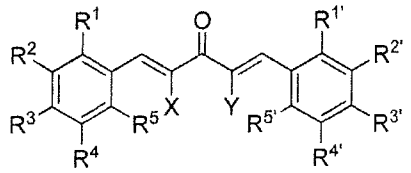
WHAT IS CLAIMED IS:

1. A compound of the following formula:



,

wherein

each of X and Y, independently, is H, alkyl, or halo, or X and Y together are $-CH_2-$, $-(CH_2)_2-$, $-(CH_2)CR_aR_b(CH_2)-$, $-(CH_2)NR_a(CH_2)-$, or $-(CH_2)O(CH_2)-$, each of R_a and R_b, independently, being H, alkyl, -C(O)-alkyl, -C(O)-cycloalkyl, -C(O)-NH-alkyl, or -C(O)-NH-cycloalkyl; and

each of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$, independently, is H, alkyl, halo, OH, R_c-O-, $R_dS(O)_2$-O-, or $(R_d)_2P(O)$-O-, R_c being unsubstituted alkyl or alkyl substituted with halo, OH, alkoxy, amino, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl, and R_d being H, OH, alkyl, alkoxy, amino or aryl; in which R^1 is different from $R^{1'}$ or $R^{5'}$, R^2 is different from $R^{2'}$ or $R^{4'}$, R^3 is different from $R^{3'}$, R^4 is different from $R^{2'}$ or $R^{4'}$, or R^5 is different from $R^{1'}$ or $R^{5'}$.

2. The compound of claim 1, wherein R^2 is OH.

3. The compound of claim 2, wherein $R^{2'}$ is R_c-O-, R_c being alkyl substituted with amino.

4. The compound of claim 3, wherein each of X and Y is H.

5. The compound of claim 3, wherein X and Y together are $-(CH_2)NR_a(CH_2)-$.

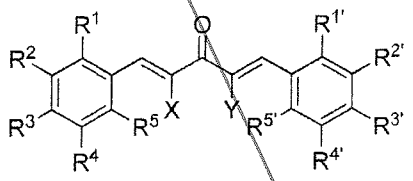
6. The compound of claim 5, wherein R_a is C(O)-R, C(O)NRR', or alkyl substituted with cycloalkyl; each of R and R', independently, being alkyl or cycloalkyl.

7. The compound of claim 1, wherein R^2 is $R_dS(O)_2-O-$ or $(R_d)_2P(O)-O-$.

8. The compound of claim 7, wherein each of X and Y is H.

9. The compound of claim 1, wherein the compound is selected from the group consisting of compounds 1-4, 7, 11, 19-21, 30-45, 47-51, 54-59, 62, 64, 67, 68, 70-77, and 79.

10. A compound of the following formula:



wherein

each of X and Y, independently, is H, alkyl, or halo, or X and Y together are $-CH_2-$, $-(CH_2)_2-$, $-(CH_2)CR_aR_b(CH_2)-$, $-(CH_2)NR_a(CH_2)-$, or $-(CH_2)O(CH_2)-$, each of R_a and R_b, independently, being H, alkyl, -C(O)-alkyl, -C(O)-cycloalkyl, -C(O)-NH-alkyl, or -C(O)-NH-cycloalkyl; and

each of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$, independently, is H, alkyl, halo, OH, R_c-O-, $R_dS(O)_2-O-$, $(R_d)_2P(O)-O-$, or $(R_dO)_2P(O)-O-$, R_c being unsubstituted

alkyl or alkyl substituted with halo, OH, alkoxy, amino, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl, and R_d being H, OH, alkyl, alkoxy, amino, or aryl; in which at least one of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$ is $R_dS(O)_2$-O-, $(R_d)_2P(O)$-O-, or $(R_dO)_2P(O)$-O-.

11. The compound of claim 10, wherein each of X and Y is H.

12. The compound of claim 11, wherein R^2 is $R_aS(O)_2$-O-, $(R_a)_2P(O)$-O-, or $(R_aO)_2P(O)$-O-.

13. The compound of claim 12, wherein $R^{2'}$ is R-O-, R being alkyl substituted with amino.

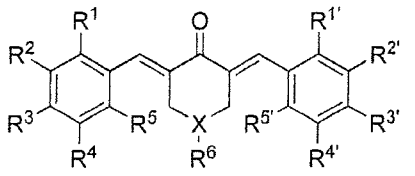
14. The compound of claim 12, wherein $R^{2'}$ is $R_aS(O)_2$-O-, $(R_a)_2P(O)$-O-, or $(R_aO)_2P(O)$-O-.

15. The compound of claim 14, wherein one of $R^{1'}$, $R^{3'}$, and $R^{4'}$ is $R_aS(O)_2$-O-, $(R_a)_2P(O)$-O-, or $(R_aO)_2P(O)$-O-.

16. The compound of claim 12, wherein R^2 is $C_2H_5S(O)_2$-O-, $(C_2H_5)_2P(O)$-O-, or $(C_2H_5O)_2P(O)$-O-.

17. The compound of claim 10, wherein the compound is selected from the group consisting of Compounds 5-11, 14, 18, 22-30, 32-34, 37, 40, 43, 48-51, 53, 60, 65, 66, 69, 70, 74, 76, 77, and 79.

18. A compound of the following formula:



,

wherein

each of X is N or CH;

each of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$, independently, is H, alkyl, halo, OH, R_c-O-, $R_dS(O)_2$-O-, $(R_d)_2P(O)$-O-, or $(R_dO)_2P(O)$-O-, R_c being unsubstituted alkyl or alkyl substituted with halo, OH, alkoxy, amino, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl, and R_d being H, alkyl, or aryl; and

R^6 is C(O)-R_e, C(O)NR_eR_f, or alkyl; each of R_e and R_f, independently, being alkyl or cycloalkyl.

19. The compound of claim 18, wherein X is N.

20. The compound of claim 19, wherein R^6 is cyclopropylcarbonyl.

21. The compound of claim 20, wherein R^2 is R-O-, R being alkyl substituted with amino.

22. The compound of claim 20, wherein R^2 is OH.

23. The compounds of claim 18, wherein the compound is selected from the group consisting of compounds 12, 13, 15-17, 22, 45, and 46.

24. A method of treating cancer comprising administering to a subject in need thereof an effective amount of the compound of claim 1.

25. The method of claim 24, wherein the cancer is colon cancer, prostate cancer, lung cancer, kidney cancer, bladder cacner, breast cancer, liver cancer, pancreatic cancer, gastric cancer, cervical cancer, ovarian cancer, glioma, melanoma, lymphoma, multiple myeloma, and leukemia.

26. A method of treating cancer comprising administering to a subject in need thereof an effective amount of the compound of claim 10.

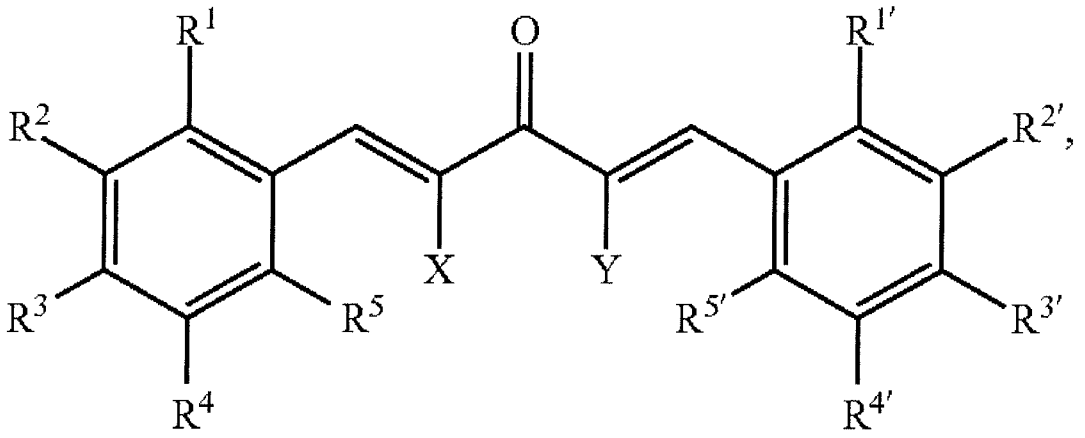
27. The method of claim 26, wherein the cancer is colon cancer, prostate cancer, lung cancer, kidney cancer, bladder cacner, breast cancer, liver cancer, pancreatic cancer, gastric cancer, cervical cancer, ovarian cancer, glioma, melanoma, lymphoma, multiple myeloma, and leukemia.

28. A method of treating cancer comprising administering to a subject in need thereof an effective amount of the compound of claim 18.

29. The method of claim 28, wherein the cancer is colon cancer, prostate cancer, lung cancer, kidney cancer, bladder cacner, breast cancer, liver cancer, pancreatic cancer, gastric cancer, cervical cancer, ovarian cancer, glioma, melanoma, lymphoma, multiple myeloma, and leukemia.

What is claimed is:

1. A compound of the following formula:



wherein

each of X and Y, independently, is H, alkyl, or halo; and each of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$, independently, is H, alkyl, halo, OH, R_c–O–, $R_dS(O)_2$–O–, $(R_d)_2P(O)$–O–, or $(R_dO)_2P(O)$–O–, R_c being unsubstituted alkyl or alkyl substituted with halo, OH, alkoxy, amino, cycloalkyl, and R_d being H, OH, C_2-C_{10} alkyl, or alkoxy; in which at least one of R^1, R^2, R^3, R^4, R^5, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, and $R^{5'}$ is $R_dS(O)_2$–O–, $(R_d)_2P(O)$–O–, or $(R_dO)^2P(O)$–O–.

2. The compound of claim 1, wherein each of X and Y is H.

3. The compound of claim 2, wherein R^2 is $R_dS(O)_2$–O–, $(R_d)_2P(O)$–O– or $(R_dO)_2P(O)$–O–.

4. The compound of claim 3, wherein $R^{2'}$ is R–O–, R being alkyl substituted with amino.

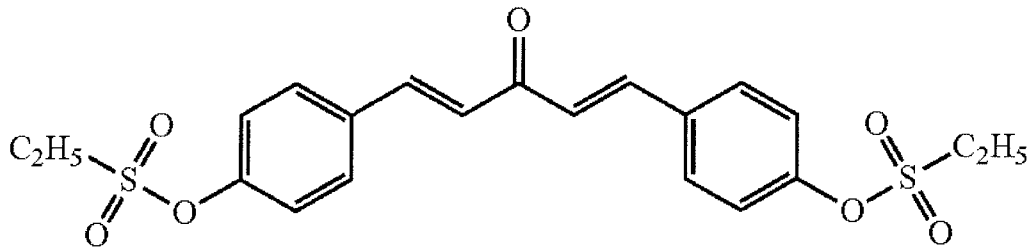
5. The compound of claim 3, wherein $R^{2'}$ is $R_dS(O)_2$–O–, $(R_d)_2P(O)$–O–, or $(R_dO)_2P(O)$–O–.

6. The compound of claim 5, wherein one of $R^{1'}$, $R^{3'}$, and $R^{4'}$, is $R_dS(O)_2$–O–, $(R_d)_2P(O)$–O–, or $(R_dO)_2P(O)$–O–.

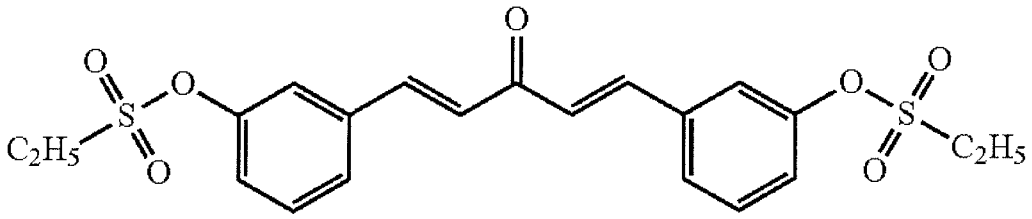
7. The compound of claim 3, wherein R^2 is $C_2H_5S(O)_2$–O–, $(C_2H_5)_2P(O)$–O–, or $(C_2H_5O)_2P(O)$–O–.

8. A compound, wherein the compound is selected from the group consisting of:

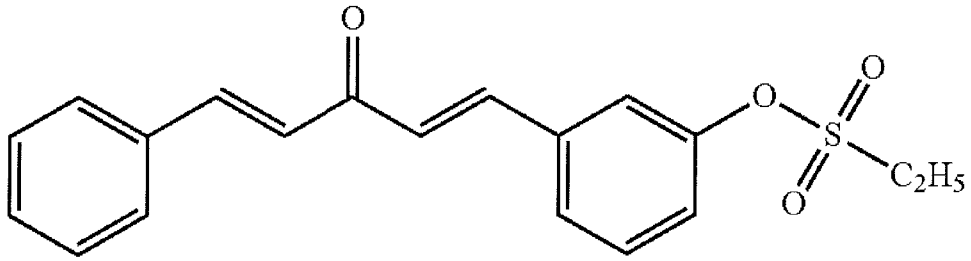
Compound 5



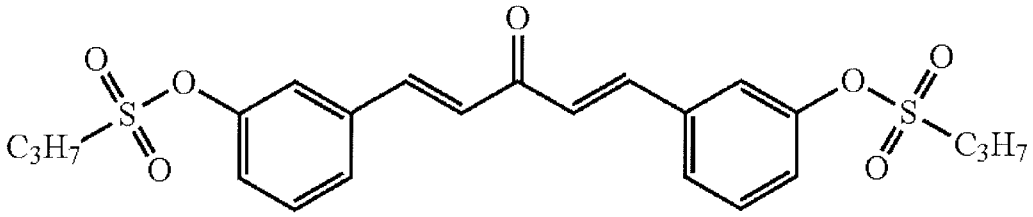
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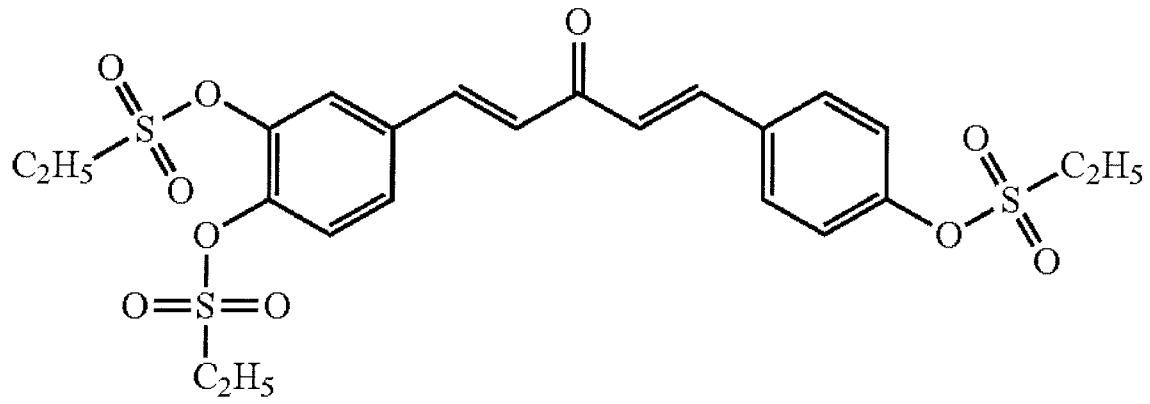
Compound 7



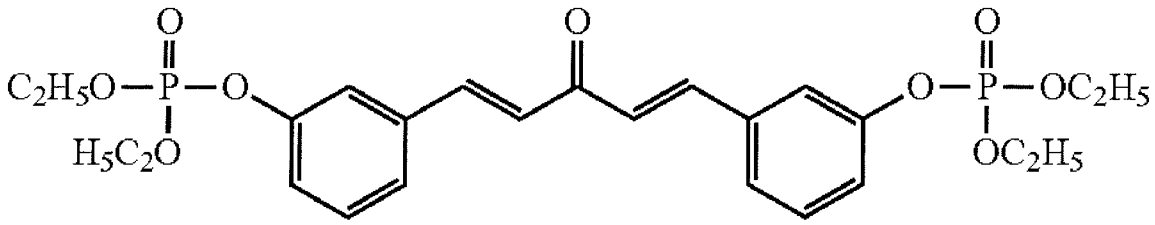
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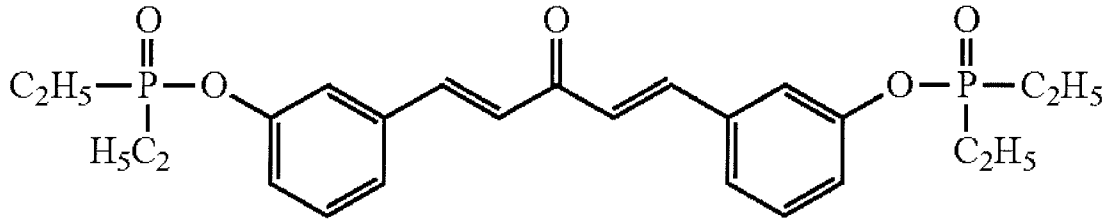
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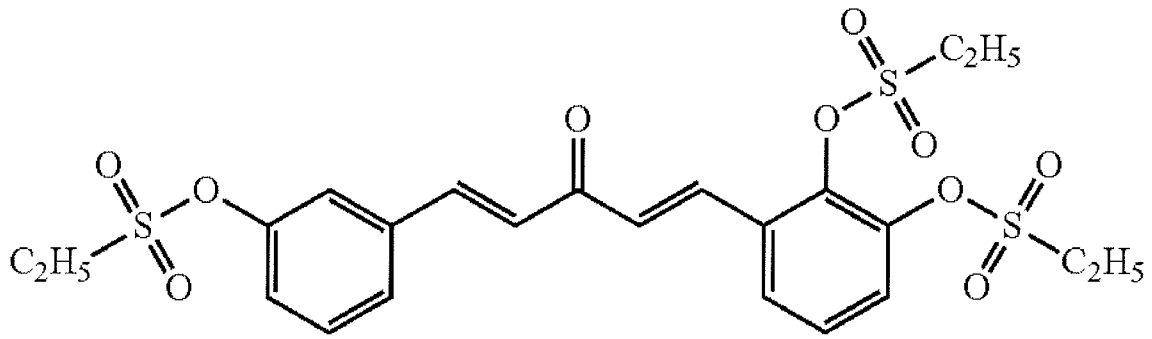
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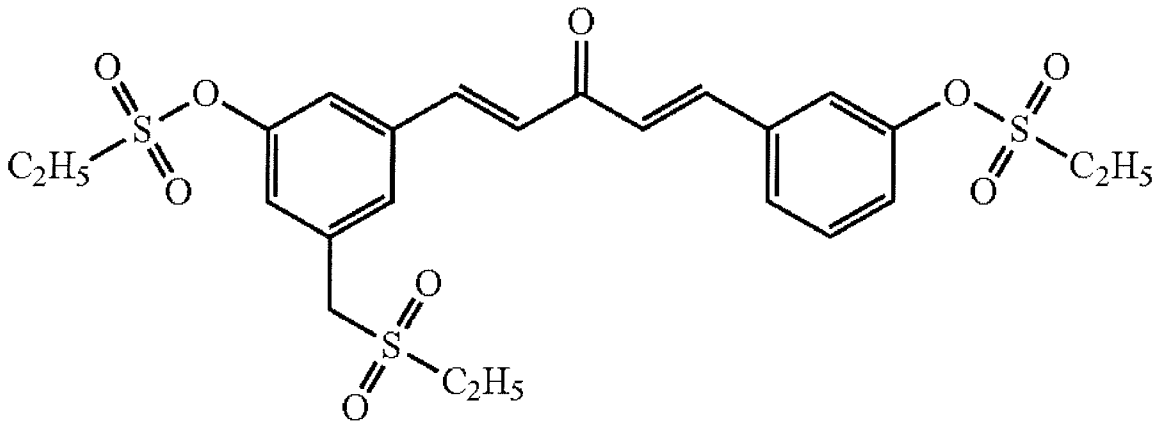
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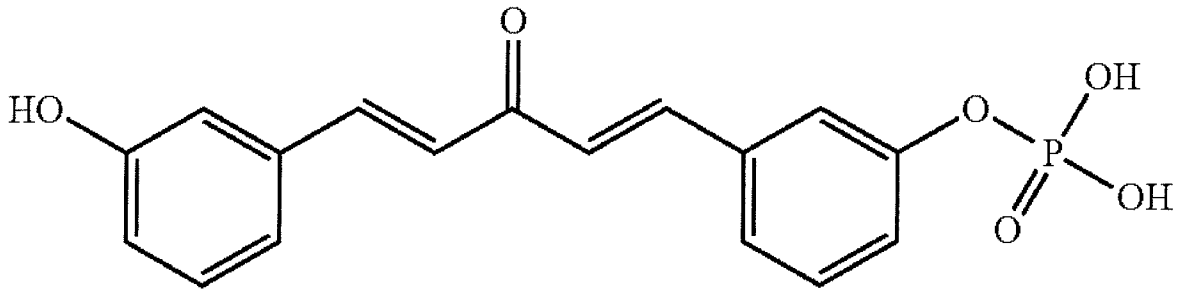
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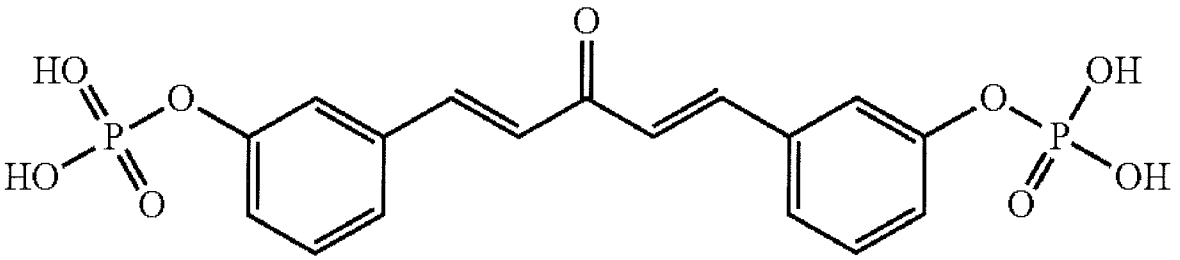
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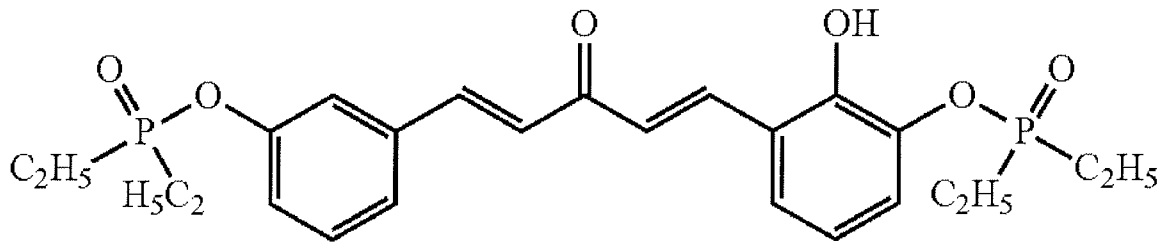
Compound 28



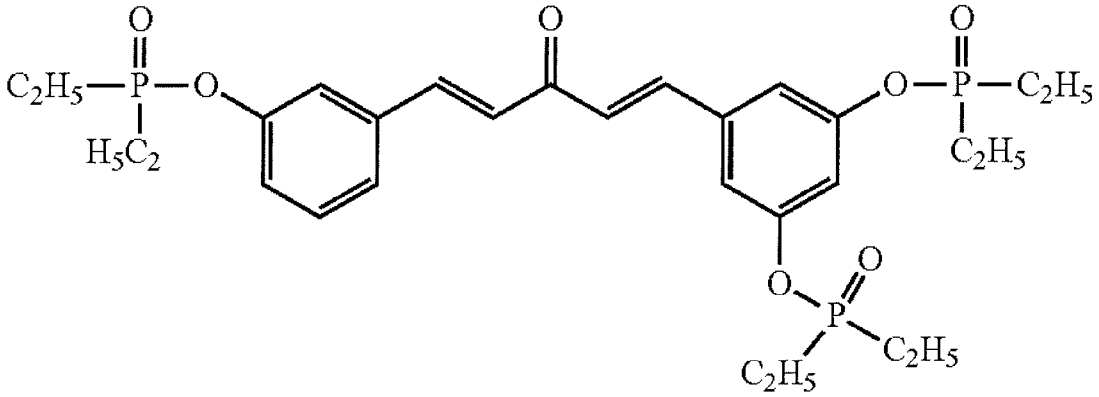
Compound 29



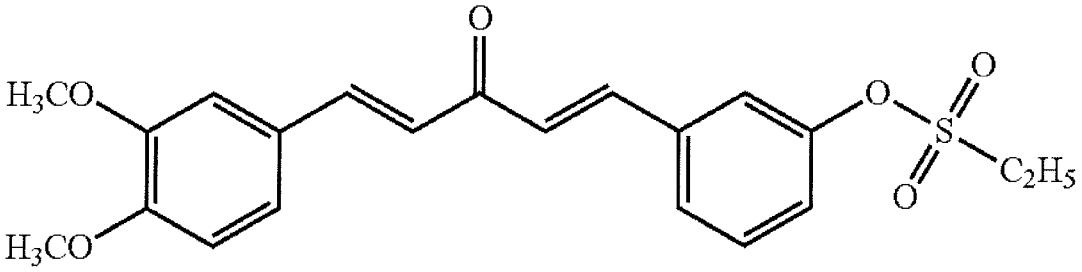
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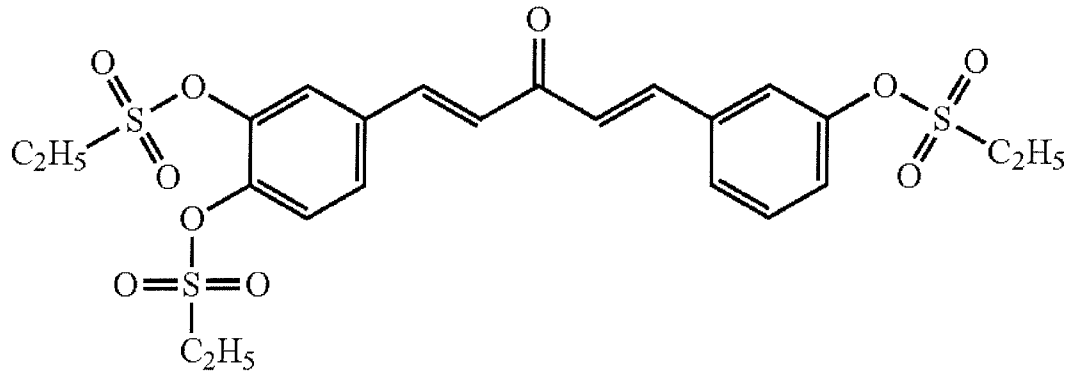
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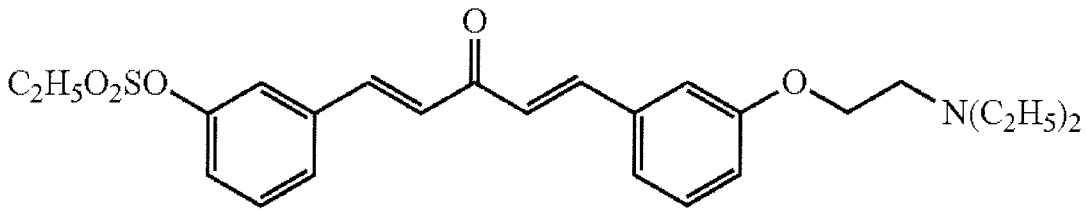
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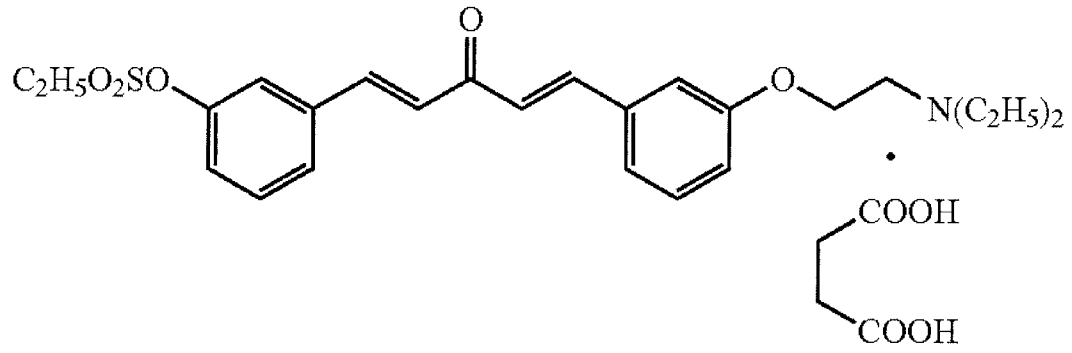
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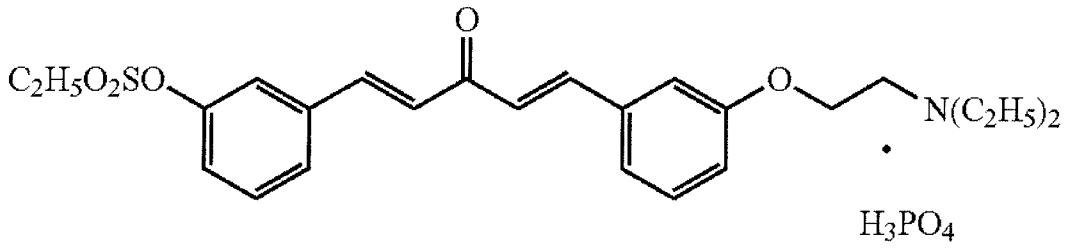
Compound 48



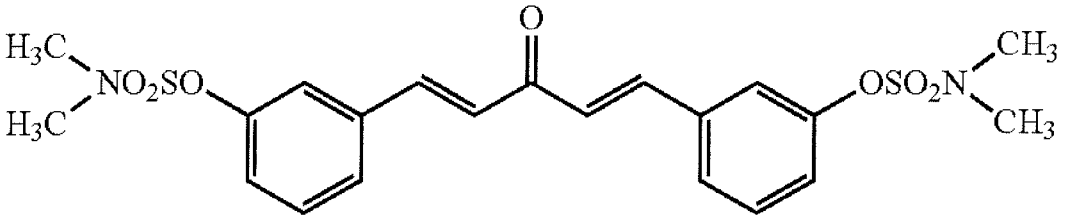
Compound 49



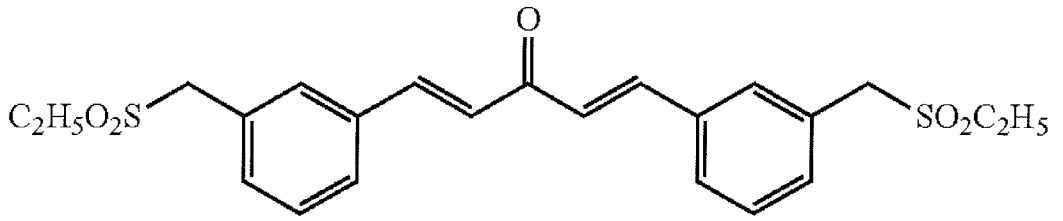
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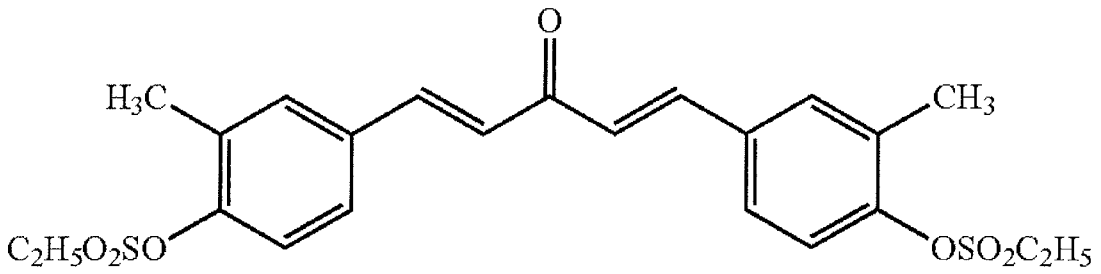
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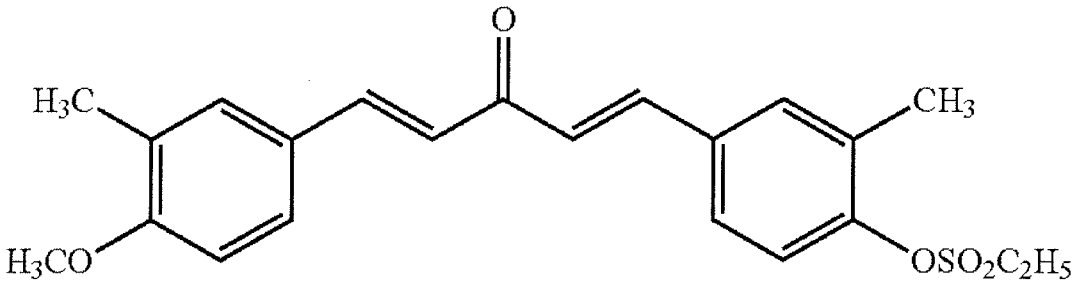
Compound 60



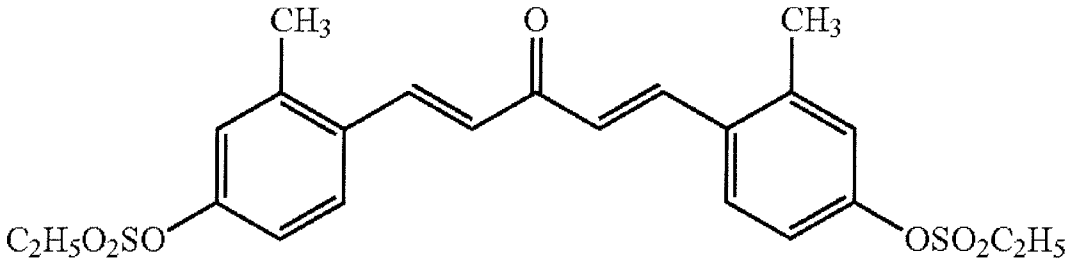
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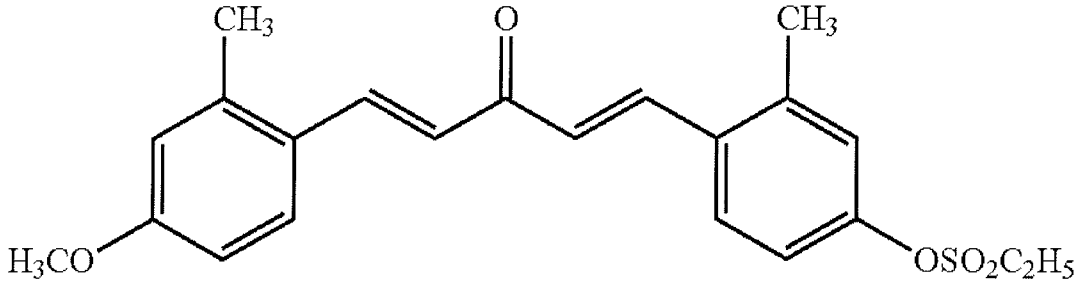
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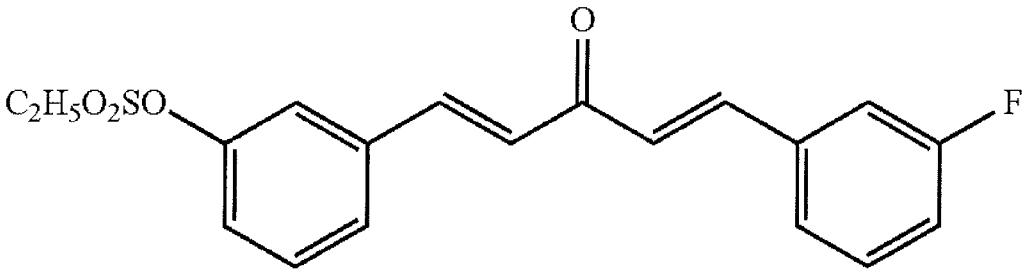
Compound 69



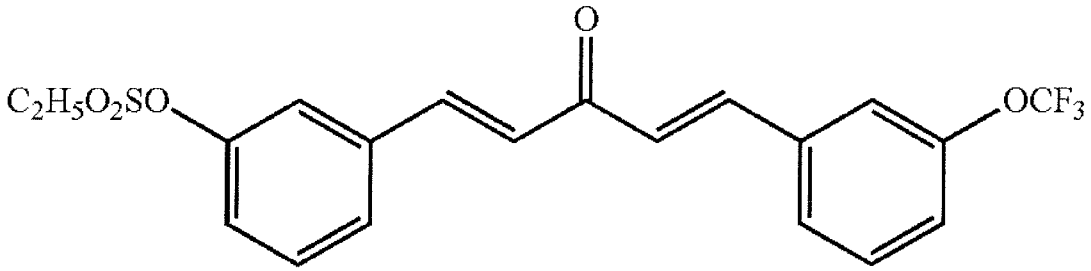
Compound 70



Compound 74



Compound 77



Compound 79

