

# Exploring potato diversity: A comprehensive genetic and phenotypic analysis of quantitative and qualitative traits

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## Electronic Supplementary Material (ESM)

The authors are fully responsible for both the content and the formal aspects of the electronic supplementary material. No editorial adjustments were made.

Table S1. List of accessions used in this study

| Accession No. | Accession name | Parentage/source                | Accession No. | Accession name          | Parentage/source                    |
|---------------|----------------|---------------------------------|---------------|-------------------------|-------------------------------------|
| 1             | APG-001        | indigenous potato variety (IPV) | 32            | APG-032                 | APG-005 × APG-035                   |
| 2             | APG-002        | indigenous potato variety (IPV) | 33            | APG-033                 | BARI Alu 40 × BARI Alu 46           |
| 3             | APG-003        | BARI Alu-77 × BARI Alu 53       | 34            | APG-034                 | BARI Alu 40 × BARI Alu 46           |
| 4             | APG-004        | BARI Alu-77 × BARI Alu 53       | 35            | APG-035                 | BARI Alu 72 × BARI Alu 53           |
| 5             | APG-005        | APG-001 × BARI Alu-53           | 36            | APG-036                 | BARI Alu 53 × BARI Alu 08           |
| 6             | APG-006        | BARI Alu 13 × BARI Alu 35       | 37            | APG-037                 | BARI Alu 57 × BARI Alu 62           |
| 7             | APG-007        | BARI Alu 13 × BARI Alu 35       | 38            | APG-038                 | APG-034 × BARI Alu 46               |
| 8             | APG-008        | BARI Alu 13 × BARI Alu 35       | 39            | APG-039                 | APG-033 × BARI Alu 40               |
| 9             | APG-009        | BARI Alu-77 × BARI Alu 53       | 40            | APG-040                 | BARI Alu 53 × BARI Alu 41           |
| 10            | APG-010        | BARI Alu 54 × BARI Alu 48       | 41            | APG-041                 | BARI Alu 63 × BARI Alu 66           |
| 11            | APG-011        | BARI Alu 54 × BARI Alu 48       | 42            | APG-042                 | APG-040 × BARI Alu 72               |
| 12            | APG-012        | BARI Alu 54 × BARI Alu 48       | 43            | APG-043                 | APG-005 × BARI Alu-53               |
| 13            | APG-013        | APG-001 × BARI Alu-53           | 44            | APG-044                 | APG-005 × BARI Alu-53               |
| 14            | APG-014        | BARI Alu 54 × BARI Alu 48       | 45            | APG-045                 | APG-034 × BARI Alu 40               |
| 15            | APG-015        | APG-001 × BARI Alu 53           | 46            | APG-046                 | APG-038 × BARI Alu 46               |
| 16            | APG-016        | indigenous potato variety (IPV) | 47            | APG-047                 | BARI Alu 79 × BARI Alu 72           |
| 17            | APG-017        | APG-001 × BARI Alu 72           | 48            | APG-048                 | BARI Alu 72 × BARI Alu 36           |
| 18            | APG-018        | APG-003 × APG-007               | 49            | APG-049                 | APG-041 × BARI Alu 72               |
| 19            | APG-019        | indigenous potato variety (IPV) | 50            | APG-050                 | BARI Alu 40 × BARI Alu 46           |
| 20            | APG-020        | APG-016 × APG-004               | 51            | APG-051                 | BARI Alu 63 × BARI Alu 75           |
| 21            | APG-021        | APG-005 × APG-003               | 52            | APG-052                 | APG-041 × BARI Alu 66               |
| 22            | APG-022        | BARI Alu 79 × BARI Alu 56       | 53            | APG-053                 | BARI Alu 75 × BARI Alu 72           |
| 23            | APG-023        | BARI Alu 78 × BARI Alu 53       | 54            | APG-054                 | BARI Alu 40 × BARI Alu 46           |
| 24            | APG-024        | BARI Alu 48 × APG-002           | 55            | BARI Alu-77 (Sarpomira) | 76.PO.12.14.268 × D187              |
| 25            | APG-025        | BARI Alu 48 × BARI Alu 13       | 56            | BARI Alu-07 (Diamant)   | TULNER/DE VRIES 54-30-8 × SVP 55-89 |
| 26            | APG-026        | BARI Alu 48 × BARI Alu 81       | 57            | BARI Alu-08 (Cardinal)  | TULNER/DE VRIES 54-30-8 × SVP 55-89 |
| 27            | APG-027        | BARI Alu 48 × BARI Alu 83       | 58            | BARI Alu-25 (Asterix)   | CARDINAL × VE 70-9                  |
| 28            | APG-028        | APG-022 × APG-023               | 59            | BARI Alu-54 (Musica)    | CMK 93-042-005 × LADY CHRISTL       |
| 29            | APG-029        | BARI Alu 54 × BARI Alu 07       | 60            | BARI Alu-29 (Courage)   | LADY ROSETTA × HZ 81 H 202          |
| 30            | APG-030        | APG-006 × APG-008               | 61            | BARI Alu-13 (Granola)   | 3333/60 × 267.04                    |
| 31            | APG-031        | APG-003 × APG-005               | 62            | BARI Alu-53             | 386316.14 × 387015.3                |

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Table S2. Allelic information of the samples amplified by the 9 SSR markers.

| SSR marker | Expected size | Observed band size | Annealing temperature<br>(°C) | No. of alleles |
|------------|---------------|--------------------|-------------------------------|----------------|
|            | (bp)          | (bp)               |                               |                |
| STM 0030   | 147           | 134–412            | 45.85                         | 8              |
| STM 0031   | 172           | 146–551            | 54.28                         | 11             |
| STM 0037   | 90            | 95–535             | 41.60                         | 8              |
| STM 1016   | 247           | 180–809            | 51.12                         | 10             |
| STM 1049   | 195           | 203–507            | 53.37                         | 5              |
| STM 1052   | 248           | 228–460            | 47.75                         | 3              |
| STM 1106   | 156           | 165–800            | 50.75                         | 7              |
| STM 2013   | 160           | 193–800            | 49.50                         | 7              |
| STM 3009   | 110           | 150–412            | 58.90                         | 7              |

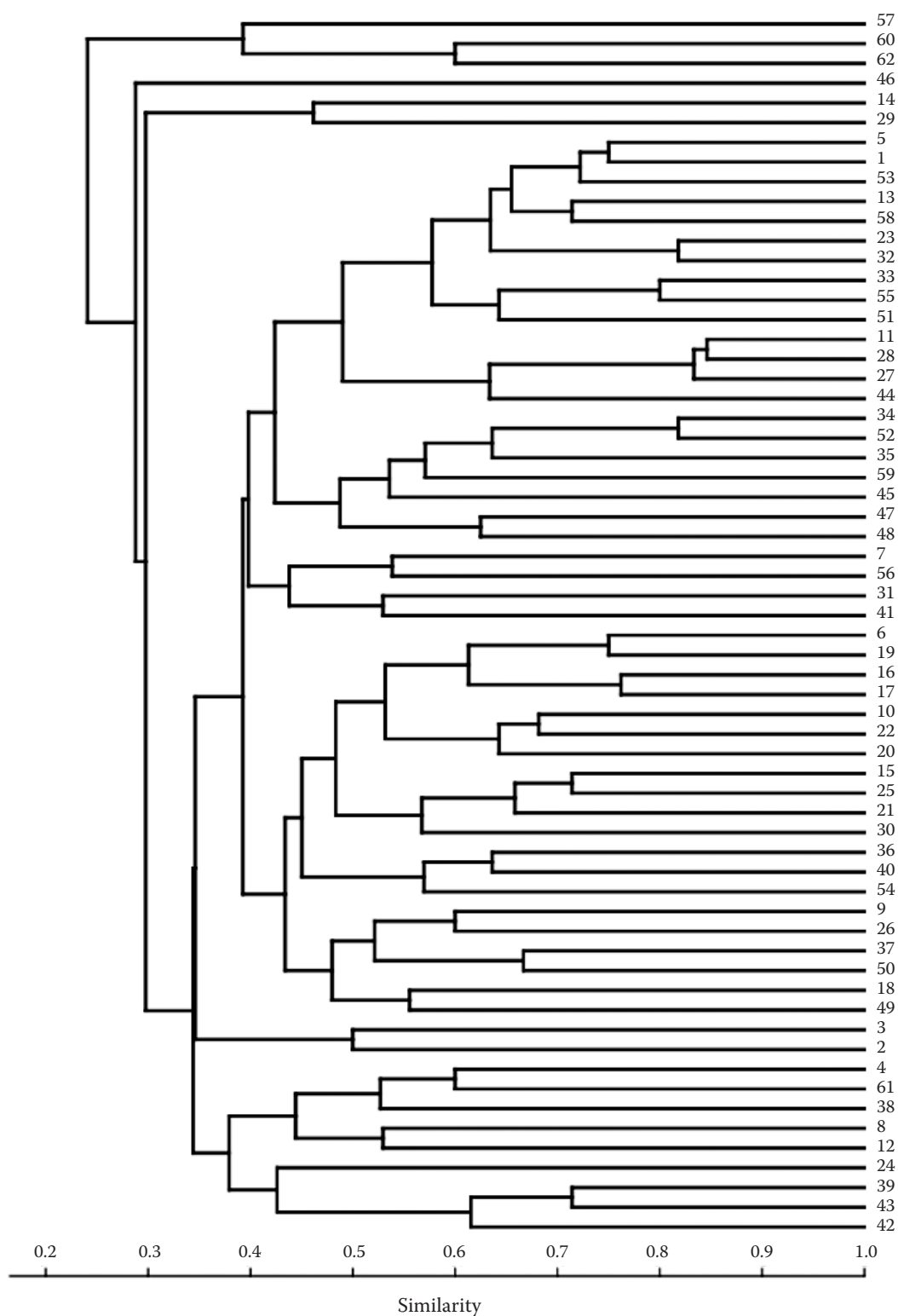


Figure S1. Dendrogram analysis of 62 potato accessions using unweighted pair-group method with arithmetic average (UPGMA) method with four SSR markers: STM0030, STM0031, STM0037, and STM1016