**Supp Table S1.** **Information on the collection location.**

|  |  |  |
| --- | --- | --- |
| **Population** | **Suspect biotype** | **Location** |
| **Province** | **City** | **Village** | **latitude** | **longitude** | **Time** |
| LC16001 | Resistant | Jiangsu | Nanjing | Pukou | 31°59'8" | 118°25'55" | 2016 |
| LC17001 | Resistant | Hunan | Changsha | Longwangmiao | 28°18'41" | 113°17'45" | 2017 |
| LC17002 | Resistant | Hainan | Sanya | Yazhou | 18°22'38" | 109°11'25" | 2017 |
| LC17003 | Resistant | Hubei | Huanggang | Huangmei | 30°0'25" | 115°56'9" | 2017 |
| LC17004 | Resistant | Hunan | Yiyang | Tianxingqiao | 28°31'29" | 112°22'50" | 2017 |
| LC17005 | Resistant | Hunan | Yiyang | Gaoling | 28°30'18" | 112°22'42" | 2017 |
| LC17006 | Resistant | Hunan | Yiyang | Shiba | 28°29'14" | 112°22'3" | 2017 |
| LC17007 | Resistant | Hunan | Yiyang | Zoujiaqiao | 28°39'32" | 112°16'17" | 2017 |
| LC17008 | Resistant | Hunan | Yiyang | Xinfeng | 28°29'24" | 112°17'11" | 2017 |
| LC17009 | Resistant | Hunan | Yiyang | Tiaoshi | 28°28'16" | 112°16'46" | 2017 |
| LC17010 | Resistant | Hunan | Yiyang | Gaochong | 28°27'24" | 112°16'23" | 2017 |
| LC17011 | Resistant | Hunan | Yiyang | Qingxi | 28°32'23" | 112°18'40" | 2017 |
| LC17012 | Resistant | Hunan | Yiyang | Gaoqiao | 28°32'24" | 112°16'59" | 2017 |
| LC17013 | Resistant | Hunan | Yiyang | Dayuan | 28°32'45" | 112°17'31" | 2017 |
| LC17014 | Resistant | Hunan | Yiyang | Dawen | 28°44'53" | 112°19'43" | 2017 |
| LC17015 | Resistant | Hunan | Yiyang | Sanyantang | 28°45'27" | 112°20'36" | 2017 |
| LC17016 | Resistant | Hunan | Yiyang | Shuangxian | 28°46'39" | 112°20'36" | 2017 |
| LC17017 | Resistant | Hunan | Yiyang | Lishan | 28°59'59" | 112°17'55" | 2017 |
| LC17018 | Resistant | Hunan | Yiyang | Yubaixin | 29°0'25" | 112°18'58" | 2017 |
| LC17019 | Resistant | Hunan | Yiyang | Baijiagou | 29°1'34" | 112°18'1" | 2017 |
| LC17020 | Resistant | Hunan | Yiyang | Leyuan | 29°3'49" | 112°20'41" | 2017 |
| LC17021 | Resistant | Hunan | Yiyang | Renhe | 29°3'50" | 112°24'52" | 2017 |
| LC17022 | Resistant | Hunan | Yiyang | Huimin | 29°2'53" | 112°23'21" | 2017 |
| LC17023 | Resistant | Hunan | Changde | Zongyangshu | 29°24'11" | 112°14'19" | 2017 |
| LC17024 | Resistant | Hunan | Changde | Xiaohekou | 29°18'23" | 112°13'41" | 2017 |
| LC17025 | Resistant | Hunan | Changde | Heping | 29°20'30" | 112°13'1" | 2017 |
| LC17026 | Resistant | Hunan | Changde | Tongchun | 29°21'31" | 112°13'42" | 2017 |
| LC17027 | Resistant | Hunan | Changde | Zhizihu | 29°25'25" | 112°13'12" | 2017 |
| LC17028 | Resistant | Hunan | Changde | Mengjiazhou | 29°25'28" | 112°11'45" | 2017 |
| LC17029 | Resistant | Hunan | Changde | Mengjiazhou | 29°25'9" | 112°11'4" | 2017 |
| LC17030 | Resistant | Hunan | Changde | Yongde | 29°21'2" | 112°7'26" | 2017 |
| LC17031 | Resistant | Hunan | Changde | Qingan | 29°20'9" | 112°7'4" | 2017 |
| LC17032 | Resistant | Hunan | Changde | Zhengan | 29°19'39" | 112°8'13" | 2017 |
| LC17033 | Resistant | Hunan | Changde | Liujiapu | 29°12'15" | 111°51'44" | 2017 |
| LC17034 | Resistant | Hunan | Changde | Wuyan | 29°10'51" | 111°51'32" | 2017 |
| LC17035 | Resistant | Hunan | Changde | Lumaogang | 29°10'17" | 111°51'11" | 2017 |
| LC17036 | Resistant | Hunan | Changde | Fengshukou | 29°8'37" | 111°28'37" | 2017 |
| LC17037 | Resistant | Hunan | Changde | Jiagang | 29°8'44" | 111°47'44" | 2017 |
| LC17038 | Resistant | Hunan | Changde | Qiaojiagang | 29°8'29" | 111°47'17" | 2017 |
| LC17039 | Resistant | Hunan | Changde | Baihe | 29°7'4" | 111°45'42" | 2017 |
| LC17040 | Resistant | Hunan | Changde | Dongshan | 29°5'56" | 111°45'10" | 2017 |
| LC17041 | Susceptible | Hunan | Changde | Qinglongzui | 29°6'13" | 111°45'44" | 2017 |
| LC17042 | Resistant | Hunan | Changde | Yadong | 28°50'38" | 111°56'44" | 2017 |
| LC17043 | Resistant | Hunan | Changde | Yuanjialing | 28°50'12" | 112°56'49" | 2017 |
| LC17044 | Resistant | Hunan | Changde | Zoujiaping | 28°50'2" | 111°56'53" | 2017 |
| LC17045 | Resistant | Hunan | Changde | Longjin | 28°46'6" | 111°57'25" | 2017 |
| LC17046 | Resistant | Hunan | Changde | Gangerkou | 28°46'26" | 111°58'9" | 2017 |
| LC17047 | Resistant | Hunan | Changde | Yujiaqiao | 28°45'13" | 111°51'57" | 2017 |
| LC17048 | Resistant | Hunan | Changde | Wangjiadi | 28°41'37" | 112°6'52" | 2017 |
| LC17049 | Resistant | Hunan | Changde | Wangjiadi | 28°41'55" | 112°7'13" | 2017 |
| LC17050 | Resistant | Hunan | Changde | Xinleshe | 28°42'17" | 112°9'27" | 2017 |
| LC18001 | Resistant | Hunan | Changde | Yangjiapu | 28°50'1" | 111°56'52" | 2018 |
| LC18002 | Resistant | Hunan | Changde | Zhangjiazhou | 28°49'46" | 112°0'12" | 2018 |
| LC18003 | Resistant | Hunan | Changde | Xiaoxinhun | 28°1'26" | 112°2'57" | 2018 |
| LC18004 | Resistant | Hunan | Changde | Pangupian | 29°4'58" | 111°59'8" | 2018 |
| LC18005 | Resistant | Hunan | Changde | Dujia | 29°21'6" | 112°10'16" | 2018 |
| LC18006 | Resistant | Hunan | Changde | Wanyuzhou | 29°24'36" | 112°9'56" | 2018 |
| LC18007 | Resistant | Hunan | Changde | Guanlinghu | 29°25'24" | 112°11'17" | 2018 |
| LC18008 | Resistant | Hunan | Yiyang | Changsheng | 29°20'4" | 112°20'51" | 2018 |
| LC18009 | Resistant | Hunan | Yiyang | Wushenggong | 29°14'24" | 112°15'4" | 2018 |
| LC18010 | Resistant | Hunan | Yiyang | Renhe | 29°3'53" | 112°25'4" | 2018 |
| LC18011 | Resistant | Shanghai | Chongming | Yuejin | 31°48'59" | 121°13'34" | 2018 |
| LC18012 | Resistant | Zhejiang | Shaoxing | Guanqiao | 29°46'5" | 120°33'40" | 2018 |
| LC18013 | Resistant | Zhejiang | Shaoxing | Guanqiao | 29°46'5" | 120°33'40" | 2018 |
| LC18014 | Resistant | Zhejiang | Shaoxing | Guanqiao | 29°46'5" | 120°33'40" | 2018 |
| LC18015 | Resistant | Zhejiang | Shaoxing | Guanqiao | 29°46'5" | 120°33'40" | 2018 |