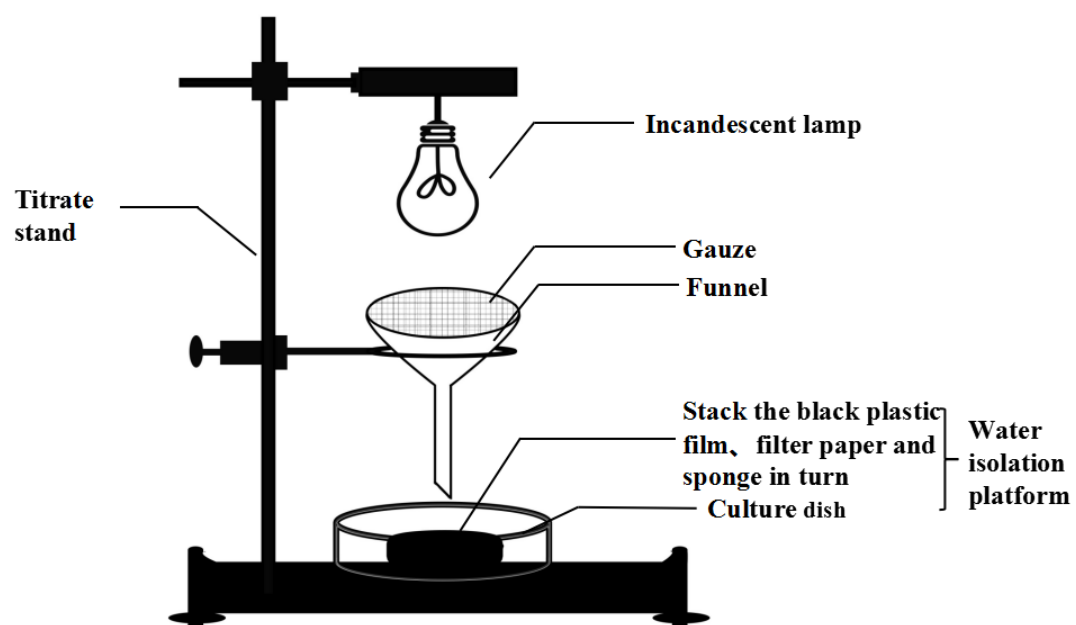




**Figure S1.** Collection device of *Neoseiulus barkeri*.

**Table S1.** BLAST alignment of the Vg1 gene of *Neoseiulus barkeri* with other species in the NCBI database.

| Species                         | Protein Size<br>(aa) | Identity(%) | GenBank Accession<br>Number |
|---------------------------------|----------------------|-------------|-----------------------------|
| <i>Neoseiulus cucumeris</i>     | 1844                 | 77.50       | AGQ56698.1                  |
| <i>Galendromus occidentalis</i> | 1837                 | 70.74       | XP_003746410.1              |
| <i>Dermanyssus gallinae</i>     | 1845                 | 59.49       | ALC78840.1                  |
| <i>Varroa destructor</i>        | 1850                 | 57.28       | AFN88463.1                  |
| <i>Tropilaelaps mercedesae</i>  | 1840                 | 58.36       | OQR72561.1                  |
| <i>Ixodes scapularis</i>        | 1936                 | 31.56       | EEC18889.1                  |
| <i>Amblyomma hebraeum</i>       | 1904                 | 31.54       | AGQ57039.1                  |
| <i>Dermacentor variabilis</i>   | 1843                 | 30.37       | AAW78557.2                  |
| <i>Rhipicephalus microplus</i>  | 602                  | 28.21       | ABS88989.1                  |
| <i>Varroa jacobsoni</i>         | 1812                 | 58.75       | XP_022700578.1              |
| <i>Varroa destructor</i>        | 1812                 | 58.69       | XP_022657753.1              |
| <i>Ixodes scapularis</i>        | 1936                 | 31.56       | EEC18889.1                  |
| <i>Galendromus occidentalis</i> | 1850                 | 23.19       | XP_018494463.1              |
| <i>Varroa destructor</i>        | 1835                 | 22.87       | AFN88464.1                  |
| <i>Ornithodoros moubata</i>     | 1834                 | 21.64       | BAH02666.2                  |
| <i>Amblyomma hebraeum</i>       | 1926                 | 23.14       | AGQ57040.1                  |
| <i>Pardosa pseudoannulata</i>   | 1792                 | 22.20       | AXN69712.1                  |
| <i>Pardosa pseudoannulata</i>   | 1734                 | 21.55       | AXN69713.1                  |
| <i>Lingula anatina</i>          | 1816                 | 22.49       | XP_013409581.1              |
| <i>Haemaphysalis flava</i>      | 1965                 | 25.96       | QBA99605.1                  |
| <i>Glaucias subpunctatus</i>    | 1885                 | 23.80       | BAU68162.1                  |
| <i>Lethocerus deyrollei</i>     | 1895                 | 22.95       | BAG12118.1                  |
| <i>Melipona quadrifasciata</i>  | 1995                 | 22.16       | KOX68248.1                  |
| <i>Bombus impatiens</i>         | 1772                 | 21.82       | XP_003492277.1              |
| <i>Geocoris pallidipennis</i>   | 1848                 | 22.43       | ALN70475.1                  |
| <i>Cephus cinctus</i>           | 1895                 | 23.11       | XP_015600461.1              |

**Table S2.** BLAST alignment of the Vg2 gene of *Neoseiulus barkeri* with other species in the NCBI database.

| Species                              | Protein Size<br>(aa) | Identity(%) | GenBank Accession<br>Number |
|--------------------------------------|----------------------|-------------|-----------------------------|
| <i>Amblyseius eharai</i>             | 1852                 | 86.04       | QBZ96191.1                  |
| <i>Panonychus citri</i>              | 1851                 | 20.21       | AHN48900.1                  |
| <i>Tetranychus urticae</i>           | 1749                 | 20.70       | XP_015793836.1              |
| <i>Tetranychus truncatus</i>         | 1755                 | 20.88       | AYV88983.1                  |
| <i>Tetranychus cinnabarinus</i>      | 1757                 | 21.87       | AMO02571.1                  |
| <i>Ornithodoros moubata</i>          | 1834                 | 31.75       | BAH02666.2                  |
| <i>Haemaphysalis flava</i>           | 1965                 | 30.66       | QBA99605.1                  |
| <i>Varroa destructor</i>             | 1835                 | 55.95       | AFN88464.1                  |
| <i>Neoseiulus cucumeris</i>          | 1843                 | 88.03       | AGQ56699.1                  |
| <i>Pardosa pseudoannulata</i>        | 1734                 | 22.35       | AXN69713.1                  |
| <i>Tigriopus japonicus</i>           | 1800                 | 21.04       | ACJ12892.1                  |
| <i>Pseudodiptomus<br/>annandalei</i> | 1772                 | 21.55       | AGT28481.1                  |
| <i>Caenorhabditis elegans</i>        | 1603                 | 21.41       | NP_508589.1                 |
| <i>Trichonephila clavipes</i>        | 1605                 | 20.28       | PRD29456.1                  |
| <i>Euseius nicholsi</i>              | 1845                 | 79.00       | QCX36526.1                  |
| <i>Galendromus occidentalis</i>      | 1850                 | 76.32       | XP_018494463.1              |
| <i>Tropilaelaps mercedesae</i>       | 1858                 | 58.79       | OQR67440.1                  |
| <i>Amblyomma hebraeum</i>            | 1926                 | 31.47       | AGQ57040.1                  |
| <i>Ixodes scapularis</i>             | 1644                 | 32.49       | EEC14774.1                  |
| <i>Varroa jacobsoni</i>              | 1812                 | 23.71       | XP_022700578.1              |
| <i>Asterias rubens</i>               | 1930                 | 21.17       | QAA95954.1                  |
| <i>Pseudodiptomus<br/>annandalei</i> | 1772                 | 21.55       | AGT28481.1                  |

**Table S3.** BLAST alignment of the Vg3 gene of *Neoseiulus barkeri* with other species in the NCBI database.

| Species                                         | Protein Size<br>(aa) | Identity(%) | GenBank Accession<br>Number |
|-------------------------------------------------|----------------------|-------------|-----------------------------|
| <i>Haemaphysalis flava</i>                      | 1533                 | 24.41       | AXP34689.1                  |
| <i>Haemaphysalis longicornis</i>                | 1545                 | 24.49       | BAG12081.1                  |
| <i>Galendromus occidentalis</i>                 | 1561                 | 60.66       | XP_028968525.1              |
| <i>Varroa jacobsoni</i>                         | 1575                 | 41.40       | XP_022709479.1              |
| <i>Ixodes scapularis</i>                        | 1539                 | 25.40       | XP_029826420.1              |
| <i>Rhipicephalus</i><br><i>haemaphysaloides</i> | 1548                 | 25.53       | QEL09188.1                  |
| <i>Haemaphysalis longicornis</i>                | 1694                 | 23.28       | BAJ21514.1                  |
| <i>Pardosa pseudoannulata</i>                   | 1672                 | 22.13       | AXN69714.1                  |
| <i>Haemaphysalis longicornis</i>                | 1462                 | 24.65       | BAJ21515.1                  |
| <i>Trichonephila clavipes</i>                   | 1605                 | 23.20       | PRD29456.1                  |
| <i>Stegodyphus mimosarum</i>                    | 1564                 | 21.34       | KFM59902.1                  |
| <i>Rhipicephalus</i><br><i>haemaphysaloides</i> | 1270                 | 26.87       | QEL09187.1                  |
| <i>Caenorhabditis elegans</i>                   | 1651                 | 21.08       | NP_001023276.1              |
| <i>Azumapecten farreri</i>                      | 2296                 | 26.64       | ADE05540.1                  |
| <i>Paracyclopina nana</i>                       | 1813                 | 18.96       | ADD73552.1                  |

**Table 4.** BLAST alignment of the VgR gene of *Neoseiulus barkeri* with other species in the NCBI database.

| Species                          | Protein Size<br>(aa) | Identity(%) | GenBank Accession<br>Number |
|----------------------------------|----------------------|-------------|-----------------------------|
| <i>Dermacentor variabilis</i>    | 1798                 | 28.27       | AAZ31260.3                  |
| <i>Rhipicephalus microplus</i>   | 1799                 | 28.34       | AUQ44344.1                  |
| <i>Apis mellifera</i>            | 1754                 | 26.83       | XP_026295652.1              |
| <i>Eufriesea mexicana</i>        | 1737                 | 27.64       | OAD52717.1                  |
| <i>Araneus ventricosus</i>       | 1721                 | 26.71       | GBM68820.1                  |
| <i>Limulus polyphemus</i>        | 1666                 | 32.86       | XP_022244855.1              |
| <i>Ixodes scapularis</i>         | 1200                 | 32.25       | EEC20133.1                  |
| <i>Amblyomma hebraeum</i>        | 1801                 | 32.43       | AGQ57038.1                  |
| <i>Apis cerana</i>               | 1526                 | 26.09       | XP_028521104.1              |
| <i>Tropilaelaps mercedesae</i>   | 1613                 | 31.08       | OQR73944.1                  |
| <i>Haemaphysalis longicornis</i> | 1781                 | 31.55       | BAG14342.1                  |
| <i>Tetranychus cinnabarinus</i>  | 1852                 | 31.72       | AMO02573.1                  |
| <i>Panonychus citri</i>          | 1891                 | 32.17       | AHN48901.1                  |