

Nuclear molecular markers in investigation of genetic relationships, phylogeography and systematics of lizards from *Darevskia* and *Lacerta* s. str. genera

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Some nuclear DNA molecular markers (satellite DNA, Inter-SINE-PCR sequences [Buntjer, 1997], taxonprint [Grechko et al., 1997] and RAPD methods) were used to investigate molecular genetic relations in Caucasian *Darevskia* and *Lacerta* s. str. complexes in an attempt to clarify some uncertainties in their systematics and phylogeography. In general, all of these markers correlate well enough to morphological systematics but indicated some alternative positions. Taxonprints support genera discriminations between *Darevskia*, *Lacerta* s. str., *Podarcis*, *Eremias*, *Zootoka*, *Gallotia* offering a number of unique molecular marker for each genera studied along with a small number of synapomorphic characters. At the same time intra-genera pattern similarities were high. Satellite DNA found in *Darevskia* and *Lacerta* were found to be specific for each of them and did not indicate hybridization with lizards of the genera mentioned above. SatDNAs permitted genetic relationships to be established intra-*Darevskia* and intra-*Lacerta* s. str. and have shown closer similarities within “*Darevskia saxicola* complex” (including *D. alpina*, *D. raddei*, *D. chlorogaster*), “*D. mixta* complex” (including *D. clarcorum*, *D. dryada*, *D. caucasica*, *D. daghestanica*), and “*D. rudis* complex” (including *D. valentini*, *D. portschinskii*). Meanwhile satDNA sequences of *D. parvula*, *D. praticola* and *D. derujgini* were genetically more distant from the above mentioned species. IS-PCR markers show the intra-species similarities between populations and subspecies and inter-species discrimination by the values of Nei-Li genetic distance coefficients. These coefficients can be used for verification of the subspecies status of the studied specimen and here we support some of the subspecies studied while questioning the validity of others. RAPD markers of *Darevskia* and *Lacerta* s. str. species were useful only for intra-population level or for discrimination of very closely similar species – at least in the lizard groups studied by us. Several aspects of speciation and phylogeography of Caucasian lacertids will be discussed.