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The Phylogenetic status of the Sri Lankan saw scaled viper (Family: Viperidae, *Echis carinatus sinhaleyus*)

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Echis carinatus is one among the six species of land snakes in Sri Lanka that are considered to be highly venomous. The Sri Lankan subspecies, *E. carinatus sinhaleyus*, was named by Deraniyagala in 1951 using phenotypical features. Genetic studies have not been carried out to date to confirm the existence of a unique Sri Lankan subspecies. Therefore, two regions of the mitochondrial genome i.e. cytochrome b (cyt b) and 16srRNA regions, of *E. carinatus sinhaleyus* were amplified and sequenced to analyze its phylogenetic positioning. DNA extraction was carried out using frozen tissue of two carcasses of *E. carinatus sinhaleyus*, with the phenol chloroform method. Extracted genomic DNA samples were amplified by optimized PCR conditions using the standard primer sets, L14846F1 and S2 for Cyt b gene, L2510 and H3062 for 16s rRNA gene. The amplified products were sequenced. The phylogenetic positioning of the Sri Lankan Saw scaled viper was analyzed by constructing phylogenetic trees using genetic sequences downloaded from the NCBI GenBank for Cytb and 16s rRNA regions for 12 other subspecies of *Echis* genus from 9 countries, and the two sequences of the Sri Lankan saw scaled viper obtained by this study. Two subspecies of the genus *Cerastes* was used as the out group (*C. vipera* and *C. cerastes*). Sequences were aligned with clustalW. Maximum likelihood trees for the 16s rRNA gene region, Cyt b gene region and a consensus tree concatenating the two regions were constructed with MEGA 6.0 using rapid bootstrap for 1000 replicates with the HKY model and the phylogenetic analysis calculating the pairwise genetic distance was carried out using the same software. The evolutionary status of the Sri Lankan Saw scaled viper subspecies appeared to be sister to the Indian subspecies in the concatenated tree, and in all three phylogenetic trees, Sri Lankan and Indian subspecies formed a separate sub clade showing their divergence from the other three subspecies of Pakistan, Turkmenistan and North Oman which form another sub clade. However, within this sub clade the Indian and the Sri Lankan saw scaled viper sequences were distinct, indicating that these two are indeed most likely to be subspecies.

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