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# Taxonomic relationships and population differentiation of the south-western Eurasian *Zelkova* species inferred in leaf morphology

## Supplementary Material

Table S1. Leaf character (codes as in Table 1) showing a non-normal distribution ($P \leq 0.01$) detected through Shapiro-Wilks' test within dataset regarding *Zelkova sicula*, *Z. abelicea* and *Z. carpinifolia* populations (acronyms as in Table 1); only populations with at least one character with non-normal distribution shown)

| Species | Population acronym | L | S | NN |
|---|---|---|---|---|
| *Z. sicula* | SIB | | PV | |
| *Z. abelicea* | OMA1 | | | AB, PV |
| | OMA2 | | PV | |
| | AMB1 | A, PV, | | PV |
| | NIA | | | PV |
| | KED1 | PV | PV | |
| | PSI | | | TN, PV, |
| | LAS1 | A/P | | LA, PV |
| | STA | | | PV, W_2 |
| *Z. carpinifolia* | ANR | BW_90, LA | AA, | |
| | VAN | LBW | TN, NWT | |
| | BAB | AB | SHL, LHL, LS | |
| | XAN | BW_90, LA | LA | |
| | PAR | BW_90 | | |

L – data for L-type leaves, S – data for leaves of S-type; NN – data for leaves of NN-type in *Z. abelicea*.

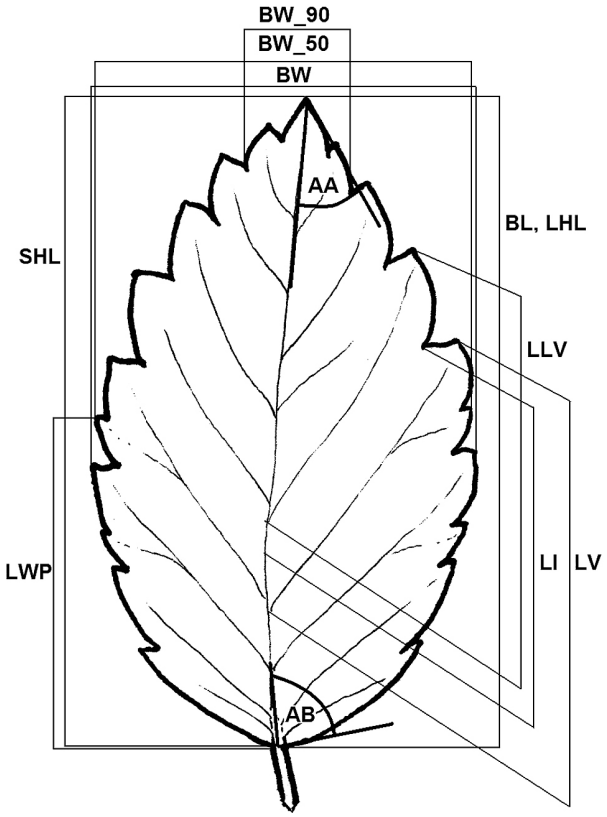


Fig. S1. Measured leaf parametres; for character description see Table 2

Table S2. Correlation coefficients between leaf characters of *Z. carpinifolia, Z. abelicea* and *Z. sicula*; bolded values $p \leq 0.01$, italic $p \leq 0.05$; non significant values omitted; L-type of leaves below diagonal, S-type of leaves above diagonal; character codes as in Table 1

| Character code | A | P | BL | BW | BW_50 | BW_90 | LLV | LV | LI | LWP | AA | AB | TN | NVT | LA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | | 0.97 | 0.96 | 0.95 | 0.94 | 0.78 | 0.91 | 0.91 | 0.93 | 0.91 | | | **0.73** | **0.75** | *0.21* |
| P | 0.97 | | 0.96 | 0.94 | 0.94 | 0.76 | 0.94 | 0.94 | 0.95 | 0.94 | | | 0.76 | 0.79 | |
| BL | 0.95 | 0.97 | | 0.88 | 0.88 | 0.66 | 0.87 | 0.87 | 0.89 | 0.94 | −0.34 | | 0.79 | 0.81 | |
| BW | 0.97 | 0.94 | 0.90 | | 0.99 | 0.82 | 0.94 | 0.94 | 0.96 | 0.83 | | *0.20* | **0.67** | **0.68** | **0.24** |
| BW_50 | 0.97 | 0.94 | 0.90 | 1.00 | | 0.84 | 0.95 | 0.95 | 0.96 | 0.86 | | | **0.65** | **0.66** | 0.19 |
| BW_90 | 0.83 | 0.78 | 0.72 | 0.84 | 0.84 | | 0.78 | 0.78 | 0.78 | 0.71 | 0.40 | | 0.47 | 0.50 | |
| LLV | 0.96 | 0.97 | 0.94 | 0.96 | 0.96 | 0.80 | | 1.00 | 0.99 | 0.90 | | | 0.61 | 0.62 | |
| LV | 0.96 | 0.97 | 0.95 | 0.96 | 0.96 | 0.79 | 1.00 | | 0.99 | 0.89 | | | 0.62 | 0.64 | |
| LI | 0.96 | 0.96 | 0.95 | 0.96 | 0.96 | 0.79 | 0.99 | 1.00 | | 0.89 | | | 0.67 | 0.67 | |
| LWP | 0.90 | 0.94 | 0.95 | 0.85 | 0.86 | 0.75 | 0.91 | 0.91 | 0.91 | | −0.18 | | 0.69 | 0.73 | |
| AA | −0.31 | −0.40 | −0.50 | −0.25 | −0.25 | | −0.34 | −0.36 | −0.36 | −0.43 | | | −0.32 | −0.31 | |
| AB | 0.42 | 0.39 | 0.34 | 0.45 | 0.43 | 0.29 | 0.44 | **0.42** | **0.42** | *0.20* | | | **0.23** | *0.19* | **0.40** |
| TN | 0.71 | 0.80 | 0.82 | 0.68 | 0.69 | 0.51 | 0.73 | 0.75 | 0.76 | 0.79 | −0.53 | 0.26 | | **0.98** | *0.21* |
| NVT | 0.72 | 0.81 | 0.83 | 0.68 | 0.68 | 0.50 | 0.73 | 0.74 | 0.75 | 0.79 | −0.55 | 0.24 | 0.99 | | |
| LA | **0.40** | **0.39** | **0.36** | **0.40** | **0.38** | **0.28** | **0.38** | **0.37** | **0.39** | *0.19* | | 0.50 | 0.38 | 0.37 | |

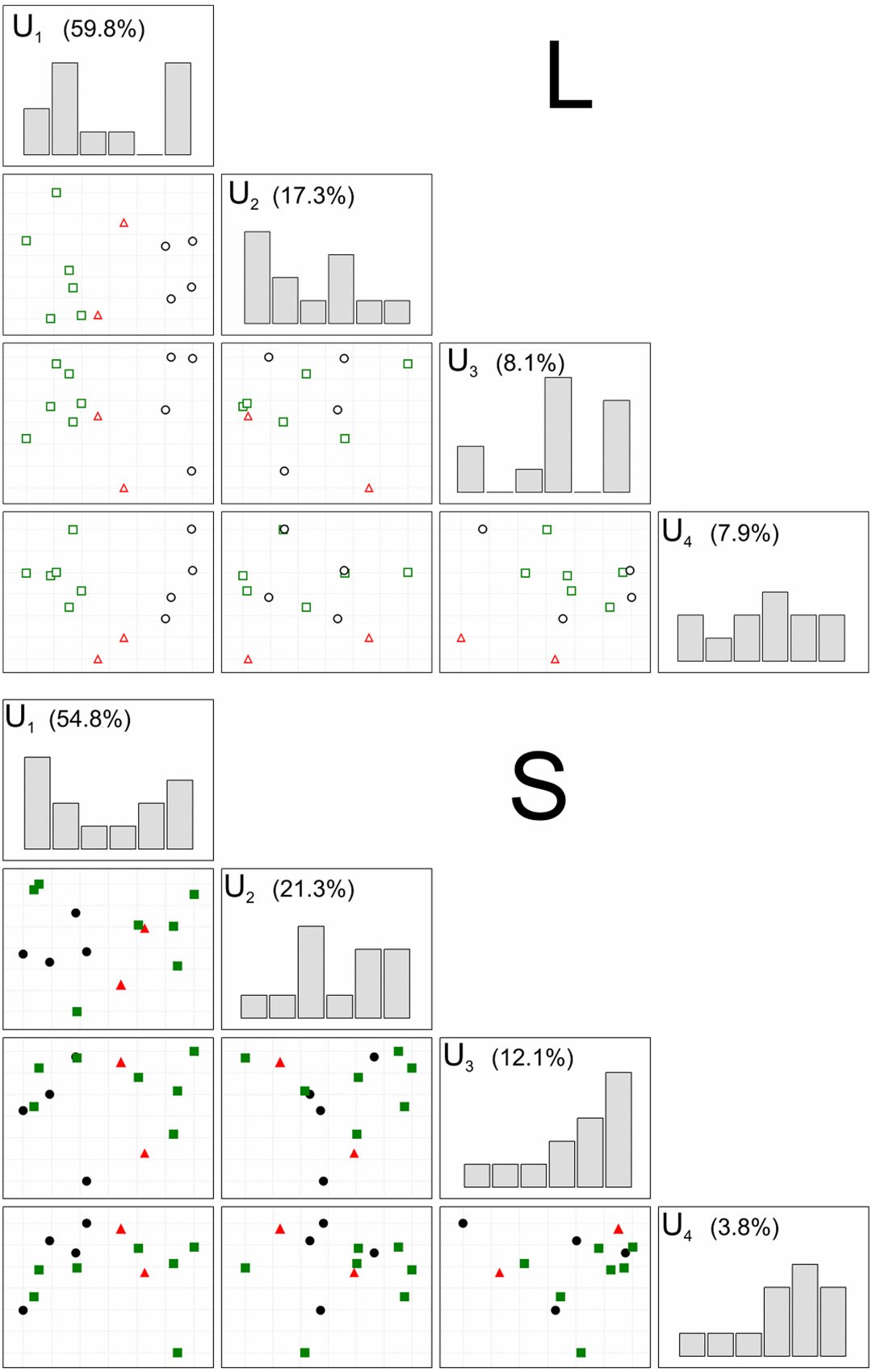


Fig. S2. Differentiation of *Z. carpinifolia* (□ L- and ■ S-type leaves), *Z. abelicea* (○ L- and ● S-type leaves) and *Z. sicula* (Δ L- and ▲ S-type leaves) populations using leaf characters: discrimination functions analysis among the four first discriminatory variables for L-type and S-type of leaves (S); bars in boxes $U_1$–$U_4$ indicate the distribution of populations using the variation described by particular discrimination variables