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## Genetic diversity and population structure of populations from Sudan based on 15 autosomal markers

**Hiba Mohammed Ali Babiker**

Max Planck Institute for Evolutionary Biology, Germany

Studies of genetic variation in African populations have gained attention since evidence from both archaeology and genetics confirmed that the genetic diversity in African populations is the highest compared to populations in other continents. Sudan is located in north-eastern Africa, with substantial ethnic, cultural and linguistic diversity. It forms a major part of the Nile valley which is hypothesized to be a way out of Africa for human migrations. We sampled 498 individuals from 18 Sudanese populations representing different ethnic and linguistic groups and typed them using the 15 Identifiler microsatellite markers. The combined power of exclusion (PE) was 0.9999981 and the combined match probability was 1 in  $7.4 \times 10^{17}$ . The genotype data from the Sudanese populations was combined with previously published genotype data from Egypt, Somalia and the Karamoja population from Uganda. The Somali population stands out genetically from the other northeast African populations. Individuals from northern Sudan showed similar clustering pattern as those from Egypt, and individuals from southern Sudan clustered with those from the Karamoja population. We conclude that the combination of the 15 STR loci is a useful and powerful tool for personal identification and parentage analysis in Sudan despite the levels of population structure. However, a larger set of markers is recommended for the detection of fine-scale population structure. Most of the genetic variation was observed within populations and the genetic difference between linguistic and geographic groups was not great, but it seems that, in Sudan, geography plays an important role in determining differences between the populations.

### Biography

Hiba Mohammed Ali Babiker is a Postdoctoral fellow at Max Planck Institute for Evolutionary Biology since October 2014. She completed her Doctorate degree in 2014 from Max Planck Institute for Evolutionary Biology in Plön and Christian Albrechts University in Kiel, Germany. She earned her MSc degree in biology from Uppsala University in Sweden in 2010. Prior to her masters, she worked at the forensic Laboratory in Khartoum, Sudan as a Forensic DNA Analyst for the period 2003-2008. She obtained her BSc degree in Cell and Molecular Biology from United Arab Emirates University in Al Ain, United Arab Emirates in 2002.

[hibababiker@gmail.com](mailto:hibababiker@gmail.com)

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