Table 1 The sample information of *Neopyropia yezoensis*

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| --- | --- | --- | --- | --- | --- |
|  | Sampling locations | Sampling date | Longitude and latitude | strain | Individual numbers |
| DL-C | Xiaochangshan Island,Liaoning province | 2021.3.24 | 39°13′15″N122°42′10″E | cultivated | 20 |
| DL-W1 | Dachangshan Island, Liaoning province | 2021.3.24 | 39°15′52″N122°37′44″E | wild | 7 |
| DL-W2 | Guanglu Island, Liaoning province | 2021.6.10 | 39°10′41″N122°23′42″E | wild | 13 |
| DL-W3 | Longwangtang Bay, Liaoning province | 2021.3.25 | 38°49′4″N121°22′48″E | wild | 10 |
| DY-W | Dongying port, Shandong province | 2021.4.20 | 38°5′39″N118°57′30″E | wild | 20 |
| NT-C | Lvsi port, Jiangsu province | 2021.3.22 | 32°6′30″N121°36′39″E | cultivated | 20 |
| QD-C1 | Tianheng Island,Shandong province | 2021.1.5 | 36°25′14’″N120°55′38″E | cultivated | 20 |
| QD-C2 | Tianheng Island,Shandong province | 2021.1.5 | 36°25′14’″N120°55′38″E | cultivated | 13 |
| QD-C3 | Yangkou Bay, Shandong province | 2021.1.11 | 36°14′33’″N120°41′00″E | cultivated | 8 |
| QD-C4 | Tianheng Island,Shandong province | 2021.1.5 | 36°25′14’″N120°55′38″E | cultivated | 20 |
| QD-W1 | Shinan District of Qingdao, Shandong province | 2021.4.11 | 36°3′35″N120°19′12″E | wild | 18 |
| QD-W2 | Laoshan District of Qingdao, Shandong province | 2021.4.28 | 36°5′42″N120°28′32″E | wild | 12 |
| QD-W3 | Huangdao District of Qingdao, Shandong province | 2021.5.9 | 35°56′47″N120°13′52″E | wild | 20 |
| LYG-C1 | Fishing port of Gaogong Island, Jiangsu province | 2021.1.14 | 34°42′57″N119°28′18″E | cultivated | 20 |
| LYG-C2 | Ganyu District of Lianyungang, Jiangsu province | 2021.1.14 | 34°59′10″N119°12′77″E | cultivated | 20 |
| RZ-C | Fuxin Fishing port, Shandong province | 2017.1.12 | 35°14′30″N’ 119°24′13″E | cultivated | 20 |
| RZ-W | Donggang District of Rizhao, Shandong province | 2021.5.29 | 35°27′37″N119°36′4″E | cultivated | 20 |
| WH-W | Rongcheng, Shandong province  | 2021.5.13 | 37°9′9″N122°34′39″E | wild | 20 |
| YT-W1 | Muping District of Yantai, Shandong province | 2021.5.13 | 37°29′5″N121°37′50″E | wild | 12 |
| YT-W2 | Penglai District of Yantai, Shandong province | 2021.6.1 | 37°49′32″N120°45′3″E | wild | 12 |
| YT-W3 | Daqin Island, Shandong province | 2021.6.3 | 38°17′57″N120°49′19″E | wild | 20 |
| YT-W4 | Long Island, Shandong province | 2021.4.13 | 37°57′14″N120°43′56″E | wild | 30 |