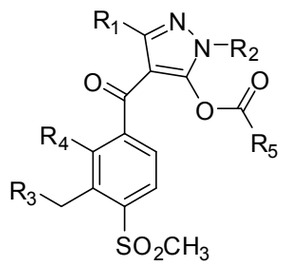
CAPÍTULO REIVINDICATORIO

1. Un compuesto de pirazol de fórmula (I) o una de sus sales:



(I)

en donde,

R_1 representa hidrógeno o alquilo C_1-C_4;

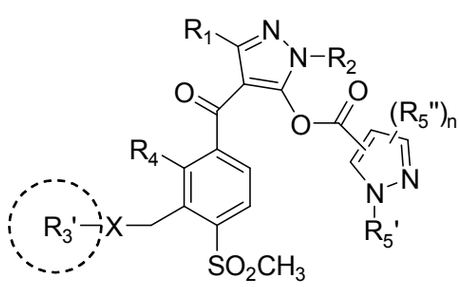
R_2 representa alquilo C_1-C_3;

R_3 representa una cadena lineal o grupo cíclico C1-C6 que contiene uno o más heteroátomos seleccionados entre O, S, y N;

R_4 representa alquilo C_1-C_3 o halógeno;

R_5 representa un anillo de pirazol o un anillo de pirazol sustituido con uno o más grupos seleccionados entre alquilo C_1-C_3, alcoxilo C_1-C_3, halógeno, alquilo halogenado C_1-C_3, amino y nitro.

2. El compuesto de pirazol o su sal de acuerdo con la Reivindicación 1 que se caracteriza porque el compuesto tiene una estructura de fórmula (I'):



(I')

en donde,

R_1 representa hidrógeno o alquilo C_1-C_4;

R_2 representa alquilo C_1-C_3;

X representa O, N o S, X y R_3' pueden formar un anillo o una cadena lineal, en donde, cuando X es O u S, R_3' representa alquilo C_1-C_6, alcoxi-C_3-C_6-alquilo, alquilo halogenado C_2-C_6, alquenilo C_3-C_6 o alquinilo C_3-C_6; cuando X es N, X y R_3' forman un anillo de pirazol o anillo de pirazol sustituido, un anillo de lactama C_3-C_5 o un anillo de lactama sustituido.

R_4 representa alquilo C_1-C_3 o halógeno;

R_5' representa alquilo C_1-C_3;

R_5'' representa hidrógeno, alquilo C_1-C_3, alcoxilo C_1-C_3, alquilo C_1-C_3 halogenado, halógeno, amino o nitro; n es 0, 1 o 2, en donde, cuando n es 2, los dos R5'' pueden ser iguales o diferentes.

3. El compuesto de pirazol o su sal de acuerdo con la Reivindicación 2, que se caracteriza porque,

R_1 representa hidrógeno, metilo, etilo o ciclopropilo;

R_2 representa metilo, etilo o isopropilo;

X representa O, N o S, X y R_3' pueden formar un anillo o una cadena lineal, en donde, cuando X es O u S, $R_{3'}$ representa alquilo C_1-C_6, alcoxi-C_3-C_6-alquilo, alquilo C_2-C_4 halogenado, alquenilo C_3-C_5 o alquinilo C_3-C_5; cuando X es N, X y R_3' forman un anillo de pirazol o un anillo de pirazol sustituido, un anillo de lactama C_3-C_5 o un anillo de lactama sustituido.

R_4 representa metilo o cloro;

R_5' representa metilo, etilo o isopropilo;

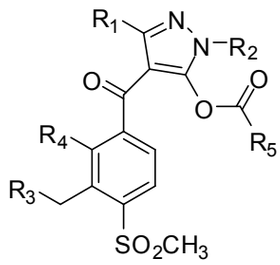
R_5'' representa hidrógeno, metilo, etilo, isopropilo, metoxilo, etoxilo, difluorometilo, cloro o bromo; n es 0, 1, o 2, en donde cuando n es 2, los dos R5'' pueden ser iguales o diferentes.

4. El compuesto de pirazol o su sal de acuerdo con la Reivindicación 3, que se caracteriza porque,

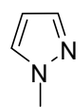
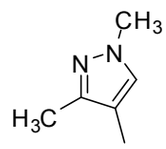
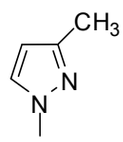
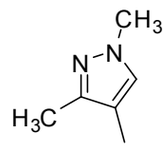
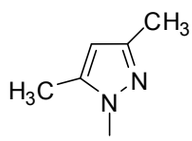
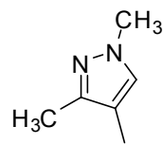
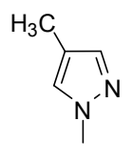
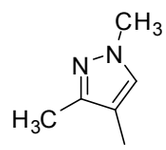
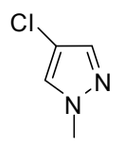
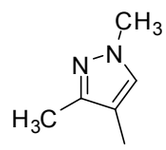
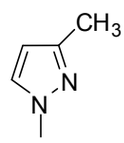
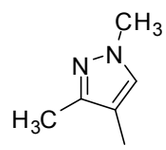
X representa O o N, X y R3' pueden formar un anillo o una cadena lineal, en donde, cuando X es O, R3' representa metil, etilo, n-butilo, metoxil etilo, etoxil etilo, metoxil isopropilo, metoxil n-propilo, 2,2-difluoroetilo, 2,2,2-trifluoroetilo, 1,1,2,2-tetrafluoropropil, propargilo, 2-butenil o tetrahidrofurfurilo; cuando X es N, X y R_3' forman

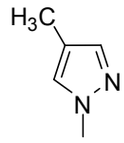
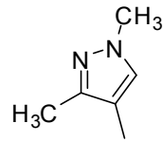
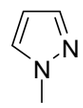
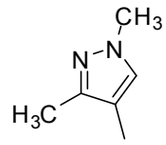
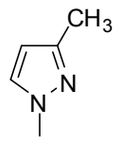
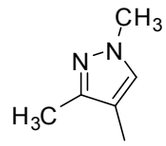
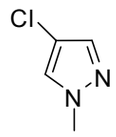
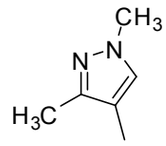
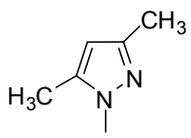
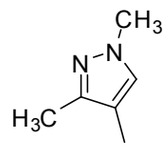
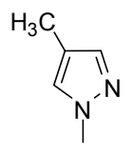
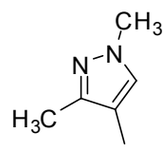
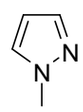
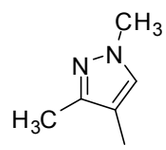
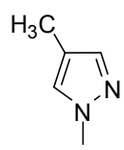
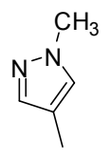
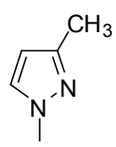
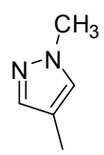
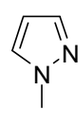
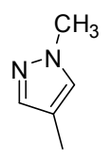
un anillo de pirazol, un anillo de pirazol 3-metilo, un anillo de pirazol 4-metilo, un anillo de pirazol 3,5-dimetilo, un anillo de 4-cloropirazol o un anillo de pirrolidona.

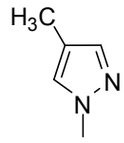
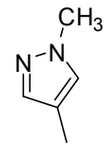
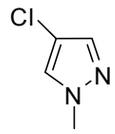
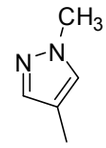
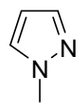
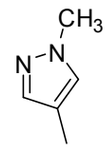
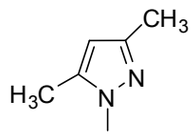
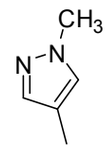
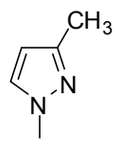
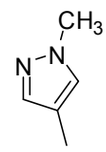
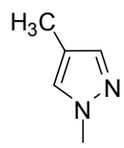
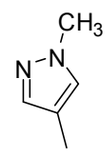
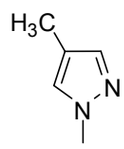
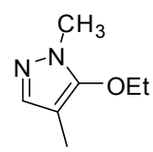
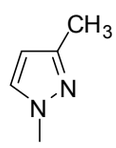
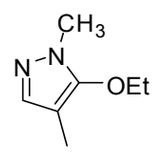
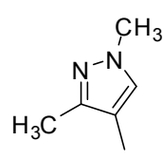
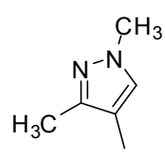
5. El compuesto de pirazol o su sal de acuerdo con la Reivindicación 1, en donde el compuesto es seleccionado entre

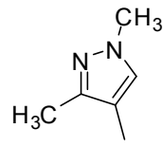
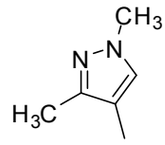
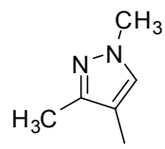
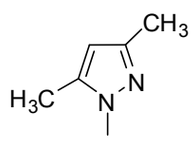
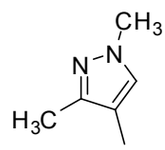
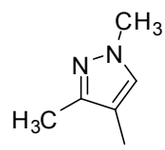
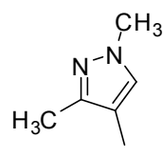
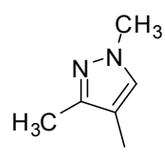
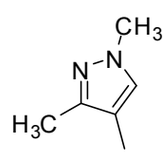
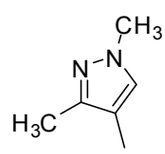


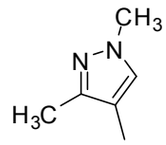
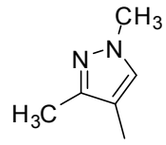
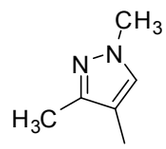
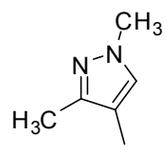
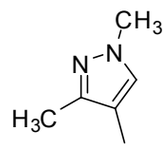
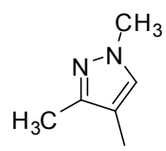
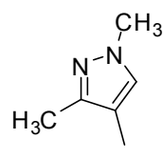
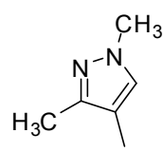
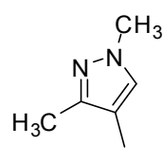
(I)

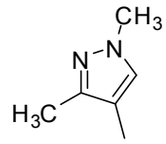
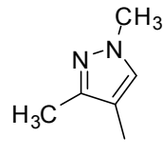
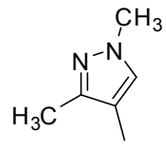
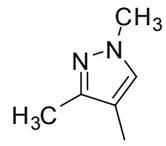
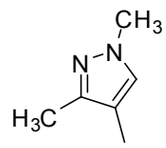
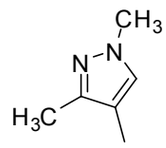
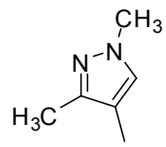
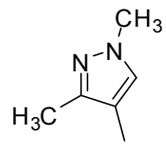
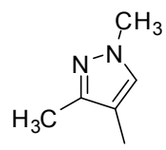
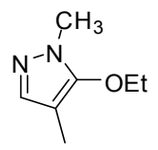
NO.	R_1	R_2	R_3	R_4	R_5
01	—CH_3	—CH_3		—Cl	
02	—CH_3	—CH_3		—Cl	
03	—CH_3	—CH_3		—Cl	
04	—CH_3	—CH_3		—Cl	
05	—CH_3	—CH_3		—Cl	
06	—H	—CH_3		—Cl	

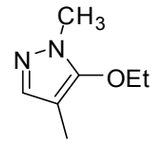
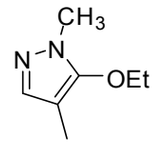
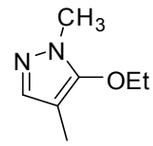
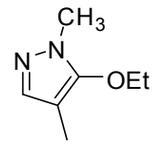
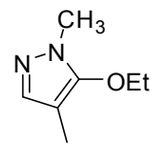
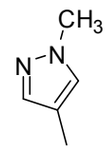
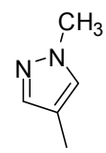
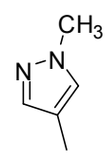
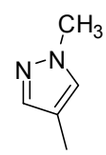
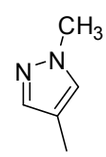
07	—H	—CH_3		—Cl	
08	—H	—CH_3		—Cl	
09		—CH_3		—Cl	
10		—CH_3		—Cl	
11		—CH_3		—Cl	
12		—CH_3		—Cl	
13		—CH_3		—Cl	
14	—CH_3	—CH_3		—Cl	
15	—CH_3	—CH_3		—Cl	
16	—CH_3	—CH_3		—Cl	

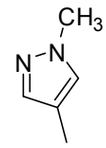
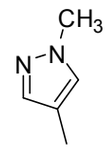
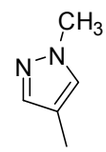
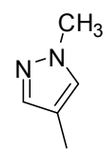
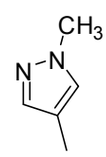
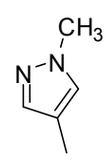
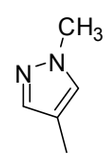
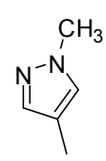
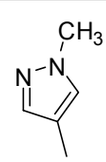
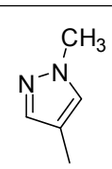
17	—H	—CH_3		—Cl	
18		—CH_3		—Cl	
19		—CH_3		—Cl	
20		—CH_3		—Cl	
21		—CH_3		—Cl	
22		—CH_3		—Cl	
23	—H	—CH_3		—Cl	
24	—H	—CH_3		—Cl	
25	—CH_3	—CH_3	—OCH_2CHF_2	—Cl	
26	—CH_3	—CH_3	—OCH_3	—Cl	

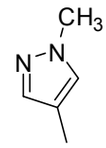
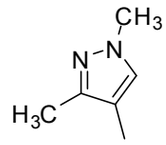
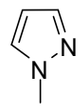
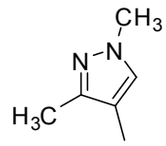
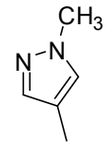
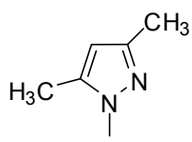
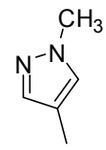
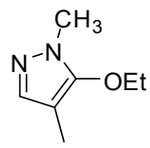
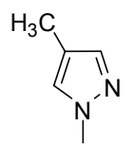
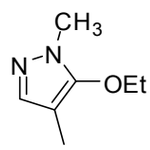
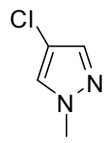
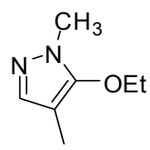
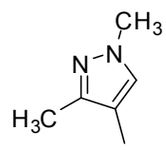
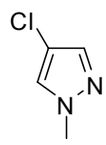
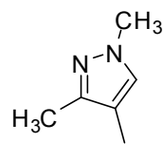
27	—CH_3	—CH_3	—OCH_2CH_3	—Cl	
28	—CH_3	—CH_3	—$OCH_2CH_2OCH_3$	—Cl	
29	—CH_3	—CH_3	—OCH_2CF_3	—Cl	
30	—CH_2CH_3	—CH_3		—Cl	
31	—CH_2CH_3	—CH_3	—OCH_2CH_3	—Cl	
32	—CH_2CH_3	—CH_3	—OCH_2CF_3	—Cl	
33	—CH_3	—CH_3	$HC{\equiv}C{-}CH_2O$—	—Cl	
34	—CH_3	—CH_3	—$OCH_2CH_2CH_2CH_3$	—Cl	
35	—CH_3	—CH_3	—$OCH_2CF_2CHF_2$	—Cl	

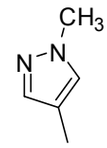
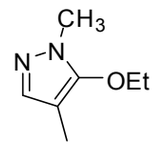
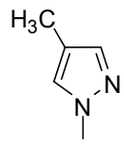
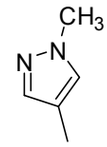
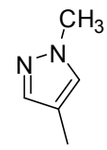
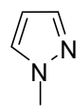
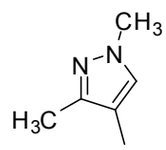
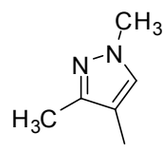
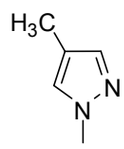
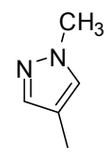
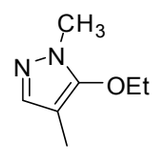
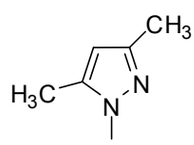
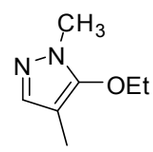
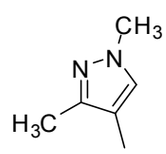
36	—CH_3	—CH_3	$CH_3OCH_2CH(O)CH_3$	—Cl	
37	—CH_3	—CH_3	—$OCH_2CH_2CH_2OCH_3$	—Cl	
38	—CH_3	—CH_3	$H_3C-C(H)=C(H)-CH_2O$—	—Cl	
39	—CH_3	—CH_3	—$OCH_2CH_2OCH_2CH_3$	—Cl	
40	—H	—CH_3	—OCH_2CHF_2	—Cl	
41	—H	—CH_3	$HC\equiv C-CH_2O$—	—Cl	
42	—H	—CH_3	—OCH_2CH_3	—Cl	
43	—H	—CH_3	$H_3C-C(H)=C(H)-CH_2O$—	—Cl	
44	—H	—CH_3	—OCH_2CF_3	—Cl	

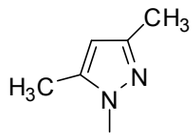
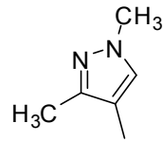
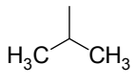
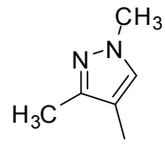
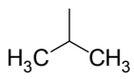
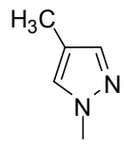
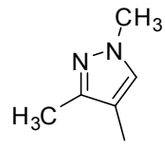
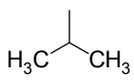
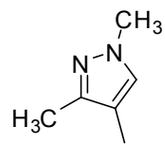
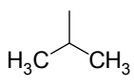
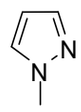
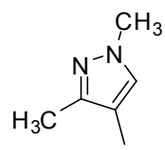
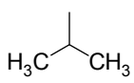
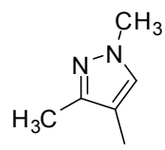
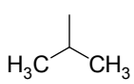
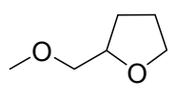
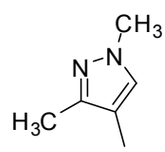
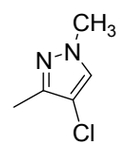
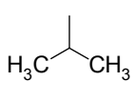
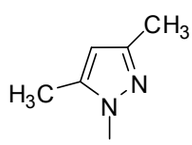
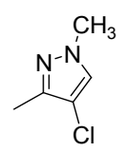
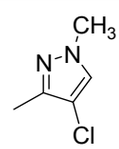
45	—H	—CH_3	—$OCH_2CH_2OCH_2CH_3$	—Cl	
46		—CH_3	—OCH_2CH_3	—Cl	
47		—CH_3	$HC\equiv C-CH_2O$—	—Cl	
48		—CH_3	—$OCH_2CF_2CHF_2$	—Cl	
49		—CH_3	—OCH_2CF_3	—Cl	
50		—CH_3	—OCH_2CHF_2	—Cl	
51		—CH_3	—OCH_3	—Cl	
52		—CH_3	—$OCH_2CH_2CH_2OCH_3$	—Cl	
53	—H	—CH_3	—$OCH_2CH_2CH_2OCH_3$	—Cl	
54	—H	—CH_3	—OCH_2CF_3	—Cl	

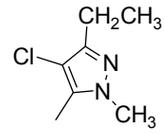
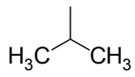
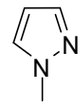
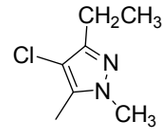
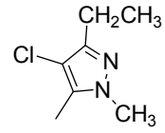
55	—CH_3	—CH_3	—OCH_2CF_3	—Cl	
56	—CH_3	—CH_3	$HC\equiv C-CH_2O$—	—Cl	
57	—H	—CH_3	—OCH_2CHF_2	—Cl	
58	—H	—CH_3	$HC\equiv C-CH_2O$—	—Cl	
59	—H	—CH_3	—$OCH_2CH_2OCH_2CH_3$	—Cl	
60		—CH_3	$HC\equiv C-CH_2O$—	—Cl	
61	—H	—CH_3	$HC\equiv C-CH_2O$—	—Cl	
62	—H	—CH_3	—$OCH_2CH_2CH_2OCH_3$	—Cl	
63	—CH_3	—CH_3	—OCH_2CF_3	—Cl	
64	—CH_3	—CH_3	—OCH_2CHF_2	—Cl	

65	—CH_3	—CH_3	—$OCH_2CF_2CHF_2$	—Cl	
66	—CH_3	—CH_3	—$OCH_2CH_2CH_2OCH_3$	—Cl	
67	—H	—CH_3	—OCH_2CF_3	—Cl	
68	—H	—CH_3	—$OCH_2CH_2OCH_2CH_3$	—Cl	
69	—CH_3	—CH_3	$HC{\equiv}C{-}CH_2O$—	—Cl	
70		—CH_3	—OCH_2CH_3	—Cl	
71		—CH_3	—$OCH_2CF_2CHF_2$	—Cl	
72		—CH_3	—OCH_3	—Cl	
73	—CH_3	—CH_3	—OCH_2CH_3	—Cl	
74		—CH_3	—$OCH_2CH_2OCH_2CH_3$	—Cl	

75		—CH_3	—$OCH_2CH_2CH_2CH_3$	—Cl	
76	—CH_3	—CH_3	$HC\equiv C-CH_2O$—	—CH_3	
77	—H	—CH_3		—CH_3	
78		—CH_3	—OCH_2CF_3	—CH_3	
79	—CH_3	—CH_3		—CH_3	
80	—H	—CH_3	—OCH_2CH_3	—CH_3	
81		—CH_3		—CH_3	
82	—CH_3	—CH_2CH_3		—CH_3	
83	—H	—CH_2CH_3	—$OCH_2CH_2CH_2OCH_3$	—CH_3	
84		—CH_2CH_3		—CH_3	

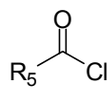
85	—CH_3	—CH_2CH_3	—$OCH_2CF_2CHF_2$	—CH_3	
86		—CH_2CH_3	—$OCH_2CH_2OCH_2CH_3$	—CH_3	
87	—H	—CH_2CH_3		—CH_3	
88	—H	—CH_2CH_3	$H_3C-\underset{H}{C}=\underset{H}{C}-CH_2O-$	—Cl	
89	—CH_3	—CH_2CH_3		—Cl	
90		—CH_2CH_3	—OCH_2CHF_2	—Cl	
91		—CH_2CH_3		—Cl	
92	—CH_3	—CH_2CH_3	—OCH_3	—Cl	
93	—H	—CH_2CH_3		—Cl	
94	—CH_2CH_3	—CH_2CH_3	—OCH_2CHF_2	—Cl	

95	—CH_2CH_3	—CH_2CH_3		—Cl	
96			—OCH_2CH_3	—Cl	
97	—H			—Cl	
98	—CH_3		—OCH_2CF_3	—Cl	
99	—CH_2CH_3			—Cl	
100	—H		HC≡C−CH_2O—	—Cl	
101	—CH_3			—Cl	
102	—H	—CH_3	—OCH_2CHF_2	—Cl	
103	—CH_3			—Cl	
104	—CH_2CH_3	—CH_2CH_3	—OCH_2CH_3	—Cl	

105	—H	—CH_3	—OCH_2CF_3	—Cl	
106	—CH_3			—Cl	
107	—CH_2CH_3	—CH_2CH_3	HC≡C−CH_2O—	—Cl	

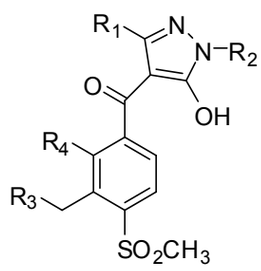
6. Un método para preparar el compuesto de pirazol o su sal de acuerdo con la Reivindicación 1, que se caracteriza porque un compuesto de fórmula (II) y un compuesto de fórmula (III) se someten a una reacción de esterificación para obtener el compuesto de pirazol o su sal,

en donde, el compuesto de fórmula (II) aparece de la siguiente manera:



II

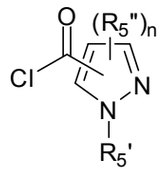
el compuesto de fórmula (III) aparece de la siguiente manera:



(III) .

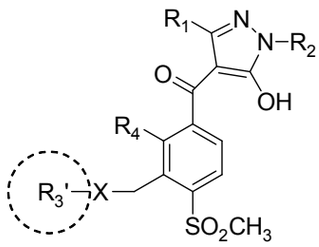
7. Un método para preparar el compuesto de pirazol o su sal de acuerdo con cualquiera de las Reivindicaciones 2-4, que se caracteriza porque un compuesto de fórmula (II') y un compuesto de fórmula (III') se someten a una reacción de esterificación para obtener el compuesto de pirazol o su sal,

en donde el compuesto de fórmula (II') aparece de la siguiente manera:



(II')

el compuesto de fórmula (III') aparece de la siguiente manera:



(III') .

8. El método de acuerdo con la Reivindicación 6 o la Reivindicación 7, que se caracteriza porque la reacción se lleva a cabo en presencia de un disolvente y un álcali a una temperatura de -10 a 50°C, preferiblemente de 0 a 20°C por 0,1-12 horas, preferiblemente 0,5-3 horas; el disolvente es acetonitrilo o diclorometano, y el álcali es trietilamina o carbonato de potasio.

9. Una composición herbicida que se caracteriza porque comprende una cantidad herbicidamente efectiva de al menos un compuesto de pirazol o su sal de acuerdo con cualquiera de las Reivindicaciones 1-5.

10. La composición herbicida de acuerdo con la Reivindicación 9, que se caracteriza porque también comprende un auxiliar de preparación.