EVIDENCE OF RESTRICTED MATERNAL GENE FLOW OF PURANA (OLD) POPULATION IN THE SUBURBS OF SIGIRIYA, SRI LANKA

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Population movements, social structure and caste endogamy are some of the important determinants of the genetic structure of world population. Historical records indicate that the ancestry of the *Purana* (old) population living in the suburbs of Sigiriya in Sri Lanka can be traced back to the times of the Sinhalese Kings of the 5th century A.D. (1,450 YBP). Previous studies done on the *Purana* population reported that they were biometrically different from the rest of present Sri Lankans and other population in the world. This study was carried out to investigate maternally inherited Mitochondrial DNA (mtDNA) of *Purana* population in the suburbs of Sigiriya. Forty four *Purana* inhabitants belonging to *Purana* pedigrees were recruited in the study. Mitochondrial DNA was extracted amplified in PCR and sequenced. Polymorphisms of mtDNA HVS –I ranged from 16,004 – 16,411bp length were noted using CLUSTALX option of MEGAVA 4.0 sequence alignment software. In order to investigate genetic affinity of *Purana* population, Arlequin software version 3.11, analysis of molecular variance (AMOVA) were used by using reported similar genetic data of present Sri Lankans such as Sinhalese, Sri Lankan Tamils, Indian Tamils, Sri Lankan Moors and *Vedda*. Genetic relationships of *Purana* population with other Sri Lankans were further explored by phylogenetic analysis. Genetic dissimilarity among groups was higher (2.81%) when populations were grouped into two as modern and *Purana* than grouping them according totheir ethnic basis (0.00%). This indicates a restricted mtDNA flow between the two groups (*Purana* and rest of the Sri Lankans) that made *Purana* population was maternally isolated from the rest of Sri Lankans. This isolation is also collaborated with the reported morphological and morphometrical variations such as dominant mesocephalic cephalic phenotype (35%), leptoprosopic facial phenotype (38%), mesorrhine nasal phenotype (56%) ,blood group O (46%) etc when *Purana* population is compared with present Sri Lankans. Detailed phylogenetic analysis of the study revealed that they are maternally more related to Sri Lankan Tamil than to any other present Sri Lankans.

Keywords: Mitochondrial DNA, Maternal Inheritance, *Purana* population