

Study of inheritance and environment on tropane alkaloids within *Hyoscyamus* species

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Supplemental Table S1: Amounts of scopolamine and hyoscyamine in different organs of *Hyoscyamus* accessions.

| Accessions | Location | Organ | *Scopolamine (mean \pm SD, n=3) | RSD (%) | *Hyoscyamine (mean \pm SD, n=3) | RSD (%) | H+S | H/S | Recovery (%) |
|---------------------------|---|-------|---|------------|---|------------|------|------|--------------|
| <i>H.niger1</i> :h1 | West Azerbaijan: Khoy | Root | 0.13 \pm 0.00 | 0.30 | 0.07 \pm 0.00 | 1.14 | 0.23 | 0.54 | 97.20 |
| | | Seed | 0.20 \pm 0.00 | 1.00 | 0.03 \pm 0.00 | 66.67 | 0.23 | 0.15 | 98.60 |
| | | Stem | 0.30 \pm 0.00 | 1.60 | 0.10 \pm 0.00 | 5.00 | 0.40 | 0.33 | 95.80 |
| | | Leaf | 0.77 \pm 0.17 | 22.50 | 0.24 \pm 0.00 | 0.16 | 1.01 | 0.31 | 94.30 |
| <i>H.reticulatus1</i> :h2 | West Azerbaijan: 35 Km to Oshnavieh | Root | 0.38 \pm 0.01 | 2.89 | 0.15 \pm 0.00 | 0.73 | 0.53 | 0.39 | 95.10 |
| | | Seed | 0.57 \pm 0.002 | 0.35 | 0.23 \pm 0.00 | 1.30 | 0.80 | 0.40 | 96.50 |
| | | Stem | 0.87 \pm 0.01 | 1.14 | 0.10 \pm 0.00 | 2.10 | 0.97 | 0.11 | 97.60 |
| | | Leaf | 1.28 \pm 0.02 | 2.18 | 0.18 \pm 0.00 | 1.11 | 1.46 | 0.14 | 98.40 |
| <i>H.niger2</i> :h3 | West Azerbaijan: Urmia: Marmishoo | Root | 2.34 \pm 0.02 | 1.26 | 0.50 \pm 0.00 | 0.04 | 2.84 | 0.21 | 96.40 |
| | | Seed | 2.82 \pm 0.03 | 1.22 | 0.58 \pm 0.40 | 69.67 | 3.40 | 0.20 | 95.60 |
| | | Stem | 3.33 \pm 0.01 | 0.57 | 0.39 \pm 0.00 | 1.33 | 3.72 | 0.12 | 93.20 |
| | | Leaf | 4.85 \pm 0.01 | 0.22 | 0.38 \pm 0.00 | 0.26 | 5.24 | 0.08 | 95.70 |
| <i>H.reticulatus2</i> :h4 | West Azerbaijan: 3 Km of Nagadeh to Piranshahr | Root | 0.15 \pm 0.00 | 0.60 | 0.08 \pm 5.77 \times 10 ⁻⁵ | 0.07 | 0.23 | 0.53 | 94.30 |
| | | Seed | 0.35 \pm 0.00 | 2.71 | 0.18 \pm 0.00 | 0.22 | 0.54 | 0.51 | 96.50 |
| | | Stem | 0.59 \pm 0.00 | 0.96 | 0.10 \pm 0.00 | 2.00 | 0.69 | 0.17 | 93.90 |
| | | Leaf | 0.62 \pm 0.05 | 9.54 | 0.20 \pm 0.00 | 0.58 | 0.83 | 0.32 | 94.70 |
| <i>H.reticulatus3</i> :h5 | West Azerbaijan : Urmia: Gooshchi mountain | Root | 0.20 \pm 0.00 | 4.00 | 0.17 \pm 0.00 | 2.35 | 0.37 | 0.85 | 92.70 |
| | | Seed | 0.40 \pm 6.8 \times 10 ⁻¹⁷ | 0.21 | 0.25 \pm 0.00 | 1.60 | 0.65 | 0.62 | 94.60 |
| | | Stem | 0.79 \pm 0.00 | 0.21 | 0.10 \pm 0.00 | 0.20 | 0.89 | 0.12 | 96.90 |
| | | Leaf | 1.12 \pm 0.38 | 34.30 | 0.10 \pm 0.00 | 0.30 | 1.22 | 0.09 | 92.60 |
| <i>H.reticulatus4</i> :h6 | West Azerbaijan: 30 Km of Oshnavieh: Lulkan village | Root | 0.76 \pm 0.03 | 4.71 | 0.52 \pm 0.00 | 0.96 | 1.29 | 0.68 | 96.30 |
| | | Seed | 1.16 \pm 0.05 | 4.97 | 0.50 \pm 0.00 | 0.16 | 1.66 | 0.43 | 96.40 |
| | | Stem | 1.10 \pm 0.10 | 100.40 | 0.20 \pm 0.00 | 0.58 | 1.30 | 0.18 | 95.30 |
| | | Leaf | 2.44 \pm 0.67 | 27.50 | 0.30 \pm 0.01 | 4.73 | 2.75 | 0.12 | 97.40 |
| <i>H.reticulatus5</i> :h7 | West Azerbaijan: Village of Neichalan | Root | 0.31 \pm 0.01 | 3.20 | 0.09 \pm 0.00 | 0.10 | 0.40 | 0.29 | 98.50 |
| | | Seed | 0.60 \pm 0.00 | 0.13 | 0.15 \pm 0.00 | 0.66 | 0.75 | 0.25 | 93.60 |
| | | Stem | 0.77 \pm 0.07 | 9.09 | 0.06 \pm 0.00 | 1.66 | 0.83 | 0.08 | 94.60 |
| | | Leaf | 0.92 \pm 0.01 | 1.41 | 0.13 \pm 0.00 | 0.30 | 1.05 | 0.14 | 93.60 |
| <i>H.niger3</i> :h8 | West Azerbaijan: Silvaneh road: Razhan | Root | 0.19 \pm 0.00 | 0.10 | 0.13 \pm 0.00 | 0.07 | 0.32 | 0.68 | 92.30 |
| | | Seed | 0.50 \pm 0.40 | 81.60 | 0.08 \pm 0.00 | 0.12 | 0.58 | 0.16 | 95.50 |

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|----------------------------|---|------|------------|-------|-----------|-------|-------|------|-------|
| | | Stem | 0.62±0.06 | 10.35 | 0.08±0.04 | 50.00 | 0.70 | 0.12 | 94.60 |
| | | Leaf | 1.52±0.03 | 2.54 | 0.18±0.00 | 1.33 | 1.69 | 0.12 | 93.60 |
| <i>H.reticulatus</i> 6:h9 | West Azerbaijan: 40 Km to Oshnavieh | Root | 0.16±0.01 | 7.18 | 0.09±0.00 | 1.11 | 0.25 | 0.56 | 94.70 |
| | | Seed | 0.50±0.01 | 7.93 | 0.10±0.00 | 0.11 | 0.60 | 0.20 | 95.80 |
| | | Stem | 0.63±0.05 | 10.32 | 0.10±0.00 | 0.11 | 0.83 | 0.07 | 93.20 |
| | | Leaf | 0.82±0.02 | 3.36 | 0.15±0.00 | 3.80 | 0.97 | 0.18 | 96.30 |
| <i>H.pusillus</i> 1:h10 | West Azerbaijan : Shahindezh | Root | 0.80±0.08 | 10.30 | 0.22±0.00 | 1.22 | 1.02 | 0.27 | 97.80 |
| | | Seed | 1.36±0.08 | 6.55 | 0.11±0.00 | 0.18 | 1.47 | 0.08 | 94.00 |
| | | Stem | 1.30±0.10 | 7.83 | 0.11±0.00 | 0.09 | 1.42 | 0.08 | 94.00 |
| | | Leaf | 4.84±0.03 | 0.76 | 0.43±0.00 | 0.02 | 5.27 | 0.08 | 96.00 |
| <i>H.niger</i> 4:h11 | West Azerbaijan: Nagade: Soltanyagoob | Root | 0.13±0.00 | 3.84 | 0.11±0.00 | 0.90 | 0.24 | 0.84 | 94.00 |
| | | Seed | 0.14±0.00 | 0.35 | 0.11±0.00 | 0.36 | 0.25 | 0.78 | 95.20 |
| | | Stem | 0.33±0.00 | 0.27 | 0.08±0.00 | 1.25 | 0.41 | 0.24 | 97.00 |
| | | Leaf | 4.95±0.16 | 3.31 | 0.31±0.00 | 1.16 | 5.26 | 0.62 | 96.50 |
| <i>H.niger</i> 5:h12 | West Azerbaijan : Jabaljeiran | Root | 0.50±0.00 | 0.18 | 0.13±0.00 | 2.30 | 0.63 | 0.26 | 98.00 |
| | | Seed | 0.61±0.00 | 0.81 | 0.09±0.05 | 56.66 | 0.70 | 0.14 | 97.00 |
| | | Stem | 0.84±0.02 | 3.04 | 0.13±0.00 | 2.53 | 0.98 | 0.15 | 98.00 |
| | | Leaf | 1.60±0.01 | 1.18 | 0.13±0.00 | 0.07 | 1.73 | 0.08 | 97.00 |
| <i>H.pusillus</i> 2:h13 | West Azerbaijan: 3 Km of Nagadeh to Piranshahr | Root | 0.24±0.00 | 2.37 | 0.16±0.0 | 0.06 | 0.40 | 0.56 | 95.00 |
| | | Seed | 0.81±0.00 | 1.01 | 0.14±0.00 | 0.28 | 0.95 | 0.17 | 94.00 |
| | | Stem | 0.91±0.01 | 1.23 | 0.59±0.00 | 0.84 | 1.50 | 0.64 | 98.00 |
| | | Leaf | 1.42±0.06 | 4.38 | 0.12±0.00 | 0.25 | 1.54 | 0.08 | 93.00 |
| <i>H.niger</i> 6:h14 | West Azerbaijan: Urrmia : Village of Doobarareh | Root | 0.87±0.01 | 2.06 | 0.60±0.01 | 1.13 | 1.47 | 0.68 | 92.00 |
| | | Seed | 1.5±0.01 | 0.73 | 0.60±0.01 | 1.66 | 2.10 | 0.40 | 93.70 |
| | | Stem | 2.27±0.04 | 1.95 | 0.09±0.00 | 0.77 | 2.36 | 0.03 | 96.70 |
| | | Leaf | 2.29±0.01 | 0.47 | 0.35±0.00 | 1.42 | 2.64 | 0.15 | 95.40 |
| <i>H.reticulatus</i> 7:h15 | West Azerbaijan: Piranshahr | Root | 0.72±0.03 | 4.95 | 0.11±0.00 | 0.45 | 0.83 | 0.15 | 94.00 |
| | | Seed | 0.93±0.00 | 0.10 | 0.10±0.01 | 10.00 | 1.04 | 0.11 | 92.50 |
| | | Stem | 1.04±0.08 | 7.73 | 0.09±0.00 | 1.22 | 1.14 | 0.09 | 96.00 |
| | | Leaf | 1.50±0.01 | 0.76 | 0.12±0.01 | 8.33 | 1.63 | 0.08 | 98.00 |
| <i>H.pusillus</i> 3:h16 | West Azerbaijan: Urmia:Rikan | Root | 0.12±0.01 | 8.33 | 0.12±0.02 | 16.66 | 0.24 | 1.00 | 98.00 |
| | | Seed | 0.40±0.00 | 4.42 | 0.15±0.00 | 3.33 | 0.56 | 0.36 | 96.90 |
| | | Stem | 0.40±0.01 | 4.42 | 0.17±0.00 | 0.41 | 0.58 | 0.42 | 96.00 |
| | | Leaf | 0.72±0.01 | 2.18 | 0.23±0.00 | 0.34 | 0.95 | 0.32 | 96.00 |
| <i>H.arachnoideus</i> :h17 | Ardabil: Kowsar | Root | 0.33±0.00 | 0.73 | 0.15±0.00 | 0.06 | 0.45 | 0.50 | 92.00 |
| | | Seed | 0.39±0.02 | 7.02 | 0.19±0.00 | 5.26 | 0.58 | 0.48 | 91.70 |
| | | Stem | 0.44±0.00 | 0.40 | 0.15±0.05 | 3.33 | 0.59 | 0.34 | 98.00 |
| | | Leaf | 1.02±0.00 | 0.18 | 0.41±0.01 | 0.01 | 1.43 | 0.40 | 94.00 |
| <i>H.pusillus</i> 4:h18 | Ardabil: Khalkhal | Root | 2.23±0.00 | 0.22 | 0.58±0.00 | 0.01 | 2.81 | 0.26 | 96.00 |
| | | Seed | 3.33±0.00 | 0.00 | 0.76±0.01 | 1.31 | 4.10 | 0.23 | 95.00 |
| | | Stem | 4.8±0.01 | 0.27 | 0.38±0.00 | 0.16 | 5.24 | 0.08 | 95.00 |
| | | Leaf | 4.94±0.05 | 1.15 | 0.65±0.00 | 0.87 | 5.59 | 0.13 | 90.00 |
| <i>H.niger</i> 7:h19 | West Azerbaijan : Bazargan: Village of Emamkandi | Root | 4.02±0.06 | 1.51 | 0.55±0.04 | 6.18 | 4.57 | 0.13 | 90.70 |
| | | Seed | 4.75±0.11 | 2.44 | 0.66±0.00 | 0.15 | 5.42 | 0.13 | 90.00 |
| | | Stem | 5.97±0.12 | 2.02 | 0.48±0.05 | 1.18 | 6.64 | 0.08 | 91.00 |
| | | Leaf | 10.87±0.24 | 2.28 | 1.33±0.00 | 0.03 | 12.21 | 0.12 | 90.00 |

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|----------------------------|--------------------------------|------|-----------|-------|-----------|-------|------|------|-------|
| <i>H.niger</i> 8:h20 | West Azerbaijan: Salmas | Root | 0.08±0.00 | 0.50 | 0.07±0.00 | 7.14 | 0.15 | 0.87 | 90.00 |
| | | Seed | 0.10±0.00 | 0.30 | 0.08±0.01 | 12.5 | 0.18 | 0.80 | 98.00 |
| | | Stem | 0.46±0.00 | 1.56 | 0.08±0.01 | 1.37 | 0.55 | 0.17 | 98.60 |
| | | Leaf | 0.20±0.00 | 0.10 | 0.13±0.00 | 0.07 | 0.34 | 0.65 | 97.00 |
| <i>H.niger</i> 9:h21 | Ardabil: Khalkhal | Root | 0.85±0.01 | 1.17 | 0.30±0.02 | 6.67 | 1.15 | 0.35 | 97.00 |
| | | Seed | 1.05±0.00 | 0.15 | 0.13±0.00 | 0.46 | 1.18 | 0.12 | 97.00 |
| | | Stem | 1.23±0.01 | 0.97 | 0.25±0.00 | 1.20 | 1.48 | 0.20 | 98.00 |
| | | Leaf | 1.87±0.28 | 15.24 | 0.21±0.00 | 0.38 | 2.09 | 0.11 | 91.00 |
| <i>H.reticulatus</i> 8:h22 | West Azerbaijan: Sardasht | Root | 0.72±0.01 | 1.59 | 0.18±0.00 | 0.27 | 0.90 | 0.25 | 90.00 |
| | | Seed | 0.88±0.00 | 0.56 | 0.21±0.01 | 5.23 | 1.09 | 0.23 | 91.00 |
| | | Stem | 1.13±0.00 | 0.10 | 0.10±0.00 | 0.70 | 1.24 | 0.08 | 90.00 |
| | | Leaf | 1.70±0.05 | 3.34 | 0.18±0.00 | 1.50 | 1.89 | 0.10 | 98.00 |
| <i>H.kurdicus</i> :h23 | Ardabil: Fatah magsood village | Root | 0.34±0.01 | 4.11 | 0.17±0.00 | 2.90 | 0.51 | 0.52 | 97.60 |
| | | Seed | 0.41±0.00 | 1.60 | 0.05±0.01 | 20.00 | 0.46 | 0.12 | 97.00 |
| | | Stem | 0.77±0.02 | 2.97 | 0.09±0.05 | 55.55 | 0.86 | 0.12 | 96.00 |
| | | Leaf | 1.37±0.05 | 3.68 | 0.52±0.00 | 1.38 | 1.89 | 0.37 | 96.00 |
| <i>H.reticulatus</i> 9:h24 | Ardabil: Khalkhal | Root | 0.26±0.00 | 0.19 | 0.07±0.00 | 0.71 | 0.33 | 0.26 | 96.00 |
| | | Seed | 0.53±0.01 | 1.88 | 0.13±0.00 | 3.84 | 0.66 | 0.24 | 90.00 |
| | | Stem | 0.71±0.02 | 2.81 | 0.05±0.01 | 20.00 | 0.76 | 0.07 | 95.00 |
| | | Leaf | 0.80±0.01 | 1.25 | 0.11±0.00 | 0.45 | 0.91 | 0.13 | 93.00 |

* The calculated mean± SD amount of tropane alkaloid (mg/g) based on the weight of the dry weight plants in three replicates.

Supplemental table S2: Geographical and chemical soil characteristics of the 24 experimental sites.

| Site | Coordinates of natural site | Altitude (m) | Soil depth (cm) | Total Nitrogen (%) | Available Phosphorus (me/Li) | Available Potassium (me/Li) | Available Calcium (me/Li) | EC (mms/cm) | pH |
|------|-----------------------------|--------------|-----------------|--------------------|-------------------------------|------------------------------|----------------------------|-------------|------|
| 1 | 37°48' N 45°3' E: h1 | 1526 | 0-30 | 0.02 | 2.66 | 127.66 | 3.03 | 0.71 | 8.07 |
| | | | 30-60 | 0.01 | 2.43 | 123.33 | 2.80 | 0.68 | 8.35 |
| | | | 60-90 | 0.00 | 2.13 | 120.66 | 2.60 | 0.64 | 8.50 |
| 2 | 37°15' N 45° 7'E: h2 | 1641 | 0-30 | 0.21 | 11.46 | 166.66 | 3.13 | 0.61 | 7.57 |
| | | | 30-60 | 0.19 | 11.23 | 162.33 | 2.81 | 0.56 | 7.84 |
| | | | 60-90 | 0.08 | 10.86 | 159.73 | 2.45 | 0.59 | 8.21 |
| 3 | 37°35' N 44°52'E: h 3 | 1545 | 0-30 | 0.24 | 15.66 | 127.3 3 | 7.53 | 0.35 | 8.13 |
| | | | 30-60 | 0.23 | 14.43 | 121.30 | 7.36 | 0.31 | 8.40 |
| | | | 60-90 | 0.10 | 14.10 | 118.00 | 7.13 | 0.29 | 8.63 |
| 4 | 36°56' N 45°20'E: h4 | 1330 | 0-30 | 0.08 | 32.63 | 242.30 | 0.68 | 2.80 | 7.85 |
| | | | 30-60 | 0.05 | 30.26 | 237.60 | 0.65 | 2.50 | 8.01 |
| | | | 60-90 | 0.02 | 29.96 | 159.94 | 0.63 | 2.10 | 8.06 |
| 5 | 37°12'N 44 °7' E: h5 | 1713 | 0-30 | 0.09 | 16.10 | 282.30 | 3.46 | 0.58 | 7.81 |
| | | | 30-60 | 0.09 | 15.73 | 277.33 | 2.20 | 0.54 | 8.00 |
| | | | 60-90 | 0.03 | 15.40 | 187.27 | 1.72 | 0.51 | 8.17 |
| 6 | 37°12' N 45°7' E: h6 | 1870 | 0-30 | 0.20 | 19.43 | 121.33 | 4.46 | 0.64 | 7.23 |
| | | | 30-60 | 0.21 | 18.13 | 117.30 | 4.30 | 0.61 | 7.48 |
| | | | 60-90 | 0.09 | 17.73 | 114.96 | 3.98 | 0.58 | 7.61 |
| 7 | 37° 41'N 44°45' E: h7 | 1480 | 0-30 | 0.21 | 19.00 | 133.29 | 3.50 | 0.62 | 7.44 |
| | | | 30-60 | 0.20 | 17.93 | 129.30 | 3.26 | 0.58 | 8.07 |
| | | | 60-90 | 0.09 | 17.63 | 126.16 | 3.03 | 0.55 | 8.23 |
| 8 | 37°10' N 45°8' E: h8 | 1537 | 0-30 | 0.02 | 2.53 | 125.40 | 3.93 | 0.75 | 7.27 |
| | | | 30-60 | 0.02 | 2.10 | 122.30 | 3.70 | 0.71 | 7.15 |
| | | | 60-90 | 0.01 | 1.76 | 119.33 | 3.50 | 0.65 | 7.48 |
| 9 | 37°15' N 45° 7' E: h9 | 1537 | 0-30 | 0.03 | 9.13 | 314.66 | 2.90 | 0.63 | 7.16 |
| | | | 30-60 | 0.03 | 8.43 | 320.30 | 2.56 | 0.60 | 7.50 |
| | | | 60-90 | 0.02 | 8.13 | 308.86 | 2.33 | 0.58 | 7.74 |
| 10 | 36°55' N 46°24' E: h10 | 1463 | 0-30 | 0.24 | 17.26 | 131.40 | 7.56 | 0.34 | 7.18 |
| | | | 30-60 | 0.23 | 16.66 | 129.00 | 7.30 | 0.31 | 7.55 |
| | | | 60-90 | 0.11 | 16.30 | 126.63 | 7.06 | 0.28 | 7.78 |
| 11 | 36°40' N 45°7' E: h11 | 1389 | 0-30 | 0.23 | 92.50 | 1397.00 | 3.60 | 0.70 | 7.73 |
| | | | 30-60 | 0.22 | 90.33 | 1403.00 | 3.30 | 0.67 | 7.90 |
| | | | 60-90 | 0.10 | 87.66 | 1359.00 | 3.06 | 0.63 | 8.15 |
| 12 | 37°25' N 45°13 'E: h12 | 1282 | 0-30 | 1.66 | 10.20 | 361.00 | 3.80 | 0.68 | 7.91 |
| | | | 30-60 | 0.56 | 9.33 | 356.00 | 3.53 | 0.64 | 8.24 |
| | | | 60-90 | 0.27 | 6.66 | 354.00 | 3.30 | 0.60 | 8.43 |
| 13 | 36°56'N 45° 20' E: h13 | 1330 | 0-30 | 0.66 | 33.80 | 240.00 | 3.60 | 0.74 | 7.85 |
| | | | 30-60 | 0.06 | 32.33 | 235.30 | 3.30 | 0.67 | 8.06 |
| | | | 60-90 | 0.03 | 29.00 | 232.00 | 2.93 | 0.69 | 8.24 |
| 14 | 37°37' N 44°47' E: h14 | 1510 | 0-30 | 0.23 | 14.66 | 806.00 | 4.56 | 0.76 | 7.94 |
| | | | 30-60 | 0.22 | 17.33 | 798.00 | 4.30 | 0.73 | 7.46 |
| | | | 60-90 | 0.10 | 18.33 | 802.00 | 3.96 | 0.69 | 7.66 |

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|----|----------------------|------|-------|-------|---------|---------|------|------|------|
| 15 | 37°52'N45°24'E: h15 | 1522 | 0-30 | 0.20 | 7.03 | 153.00 | 3.70 | 0.62 | 7.20 |
| | | | 30-60 | 0.09 | 11.33 | 158.00 | 3.43 | 0.59 | 7.60 |
| | | | 60-90 | 0.19 | 10.10 | 154.00 | 3.06 | 0.56 | 7.70 |
| 16 | 37°30'N45°11'E: h16 | 1500 | 0-30 | 0.08 | 15.33 | 279.00 | 2.86 | 0.65 | 7.15 |
| | | | 30-60 | 0.07 | 14.06 | 285.00 | 2.50 | 0.61 | 7.80 |
| | | | 60-90 | 0.03 | 11.16 | 281.00 | 2.16 | 0.58 | 8.15 |
| 17 | 45°17'N38°13'E: h17 | 1500 | 0-30 | 0.09 | 2.36 | 140.00 | 3.56 | 0.47 | 7.19 |
| | | | 30-60 | 0.02 | 2.03 | 135.00 | 3.16 | 0.40 | 7.80 |
| | | | 60-90 | 0.01 | 1.73 | 131.00 | 2.95 | 0.45 | 8.19 |
| 18 | 48°31'N37°37'E: h18 | 1900 | 0-30 | 16.00 | 211.16 | 3471.00 | 8.10 | 2.27 | 7.43 |
| | | | 30-60 | 0.15 | 2107.00 | 3464.00 | 7.88 | 2.00 | 7.60 |
| | | | 60-90 | 0.07 | 207.53 | 3460.00 | 7.40 | 1.70 | 7.90 |
| 19 | 39°35'N44°12'E: h17 | 2300 | 0-30 | 0.27 | 17.60 | 119.00 | 9.06 | 0.54 | 7.24 |
| | | | 30-60 | 0.25 | 17.03 | 120.00 | 8.83 | 0.50 | 7.30 |
| | | | 60-90 | 0.12 | 15.06 | 117.60 | 8.55 | 0.47 | 7.80 |
| 20 | 38°3'N 44°57' E: h20 | 1485 | 0-30 | 0.005 | 9.60 | 324.00 | 2.10 | 0.37 | 7.76 |
| | | | 30-60 | 0.004 | 5.36 | 319.00 | 1.70 | 0.30 | 8.20 |
| | | | 60-90 | 0.003 | 8.93 | 317.00 | 1.33 | 0.27 | 8.85 |
| 21 | 48°25'N38°35'E: 21 | 2200 | 0-30 | 0.16 | 211.10 | 3475.00 | 4.10 | 2.40 | 7.09 |
| | | | 30-60 | 0.07 | 205.60 | 3469.00 | 3.82 | 2.90 | 7.64 |
| | | | 60-90 | 0.15 | 208.66 | 3471.00 | 3.50 | 2.60 | 7.69 |
| 22 | 36°40'N46°7'E: h22 | 1800 | 0-30 | 0.28 | 20.41 | 120.00 | 3.43 | 1.50 | 7.52 |
| | | | 30-60 | 0.13 | 17.33 | 126.00 | 3.96 | 1.48 | 7.80 |
| | | | 60-90 | 0.26 | 19.33 | 122.00 | 3.66 | 1.20 | 8.20 |
| 23 | 48°25' N38°35'E:h23 | 2200 | 0-30 | 0.16 | 203.60 | 3482.00 | 3.80 | 2.90 | 7.45 |
| | | | 30-60 | 0.07 | 200.66 | 3475.00 | 3.56 | 2.40 | 7.64 |
| | | | 60-90 | 0.15 | 197.6 | 3478.00 | 3.35 | 2.70 | 7.91 |
| 24 | 48°31'N37°33'E:h24 | 2100 | 0-30 | 0.02 | 3.26 | 131.00 | 2.80 | 0.24 | 7.72 |
| | | | 30-60 | 0.00 | 2.63 | 137.00 | 2.10 | 0.27 | 8.25 |
| | | | 60-90 | 0.01 | 2.93 | 133.00 | 2.33 | 0.20 | 8.88 |