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| Supplementary Table 1: The primers used in this study according to Hamwieh *et al.* (2005) |
|  |
| Primer set number | sequence 5’🡪 3’ | Annealing temperature (oC) | Product size (bp) |
| SSR 19 | F: GACTCATACTTTGTTCTTAGCAG | 58 | 250 |
| R: GAACGGAGCGGTCACATTAG |
| SSR 33 | F: CAAGCATGACGCCTATGAAG | 58 | 289 |
| R: CTTTCACTCACTCAACTCTC |
| SSR 59-2 | F: CCAAATACTGCAACACACCG | 58 | 175 |
| R: GTTCCCATCAGGCAGAAGG |
| SSR 80 | F: CCATGCATACGTGACTGC | 58 | 180 |
| R: GTTGACTGTTGGTGTAAGTG |
| SSR 107 | F: GCGGCGAGCAAATAAAT | 54 | 168 |
| R: GGAGAATAAGAGTGAAATG |
| SSR 113 | F: CCGTAAGAATTAGGTGTC | 54 | 211 |
| R: GGAAAATAGGGTGGAAAG |
| SSR 184 | F: GTGTGTACCTAAAGCCTTG | 56 | 250 |
| R: GTAAGTTGATCAAACGCCC |
| SSR 204 | F: CACGACTATCCCACTTG | 56 | 186 |
| R: CTTACTTTCTTAGTGCTATTAC |
| SSR 302 | F: CAAGCCACCCATACACC | 54 | 261 |
| R: GGGCATTAAGTGTGCTGG |
| SSR 317-2 | F: CACGTAACATCTTGCTTATG | 56 | 120 |
| R: GTAGCAATAATTACACCCAC |
| SSR 323 | F: AGTGACAACAAAATGTGAGT | 50 | 250 |
| R: GTACCTAGTTTCATCATTG |

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| Supplementary Table 2. Pearson’s Correlation matrix showing the correlation of each morphological character measurement with the others. |
| Variables | Area | Perimeter | Circularity | GrayValue(Mean) | IntegratedDensity | Height | Width | GrayValue(Median) | GrayValue(Minimum) | GrayValue(Maximum) |
| Area | **1** | 0.993 | -0.526 | -0.002 | 0.690 | 0.954 | 0.953 | 0.003 | -0.313 | 0.311 |
| Perimeter | 0.993 | **1** | -0.614 | 0.022 | 0.705 | 0.952 | 0.954 | 0.029 | -0.330 | 0.323 |
| Circularity | -0.526 | -0.614 | **1** | -0.184 | -0.513 | -0.518 | -0.548 | -0.205 | 0.306 | -0.279 |
| Gray Value (Mean) | -0.002 | 0.022 | -0.184 | **1** | 0.715 | -0.019 | 0.009 | 0.993 | 0.505 | 0.195 |
| Integrated Density | 0.690 | 0.705 | -0.513 | 0.715 | **1** | 0.642 | 0.670 | 0.714 | 0.142 | 0.343 |
| Height | 0.954 | 0.952 | -0.518 | -0.019 | 0.642 | **1** | 0.834 | -0.013 | -0.315 | 0.317 |
| Width | 0.953 | 0.954 | -0.548 | 0.009 | 0.670 | 0.834 | **1** | 0.016 | -0.316 | 0.292 |
| Gray Value (Median) | 0.003 | 0.029 | -0.205 | 0.993 | 0.714 | -0.013 | 0.016 | **1** | 0.462 | 0.194 |
| Gray Value (Minimum) | -0.313 | -0.330 | 0.306 | 0.505 | 0.142 | -0.315 | -0.316 | 0.462 | **1** | -0.200 |
| Gray Value (Maximum) | 0.311 | 0.323 | -0.279 | 0.195 | 0.343 | 0.317 | 0.292 | 0.194 | -0.200 | **1** |

Supplementary Table 3: The summary table of calculated R2, F and Pr>F probability of the ANOVA between groups of (A) optical and (B) UPGMA grouping and the morphological characters examined.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A. Optical groups |  |  |  |  |  |  |  |
|   | Area | Perimeter | Circularity | Gray Value (Mean) | Integrated Density | Height | Width | Gray Value (Median) | Gray Value (Minimum) | Gray Value (Maximum) |
| R² | 0,416 | 0,433 | 0,242 | 0,505 | 0,899 | 0,370 | 0,386 | 0,501 | 0,033 | 0,114 |
| F | 68,370 | 73,528 | 30,631 | 98,272 | 858,768 | 56,565 | 60,376 | 96,602 | 3,256 | 12,368 |
| Pr > F | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | 0,004 | < 0,0001 |
|  |  |  |  |  |  |  |  |  |  |  |
| B. UPGMA groups |  |  |  |  |  |  |  |  |
|   | Area | Perimeter | Circularity | Gray Value (Mean) | Integrated Density | Height | Width | Gray Value (Median) | Gray Value (Minimum) | Gray Value (Maximum) |
| R² | 0,599 | 0,642 | 0,588 | 0,406 | 0,525 | 0,568 | 0,552 | 0,394 | 0,599 | 0,301 |
| F | 172,675 | 207,593 | 165,086 | 79,167 | 127,990 | 151,763 | 142,254 | 75,160 | 172,425 | 49,688 |
| Pr > F | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 | < 0,0001 |
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| Supplementary Table 4: The Eigenvalues and the variability assigned to each different vector of the PCA |
|  | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 |
| Eigenvalue | 5.061 | 2.775 | 0.942 | 0.669 | 0.368 | 0.164 | 0.012 | 0.005 | 0.003 | 0.001 |
| Variability (%) | 50.608 | 27.747 | 9.423 | 6.694 | 3.679 | 1.639 | 0.117 | 0.053 | 0.033 | 0.007 |
| Cumulative (%) | 50.608 | 78.355 | 87.778 | 94.472 | 98.151 | 99.790 | 99.907 | 99.960 | 99.993 | 100.000 |

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| Supplementary Table 5: The number of alleles and PIC values for the SSR markers used. |
| Primer set No | Number of alleles | PIC value |
| SSR 19 | 5 | 0.042 |
| SSR 33 | 3 | 0.262 |
| SSR 59-2 | 5 | 0.175 |
| SSR 80 | 4 | 0.037 |
| SSR 107 | 5 | 0.094 |
| SSR 113 | 6 | 0.295 |
| SSR 184 | 4 | 0.194 |
| SSR 204 | 2 | 0.366 |
| SSR 302 | 4 | 0.042 |
| SSR 317-2 | 3 | 0.371 |
| SSR 323 | 4 | 0.233 |

Supplementary Figure 1. Two-dimentional representation of the ‘Eglouvis’ seeds according to PCA analysis based on morphological seed characters. Different seeds are depicted as dots while morphological characters as lines originating from the cross of the graph’s axes. Close proximity of the end of the line indicates highly correlated characters.

