3$ or is -H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

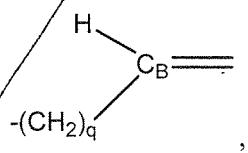
m = 1 to 5,

n = 4 to 14,

$6 \leq m + n \leq 14$ for all m and n, and

wherein, optionally, there are up to two carbon-carbon double bonds, each double bond formed between adjacent methylene groups of formula **(1)** wherein, if there are two said double bonds each carbon thereof is bonded to at least one hydrogen;

or X is



,

Y is absent, and C_A and C_B together form a double bond,

Z is $-(CH_2)_r-$,

q and r are integers,

q = 0 to 4,

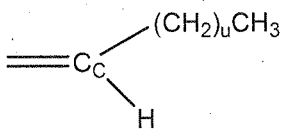
r = 1 to 13,

$5 \leq q + r \leq 13$ for all q and r, and

wherein, optionally, there is a second double bond formed between adjacent methylene groups of formula (**1**) wherein each carbon thereof is bonded to at least one hydrogen;

or X is $-(CH_2)_t-$,

Z is



,

Y is absent, and C_A and C_C together form a double bond,

R_1 is $-(CH_2)_uCH_3$ or is -H,

t and u are integers,

t = 1 to 5,

u = 0 to 12,

$5 \leq t + u \leq 13$ for all t and u, and

wherein, optionally, there is a second double bond formed between adjacent methylene groups of formula (**1**) wherein each carbon thereof is bonded to at least one hydrogen,

wherein when A and B are both –OH; V and W are both oxygen; n is 5 to 9; and m+n = 10; then R_1 is $-(CH_2)_pCH_3$; including a pharmaceutically acceptable salt of the compound.

2. A compound as claimed in claim 1, wherein

(a) A and B are both –OH;

(b) V and W are both oxygen;

(c) R_1 is $-(CH_2)_pCH_3$;

(d) p is 0 to 2;

(e) p is 0 or 1;

(f) p is 0;

(g) n = 2 to 12 and $7 \leq m+n \leq 13$;

(h) n = 3 to 11 and $8 \leq m+n \leq 12$;

(i) n = 4 to 10 and $9 \leq m+n \leq 11$;

(j) n = 5 to 9 and m+n = 10;

(k) m = 2 to 4;

(l) m = 3;

(m) $r = 2$ to 12 and $6 \leq q + r \leq 12$;

(n) $r = 3$ to 11 and $7 \leq q + r \leq 11$;

(o) $r = 4$ to 10 and $8 \leq q + r \leq 10$;

(p) $r = 5$ to 9 and $q + r = 9$;

(q) $q = 1$ to 3;

(r) $q = 2$;

(s) $u = 1$ to 11 and $6 \leq t + u \leq 12$;

(t) $u = 2$ to 10 and $7 \leq t + u \leq 11$;

(u) $u = 3$ to 9 and $8 \leq t + u \leq 10$;

(v) $u = 4$ to 8 and $t + u = 9$;

(w) $t = 2$ to 4; and/or

(x) $t = 3$.

3. A compound as claimed in claim 1 or 2, wherein:

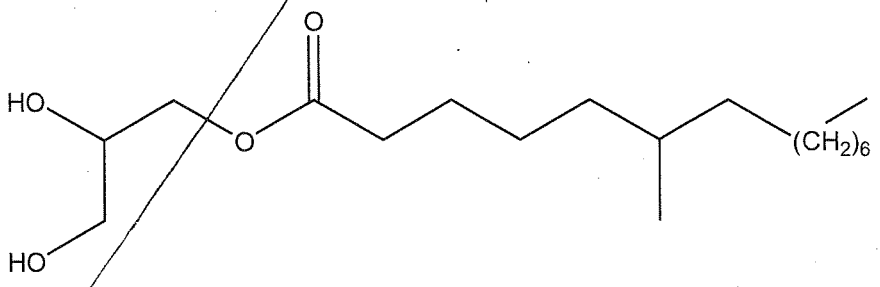
(a) if said up to two carbon-carbon double bonds are present, then each said bond is formed between methylene groups of Z;

(b) if said second double bond is present, then said bond is formed between methylene groups of Z; or

(c) said up to two carbon-carbon double bonds and said second double bond are absent.

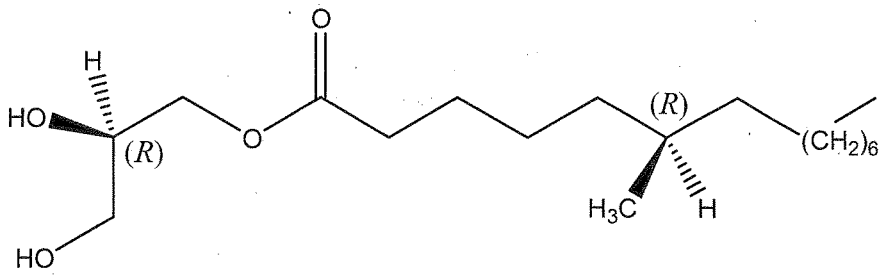
4. A compound as claimed in claim 3, wherein said to up to two carbon-carbon double bonds is a one said bond.

5. A compound as claimed in claim 1 having the following formula:



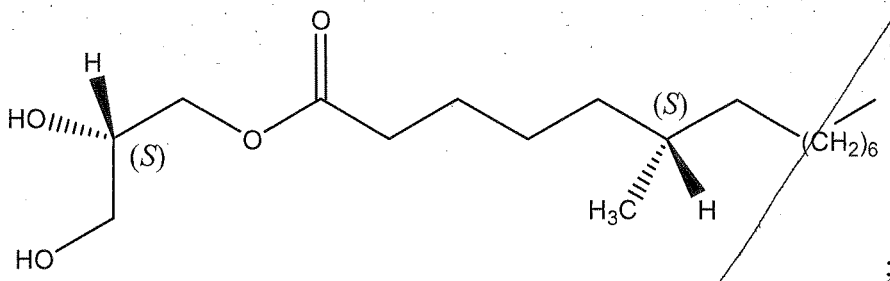
preferably wherein the compound is a substantially stereochemically pure compound having the formula:

(a)



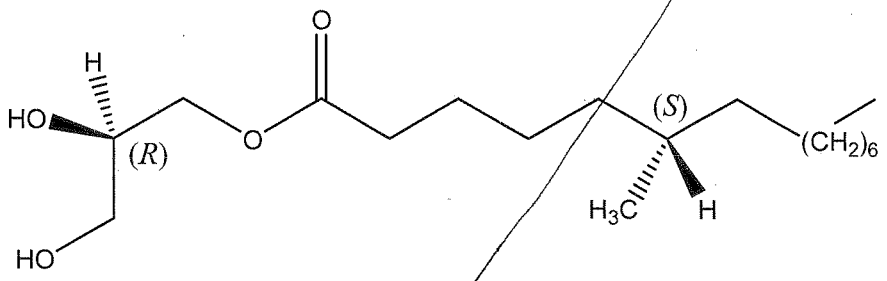
;

(b)



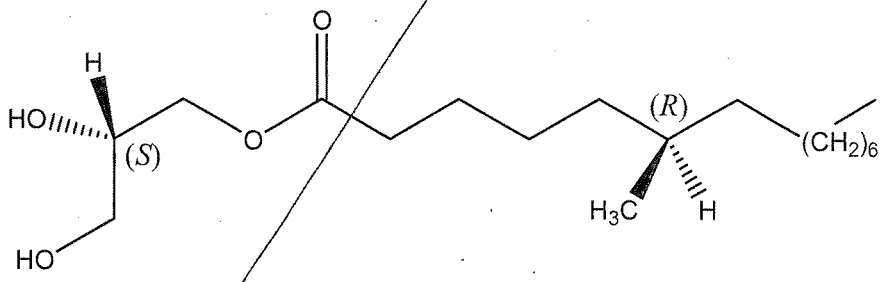
;

(c)



; or

(d)



6. A pharmaceutical composition comprising a compound as claimed in any preceding claim and a pharmaceutically acceptable carrier.

7. The pharmaceutical composition of claim 6, wherein the pharmaceutical composition is suitable for oral delivery, parenteral delivery, topical

delivery, rectal delivery, vaginal delivery, administration by oral inhalation or nasal delivery.

8. A dosage form comprising a compound as claimed in any of claims 1 to 5, wherein the dosage form is a solution, a suspension, a syrup, a tablet, a capsule, microparticles, an ointment, a cream, or a lozenge.

9. The dosage form of claim 8, wherein the dosage form is a capsule or a tablet.

10. Use of a therapeutically effective amount of a compound, or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or disease associated with neurokinin 2 (NK2) receptor activity in a subject in need thereof, wherein said compound or salt is:

(a) as claimed in any of claims 1 to 5; or

(b) as claimed in claim 1, and in which A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH_2)_m-$, Z is $-(CH_2)_n-$, m is 3, n is 7, and the compound contains no C=C double bonds.

11. The use as claimed in claim 10, wherein said disorder or disease associated with said NK2 receptor activity is a depressive mood disorder, anxiety disorder, irritable bowel syndrome, inflammatory bowel disease, inflammatory airway disease or urinary incontinence; preferably a depressive mood disorder; and most preferably major depressive disorder; optionally wherein, when said disorder or disease associated with said NK2 receptor activity is major depressive disorder, the subject is
(a) not treated by psychotherapy concurrently with the treatment; or (b)
treated by psychotherapy concurrently with the treatment.

12. The use as claimed in claim 10 or claim 11, wherein:

(a) the medicament is contained in a pharmaceutical formulation comprising a pharmaceutically acceptable carrier;

(b) the medicament is to be administered with another therapeutic agent; and/or

(c) the subject is a human.

13. Use of a therapeutically effective amount of a compound, or pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or syndrome associated with a depressive mood disorder
in a subject in need thereof, wherein said compound or salt is:

as claimed in any of claims 1 to 5; or

as claimed in claim 1, and in which A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH_2)_m-$, Z is $-(CH_2)_n-$, m is 3, n is 7, and the compound contains no C=C double bonds.

14. The use as claimed in claim 13, wherein the disorder or syndrome is a disorder of the brain or nervous system, anxiety disorder, sexual dysfunction, substance abuse, eating disorder or hormone disorder.

15. Use of a therapeutically effective amount of a compound, or pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or condition treatable by an antidepressant in a subject in need thereof, wherein said compound or salt is:

(a) as claimed in any of claims 1 to 5; or

(b) as claimed in claim 1, and in which A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH_2)_m-$, Z is $-(CH_2)_n-$, m is 3, n is 7, and the compound contains no C=C double bonds.

16. The use as claimed in claim 15, wherein the disorder or condition treatable by an antidepressant is hot flashes associated with menopause, pain or smoking cessation.

17. A compound, or a pharmaceutically acceptable salt thereof, for use in a method for modulating an activity of an NK2 receptor comprising contacting the NK2 receptor with an effective amount of the compound or salt, wherein said compound or salt is:

as claimed in any of claims 1 to 5; or

as claimed in claim 1, and in which A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH_2)_m-$ Z is $-(CH_2)_n-$, m is 3, n is 7, and the compound contains no C=C double bonds.

18. An *in vitro* method for modulating an activity of an NK2 receptor comprising contacting the NK2 receptor with an effective amount of:

(a) a compound, or a pharmaceutically acceptable salt thereof, as claimed in any of claims 1 to 5; or

(b) a compound, or a pharmaceutically acceptable salt thereof, as claimed in claim 1, in which A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH_2)_m-$, Z is $-(CH_2)_n-$, m is 3, n is 7, and the compound contains no C=C double bonds.

19. A compound as claimed in any one of claims 1 to 5, or a pharmaceutically acceptable salt thereof, for use in therapy.

20. The compound or salt according to claim 19, wherein A and B are each -OH, V and W are oxygen, R_1 is H, X is $-(CH2)_m-$, Z is $-(CH2)_n-$, m is 3, n is 7 and the compound contains no C=C double bonds.

21. The compound or salt according to claim 19, wherein:
A and B are independently -OH or -SH,
V and W are independently oxygen or sulfur and at least one of V and W is oxygen,
R_1 is $-(CH_2)_pCH_3$ or is -H,
p is an integer from 0 to 3,
X is $-(CH_2)_m-$,
Y is -H,
Z is $-(CH_2)_n-$,
m and n are integers,
$m = 1$ to 5,
$n = 4$ to 14,
$6 < m + n < 14$ for all m and n, and
the compound contains no C=C double bonds.

22. The compound or salt according to claim 21, wherein A and B are each -OH, V and W are oxygen, R_1 is $-(CH_2)_pCH_3$ or H, X is $-(CH_2)_m-$, Z is $-(CH_2)_n-$, m+n=10, and n is 5 to 9.

23. A compound as claimed in claim 1, wherein:
A and B are independently -OH or -SH,
V and W are independently oxygen or sulfur and at least one of V and W is oxygen,
R_1 is $-(CH_2)_pCH_3$ or is -H,
p is an integer from 0 to 3,
X is $-(CH_2)_m-$,
Y is -H,
Z is $-(CH_2)_n-$,

m and n are integers,

m = 1 to 5,

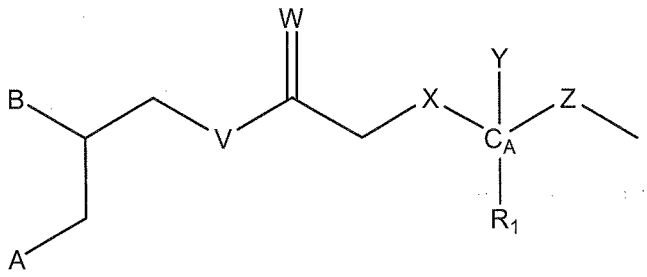
n = 4 to 14, and

$6 < m + n < 14$ for all m and n.

wherein, optionally, the compound includes up to two carbon-carbon double bonds, each double bond formed between adjacent methylene groups of formula (1) wherein, if there are two said double bonds each carbon thereof is bonded to at least one hydrogen.

CLAIMS

1. A compound having the following the structure:



(1)

wherein:

A and B are -OH,

V and W are oxygen,

R_1 is $-(CH_2)_pCH_3$, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

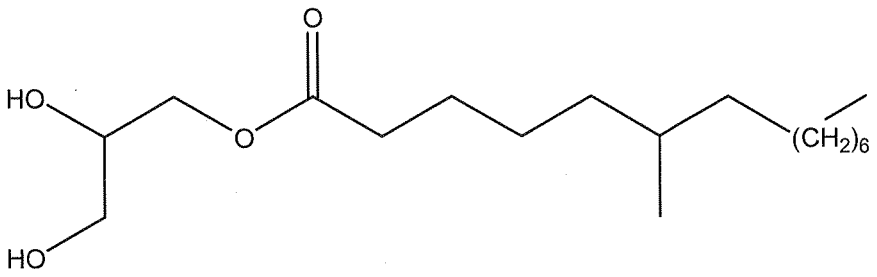
Z is $-(CH_2)_n-$,

m and n are integers,

n = 5 to 9 and m + n = 10,

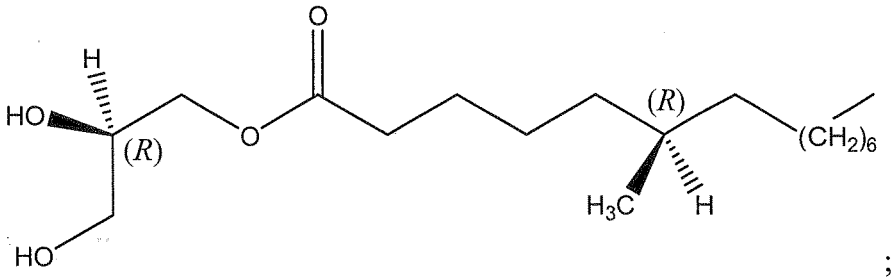
wherein the compound contains no C=C double bonds, and including a pharmaceutically acceptable salt of the compound.

2. A compound as claimed in claim 1 having the following formula:



preferably wherein the compound is a substantially stereochemically pure compound having the formula:

(a)



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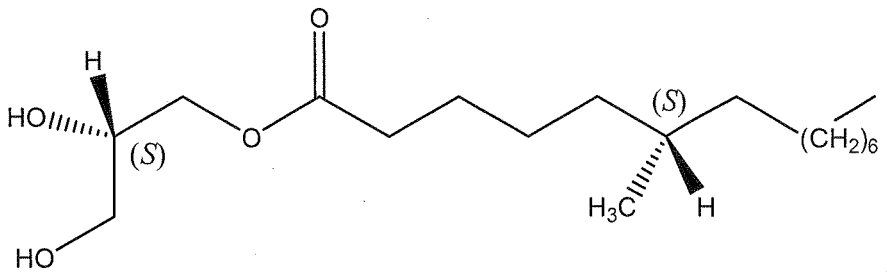
(b)



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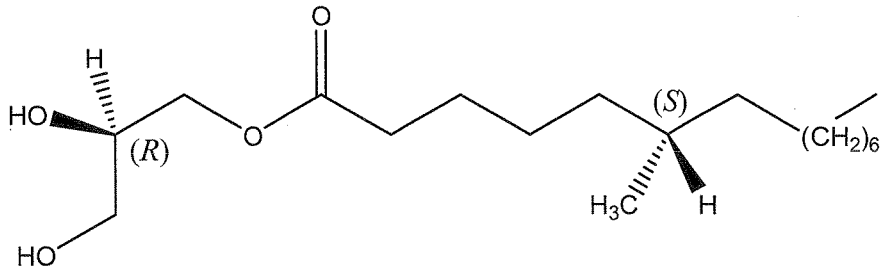
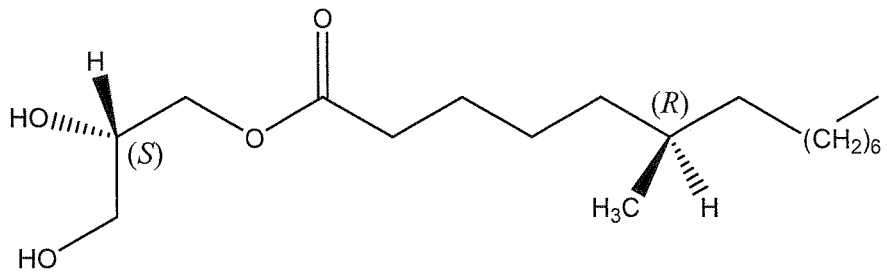
(c)



; or

(d)



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3. A pharmaceutical composition comprising a compound as claimed in any preceding claim and a pharmaceutically acceptable carrier.

4. The pharmaceutical composition of claim 3, wherein the pharmaceutical composition is suitable for oral delivery, parenteral delivery, topical delivery, rectal delivery, vaginal delivery, administration by oral inhalation or nasal delivery.

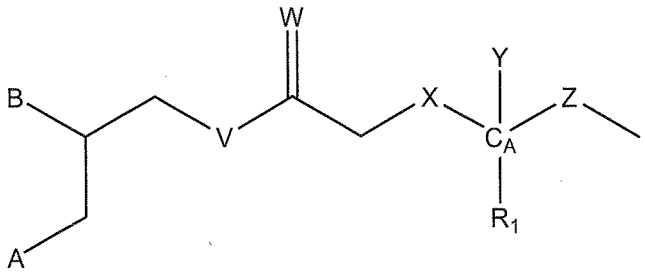
5. A dosage form comprising a compound as claimed in claims 1 or 2, wherein the dosage form is a solution, a suspension, a syrup, a tablet, a capsule, microparticles, an ointment, a cream, or a lozenge.

6. The dosage form of claim 5, wherein the dosage form is a capsule or a tablet.

7. Use of a therapeutically effective amount of a compound, or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or disease associated with neurokinin 2 (NK2) receptor activity in a subject in need thereof, wherein said compound or salt is:

(a) as claimed in any of claims 1 or 2; or

(b) a compound having the following the structure:



(1)

wherein:

A and B are OH,

V and W are oxygen,

R_1 is H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

n = 5 to 9 and m + n = 10,

and wherein the compound contains no C=C double bonds.

8. The use as claimed in claim 7, wherein said disorder or disease associated with said NK2 receptor activity is a depressive mood disorder, anxiety disorder, irritable bowel syndrome, inflammatory bowel disease, inflammatory airway disease or urinary incontinence; preferably a depressive mood disorder; and most preferably major

depressive disorder; optionally wherein, when said disorder or disease associated with said NK2 receptor activity is major depressive disorder, the subject is

(a) not treated by psychotherapy concurrently with the treatment; or (b)

treated by psychotherapy concurrently with the treatment.

9. The use as claimed in claim 7 or claim 8, wherein:

(a) the medicament is contained in a pharmaceutical formulation comprising a pharmaceutically acceptable carrier;

(b) the medicament is to be administered with another therapeutic agent; and/or

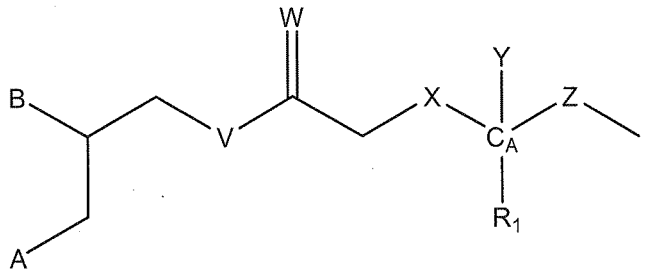
(c) the subject is a human.

10. Use of a therapeutically effective amount of a compound, or pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or syndrome associated with a depressive mood disorder

in a subject in need thereof, wherein said compound or salt is:

(a) as claimed in any of claims 1 or 2; or

(b) a compound having the following the structure:



(1)

wherein:

A and B are OH,

V and W are oxygen,

R_1 is H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

n = 5 to 9 and m + n = 10,

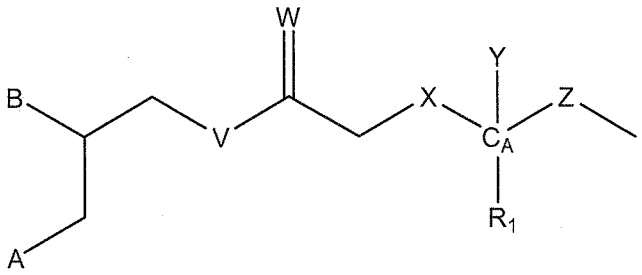
and wherein the compound contains no C=C double bonds.

11. The use as claimed in claim 10, wherein the disorder or syndrome is a disorder of the brain or nervous system, anxiety disorder, sexual dysfunction, substance abuse, eating disorder or hormone disorder.

12. Use of a therapeutically effective amount of a compound, or pharmaceutically acceptable salt thereof, in the preparation of a medicament for treating a disorder or condition treatable by an antidepressant in a subject in need thereof, wherein said compound or salt is:

(a) as claimed in any of claims 1 or 2; or

(b) a compound having the following the structure:



(1)

wherein:

A and B are OH,

V and W are oxygen,

R_1 is H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

n = 5 to 9 and m + n = 10,

and wherein the compound contains no C=C double bonds.

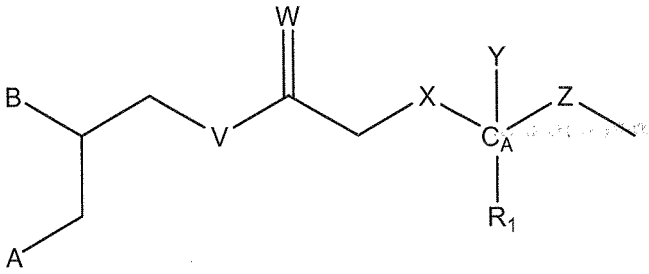
13. The use as claimed in claim 12, wherein the disorder or condition treatable by an antidepressant is hot flashes associated with menopause, pain or smoking cessation.

14. A compound, or a pharmaceutically acceptable salt thereof, for use in a method for modulating an activity of an NK2 receptor comprising contacting the NK2 receptor

with an effective amount of the compound or salt, wherein said compound or salt is:

as claimed in any of claims 1 or 2; or

a compound having the following the structure:



(1)

wherein:

A and B are OH,

V and W are oxygen,

R_1 is H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

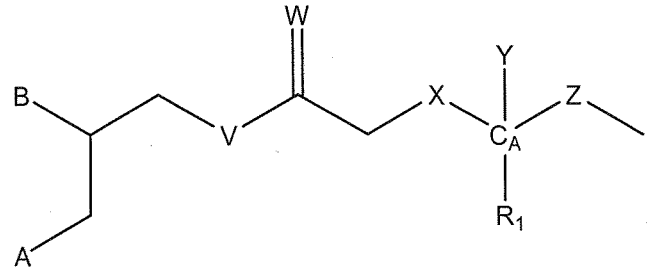
n = 5 to 9 and m + n = 10,

and wherein the compound contains no C=C double bonds.

15. An *in vitro* method for modulating an activity of an NK2 receptor comprising contacting the NK2 receptor with an effective amount of:

(a) a compound, or a pharmaceutically acceptable salt thereof, as claimed in any of claims 1 or 2; or

(b) a compound, or a pharmaceutically acceptable salt thereof, having the following the structure:



(1)

wherein:

A and B are OH,

V and W are oxygen,

R_1 is H, and

p is an integer from 0 to 3, and:

X is $-(CH_2)_m-$,

Y is -H,

Z is $-(CH_2)_n-$,

m and n are integers,

n = 5 to 9 and m + n = 10,

and wherein the compound contains no C=C double bonds.

16. A compound as claimed claims 1 or 2, or a pharmaceutically acceptable salt thereof, for use in therapy.