

**Table S 1. Details of geographical points**

| <b>Population</b>   | <b>Governorate</b> | <b>Points</b>          | <b>Geographic coordinates</b> |
|---------------------|--------------------|------------------------|-------------------------------|
| <b>Delta</b>        | <b>Damietta</b>    | El Zarqa               | 31.208177°N 31.635046°E       |
|                     |                    | Kafr Sa'd              | 31.359427°N 31.686452°E       |
|                     |                    | Faraskur               | 31°19'47"N 31°42'53"E         |
|                     | <b>El Dakahlia</b> | El Mansoura            | 31°02'53"N 31°22'48"E         |
|                     |                    | Sammannoud             | 30°57'51"N 31°14'54"E         |
|                     |                    | Sherbeen               | 31°12'18"N 31°32'24"E         |
|                     | <b>El Beheira</b>  | Kom Hamada             | 30°45'45"N 30°41'50"E         |
|                     |                    | Shubrakhit             | 31°1'39"N 30°42'46"E          |
|                     |                    | El-Mahmoudeya          | 31°11'2"N 30°31'27"E          |
|                     |                    | AR Rahmaneyah          | 31.106155°N 30.633731°E       |
|                     |                    | Rasheed                | 31°24'16"N 30°24'59"E         |
|                     | <b>El- Menofia</b> | Ashmoun                | 30.294054°N 31.034203°E       |
|                     |                    | El-Bagour              | 30.433282°N 31.056862°E       |
|                     |                    | Quweisna               | 30.564183°N 31.157219°E       |
|                     |                    | Menouf                 | 30.465839°N 30.930805°E       |
|                     |                    | Tala                   | 30.680108°N 30.943758°E       |
|                     | <b>El Gharbia</b>  | Kafr El Zayat          | 30.824722°N 30.815278°E       |
|                     |                    | Basyoun                | 30°56'31.1"N 30°48'41.5"E     |
|                     |                    | Samanoud               | 30°58'00.0"N 31°15'00.0"E     |
|                     |                    | Zefta                  | 30.7142°N 31.24425°E          |
|                     | <b>Al Qalyubia</b> | Shubra Al Khaymah      | 30°7'43"N 31°14'32"E          |
|                     |                    | El Qanater El Khayreya | 30.193583°N 31.132064°E       |
|                     |                    | Toukh                  | 30.353940°N 31.200710°E       |
|                     |                    | Baanha                 | 30°27'39"N 31°11'15"E         |
| <b>Middle Egypt</b> | <b>El-Giza</b>     | El Ayyat               | 29.616667°N 31.25°E           |
|                     |                    | El-Saff                | 29.577222°N 31.290556°E       |
|                     |                    | El-Badrshein           | 29.852°N 31.276°E             |
|                     | <b>Beni Suef</b>   | El Wasta               | 29°20'14"N, 31°12'13"E        |
|                     |                    | Beni Suef              | 29°04'N 31°05'E               |
|                     |                    | Biba                   | 28.921782°N 30.984449°E       |
|                     |                    | Al Fashn               | 28.822718°N 30.899205°E       |
|                     | <b>Minya</b>       | Maghagha               | 28°39'N 30°51'E               |
|                     |                    | Beni Mazar             | 28°30'N 30°48'E               |
|                     |                    | Samalut                | 28°18'35"N 30°42'39"E         |
|                     |                    | Abu Qurqas             | 27°56'N 30°49'E               |
| <b>Upper Egypt</b>  | <b>Asyut</b>       | Mallawi                | 27°43'55"N 30°50'28"E         |
|                     |                    | Dairut                 | 27°34'N 30°49'E               |
|                     |                    | El Qusiyya             | 27.414291°N 30.8216°E         |
|                     |                    | Asyut                  | 27°11'N 31°10'E               |
|                     | <b>Sohag</b>       | Abu Tij                | 27°02'12"N 31°19'41"E         |
|                     |                    | Tahta                  | 26°46'06"N 31°30'02"E         |
|                     |                    | ELMaragha              | 26°42'02"N 31°36'23"E         |
|                     |                    | Akhmim                 | 26°33'14"N 31°42'03"E         |
|                     |                    | Al Munsha              | 26°29'30.7"N 31°46'56.0"E     |
|                     | <b>Qena</b>        | Abu Tesht              | 26°07'06"N 32°05'43"E         |
|                     |                    | Qena                   | 26°08'55"N 32°42'38"E         |
|                     |                    | Dishna                 | 26°07'12"N 32°28'15"E         |
|                     | <b>Luxor</b>       | Zainiya                | 25°44'47"N 32°41'01"E         |
|                     |                    | Armant                 | 25°37'50"N 32°34'46"E         |
|                     |                    | Luxor                  | 25°42'56"N 32°38'53"E         |

**Table S 2. Multiplexes and PCR reaction conditions in this study**

| Multiplex | Locus         | Repeat Pattern                                                               | Chromosome | Accession Number | Temperature   | Time  | Cycles |
|-----------|---------------|------------------------------------------------------------------------------|------------|------------------|---------------|-------|--------|
| 1         | INRACCDDV0102 | (AC) <sub>18</sub>                                                           | 19         | AJ874444         | 95            | 15 m  | 8x     |
|           | SAT13         | (GT) <sub>13</sub>                                                           | 1          | X99892           | 54            | 45 s  |        |
|           | INRACCDDV0169 | (CA) <sub>17</sub>                                                           | 1          | AJ874508         | 95            | 30 s  |        |
|           | INRACCDDV0205 | (TG) <sub>17</sub>                                                           | 4          | AJ874542         | 72            | 30 s  |        |
|           | INRACCDDV0228 | (TG) <sub>12</sub>                                                           | 0          | AJ874561         | 95            | 30 s  |        |
| 2         | SAT03         | (TC) <sub>22</sub>                                                           | 3          | J03744           | 95            | 15 m  | 32x    |
|           | SAT04         | (TC) <sub>13</sub> (N) <sub>2</sub> (TC) <sub>2</sub> TG(TC) <sub>7</sub>    | 15         | M33582           | 95            | 30 s  |        |
|           | SAT05         | (TC) <sub>23</sub> TTT(CT) <sub>5</sub>                                      | 3          | X99887           | 60            | 30 s  |        |
|           | SAT08         | (CT) <sub>14</sub> (GT) <sub>8</sub> TT(GT) <sub>5</sub>                     | 17         | X99889           | 72            | 45 s  |        |
|           | SAT07         | (TG) <sub>14</sub>                                                           | 10         | X99888           | 95            | 30 s  |        |
|           |               |                                                                              |            |                  | 53            | 30 s  |        |
|           |               |                                                                              |            |                  | 72            | 45 s  |        |
|           |               |                                                                              |            |                  | 60            | 20 m  |        |
|           |               |                                                                              |            |                  | 12            | ∞     |        |
|           |               |                                                                              |            |                  |               |       |        |
| 3         | INRACCDDV0140 | (TG) <sub>14</sub>                                                           | 14         | AJ874480         | 95            | 15 m  | 7X     |
|           | INRACCDDV0087 | (TG) <sub>14</sub>                                                           | 8          | AJ874430         | 95            | 30 s  |        |
|           | INRACCDDV0157 | (GT) <sub>12</sub>                                                           | 8          | AJ874497         | 61 - 55 (↓10) | 45 s  |        |
|           | INRACCDDV0190 | (TG) <sub>12</sub>                                                           | 18         | AJ874528         | 72            | 45 s  |        |
|           | SAT12         | (CTAT) <sub>10</sub>                                                         | 7          | X99891           | 95            | 30 s  |        |
|           | INRACCDDV0119 | (GT) <sub>16</sub>                                                           | 18         | AJ874461         | 55            | 45 s  |        |
|           | INRACCDDV0201 | (TG) <sub>14</sub> (AG) <sub>10</sub>                                        | 12         | AJ874538         | 72            | 1 min |        |
|           |               |                                                                              |            |                  | 60            | 20 m  |        |
| 4         | INRACCDDV0313 | (TG) <sub>7</sub> (AC) <sub>10</sub> GC(AC) <sub>6</sub> GC(AC) <sub>8</sub> | 14         | AJ874634         | 95            | 15 m  | 8X     |
|           | INRACCDDV0342 | (GA) <sub>22</sub>                                                           | 13         | AJ874659         | 95            | 30 s  |        |
|           | INRACCDDV0040 | (TG) <sub>16</sub>                                                           | 4          | AJ874400         | 63 - 56 (↓10) | 45 s  |        |
|           | INRACCDDV0185 | (AC) <sub>13</sub>                                                           | 4          | AJ874523         | 72            | 45 s  |        |
|           | INRACCDDV0259 | (GT) <sub>14</sub> (GA) <sub>9</sub>                                         | 1          | AJ874589         | 95            | 30 s  |        |
|           |               |                                                                              |            |                  | 56            | 30 s  |        |
|           |               |                                                                              |            |                  | 72            | 45 s  |        |
|           |               |                                                                              |            |                  | 60            | 20 m  |        |
|           |               |                                                                              |            |                  | 10            | ∞     |        |
|           |               |                                                                              |            |                  |               |       |        |
| 5         | INRACCDDV0108 | (CA) <sub>13</sub>                                                           | 11         | AJ874450         | 95            | 15 m  | 7X     |
|           | INRACCDDV0176 | (TC) <sub>11</sub> (TG) <sub>13</sub> AG(TG) <sub>3</sub>                    | 12         | AJ874514         | 95            | 30 s  |        |
|           | INRACCDDV0106 | (CA) <sub>14</sub>                                                           | 13         | AJ874448         | 63 - 56 (↓10) | 1 min |        |
|           | INRACCDDV0101 | (TG) <sub>12</sub>                                                           | 11         | AJ874443         | 72            | 45 s  |        |
|           | INRACCDDV0203 | (GT) <sub>16</sub>                                                           | 3          | AJ874540         | 95            | 30 s  |        |
|           |               |                                                                              |            |                  | 55            | 30 s  |        |
|           |               |                                                                              |            |                  | 72            | 45 s  |        |
|           |               |                                                                              |            |                  | 60            | 20 m  |        |