[0017] (1) reacting salicylonitrile (Formula 9) or a salt thereof with the compound of Formula 2 and Formula 3 respectively, to produce the azoxystrobin (Formula 1) or the precursor of azoxystrobin (Formula 7);

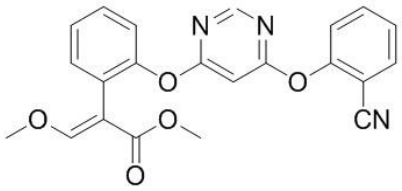
[0018] (2) reacting the compound of Formula 4 with the compound of Formula 5 and Formula 6 or a salt thereof respectively, to produce the azoxystrobin (Formula 1) or the precursor thereof (Formula 7);

[0019] (3) reacting the compound of Formula 5 and Formula 6 or a salt thereof respectively with 4,6-dichloropyrimidine (Formula 8), to produce the compound of Formula 2 or Formula 3; and

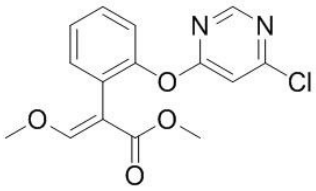
[0020] (4) reacting salicylonitrile (Formula 9) or a salt thereof with 4,6-dichloropyrimidine (Formula 8), to produce the compound of Formula 4.

[0021] Wherein, the salts of salicylonitrile, the compound of Formula 2, or the compound of Formula 3 refer to their alkali metal salts, including lithium salts, sodium salts, and potassium salts.

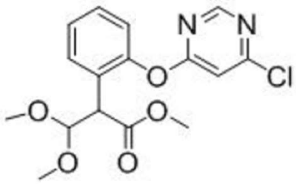
[0022] General structural Formula 1-9 are as follows:



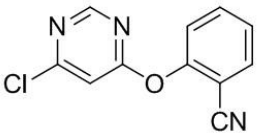
Formula 1



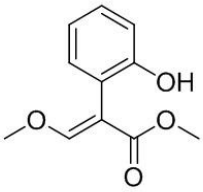
Formula 2



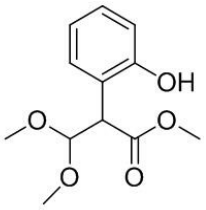
Formula 3



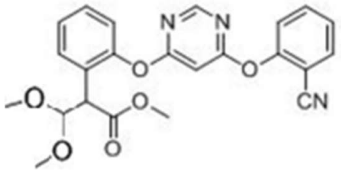
Formula 4



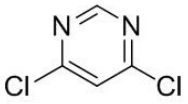
Formula 5



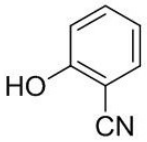
Formula 6



Formula 7



Formula 8



Formula 9

[0023] In the method, for 1 mol of salicylonitrile (Formula 9) or the salt thereof, the compound of Formula 5 or the salt thereof, the compound of Formula 6 or the salt thereof, 4,6-dichloropyrimidine (Formula 8), or the compound of Formula 2, Formula 3 or Formula 4 as the raw materials of the reaction, at least one of the compounds of Formula 10A-Formula 10E or the salts thereof as the catalysts are used in a total amount of 0.001 mol-0.1 mol, and preferably 0.005 mol-0.05 mol.

[0024] In the method, the solvent includes one or more selected from methanol, ethanol, propanol, isopropanol, n-butanol, isobutanol, toluene, tetrahydrofuran, acetonitrile, dichloromethane, N,N-dimethylformamide, N,N-dimethylacetylamide, dimethyl sulfoxide, sulfolane, sec-butyl acetate, n-butyl acetate, isopropyl acetate, n-propyl acetate, and ethyl acetate.

[0025] In the method, for 1 Kg of the salicylonitrile (Formula 9) or the salt thereof, the compound of Formula 5 or the salt thereof, the compound of Formula 6 or the salt thereof, 4,6-dichloropyrimidine (Formula 8), or the compound of Formula 2, Formula 3 or Formula 4 as the raw materials of the reaction, the solvent is used in a total amount of 1 L-20 L; if multiple solvents above are selected to form a mixed solvent, the amount of any single solvent in the mixed solvent is used in an amount of 0.05 L-10 L.

4,6-dichloropyrimidine (0.105 mol, 14.90 g) and a catalyst 2-carbonyl-1,4-diazabicyclo[2.2.1]heptane (0.001 mol, 0.1121 g) were successively added. The mixture was stirred, cooled to 5°C. A methanol solution of 31% by weight of sodium methoxide was slowly added, and the mixture was kept at 5°C-15°C with stirring for 2 h after the completion of the addition. The remaining amount of the 3-(α-methoxy)methylenebezofuran-2-(3H)-one (the compound represented by Formula 11) detected by HPLC was less than 1% and the total remaining amount of the compounds of Formula 5 and Formula 6 as intermediates was less than 1%. 25 mL of water was slowly added dropwise, and the mixture was stirred and then allowed to stand for liquid separation. The toluene phase was evaporated until dry, to obtain a crude product containing the compounds represented by Formula 2 and Formula 3 with a total content of 95.4% and a yield of 94.9%.

[0079] Example 14 This example is used to illustrate the preparation of the precursor of azoxystrobin represented by Formula 7.

[0080] To a 250 mL reaction flask, dried toluene (100 mL), salicylonitrile (0.105 mol, 12.50 g), the compound methyl 2-(2-((6-chloropyrimidin-4-yl)oxy)phenyl)-3,3-dimethoxypropionate represented by Formula 3 (0.l mol, 35.277 g), potassium carbonate (0.08 mol, 11.06 g) and a catalyst 2-carbonyl-1,4-diazabicyclo[2.2.1]heptane (0.001 mol, 0.1121 g) were successively added. The mixture was stirred, heated to 85°C, and kept at the temperature for 4 h. The content of salicylonitrile detected by HPLC was less than 0.5%. The reaction system was cooled to 40-50°C, added with 20 mL of water, stirred, and stood for layering. The aqueous phase was removed. The toluene phase was washed once with 10 mL of water and the aqueous phase was removed again. The toluene phase was evaporated until dry and recrystallized, to obtain a precursor of azoxystrobin represented by Formula 7 with a content of 98.3% and a yield of 95.4%.

[0081] Example 15 This example is used to illustrate the preparation of the precursor of azoxystrobin represented by Formula 7.

[0082] To a 250 mL reaction flask, dried toluene (100 mL), the compound represented by Formula 4 (0.l mol, 23.16 g), the compound methyl 2-(2-hydroxy)phenyl-3,3-dimethoxypropionate of Formula 6 (0.102 mol, 24.51 g), potassium