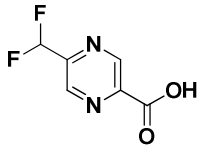
CLAIMS

[Claim 1]

A method for producing 5-(difluoromethyl)pyrazine-2-~~carboxilic~~ carboxylic acid represented by a formula (V):

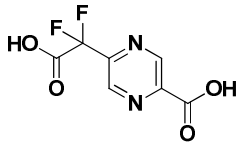
[Formula 2]



(V)

or a hydrate thereof, or a salt of 5-(difluoromethyl)pyrazine-2-~~carboxilic~~ carboxylic acid or a hydrate thereof, comprising a step of decarboxylating a compound represented by a formula (IV):

[Formula 1]



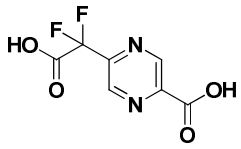
(IV)

or a salt thereof.

[Claim 2]

A compound represented by a formula (IV):

[Formula 3]



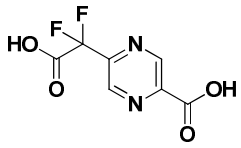
(IV)

and a salt thereof.

[Claim 3]

A method for producing 5-[carboxy(difluoro)methyl]pyrazine-2-carboxylic acid represented by the following formula (IV):

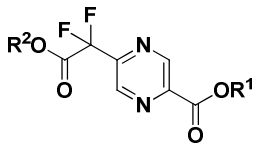
[Formula 5]



(IV)

or a salt thereof, comprising a step of hydrolyzing a compound represented by a formula (III):

[Formula 4]


(III)

wherein R^1 and R^2 each independently represent a linear or branched C_{1-6} alkyl group,
or a salt thereof.

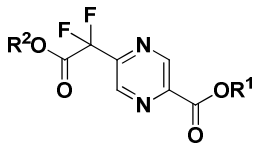
[Claim 4]

The production method according to Claim 3, wherein the hydrolysis is performed by using an alkali metal hydroxide.

[Claim 5]

A compound represented by a formula (III):

[Formula 6]

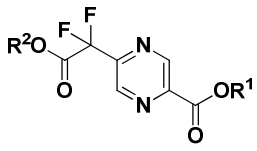

(III)

wherein R^1 and R^2 each independently represent a linear or branched C_{1-6} alkyl group,
or a salt thereof.

[Claim 6]

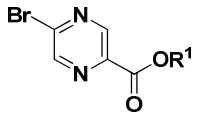
A method for producing a compound represented by a formula (III):

[Formula 8]


(III)

wherein R^1 and R^2 have the same meaning as defined in claim 3,
or a salt thereof, comprising a step of coupling a compound represented by a formula (II):

[Formula 7]


(II)

wherein R^1 represents a linear or branched C_{1-6} alkyl group,
or a salt thereof, with $BrZnCF_2COOR^2$ in a presence of a copper salt.

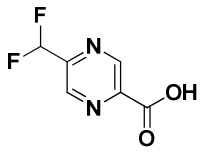
~~[Claim 7] (Canceled)~~

[Claim ~~8~~7]

A method for producing 5-(difluoromethyl)pyrazine-2-~~carboxilic~~ carboxylic acid

represented by a formula (V):

[Formula 15]

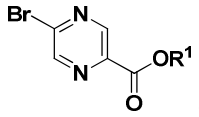


(V)

or a hydrate thereof, or a salt of 5-(difluoromethyl)pyrazine-2-~~carboxilic~~ carboxylic acid or a hydrate thereof, comprising steps of

i) synthesizing a compound represented by a formula (II):

[Formula 12]

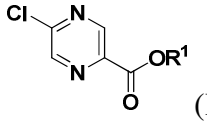


(II)

wherein R^1 has the same meaning as defined in claim 6,

or a salt thereof by subjecting a compound represented by a formula (I):

[Formula 11]



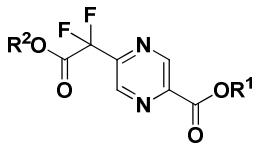
(I)

wherein R^1 has the same meaning as defined in (

or a salt thereof to a chlorine-bromine exchange reaction;

ii) synthesizing a compound represented by a formula (III):

[Formula 13]



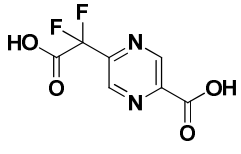
(III)

wherein R^1 and R^2 have the same meaning as defined in claim 3,

or a salt thereof by coupling the compound represented by the formula (II) or a salt thereof with a compound represented by a formula $BrZnCF_2COOR^2$ ~~or a salt thereof~~ in a presence of a copper salt;

iii) synthesizing a compound represented by a formula (IV):

[Formula 14]



(IV)

or a salt thereof by hydrolyzing the compound represented by the formula (III) or a salt thereof; and

iv) decarboxylating the compound represented by the formula (IV) or a salt thereof.