

DNA ANALYSIS OF THE 7TH CENTURY HUMAN REMAINS FROM THE BURIAL SITE IN ERGOLDING, GERMANY



Vanek D., Saskova L., Koch H. (1)



daniel.vanek@DNA.com.cz

Forensic DNA Service, Prague, Czech Republic; ¹Bavarian State Department of Monuments and Sights, Regensburg, Germany

Introduction

The aim of this work was to develop novel DNA extraction and typing procedure for DNA identification of the 7th century human remains. Early-medieval burial-place in Ergolding (Bavaria, Germany) was archaeologically examined and more than 440 graves from the late-Merowig period were found (Figure 1). DNA analysis was performed on the remains of 6 men of early adult age found in the central grave number 244. Individuals from the western part of the chamber (marked 244A, 244B, and 244C) lied straight on the back, body-by-body, and all 3 men were buried with swords, spears, shields, and spurs, like heavily armored mounted warriors (Figure 2).

Picture gallery

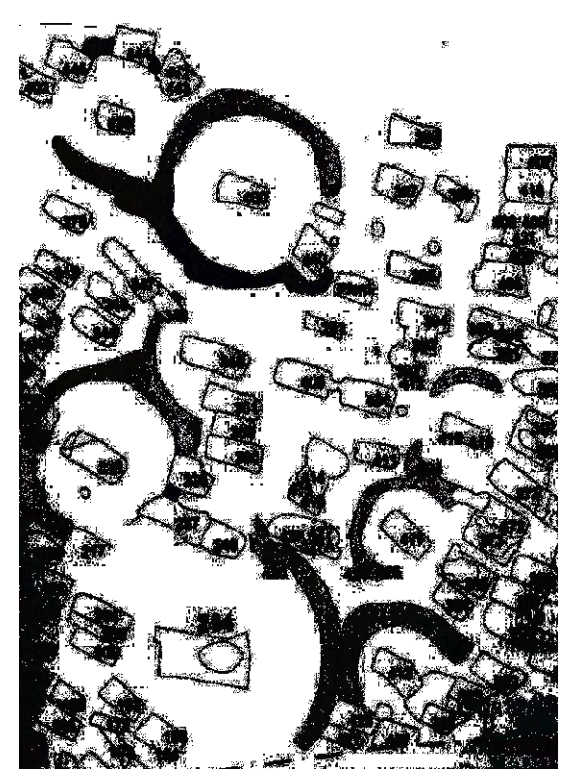


Figure 1. Burial place in Ergolding.

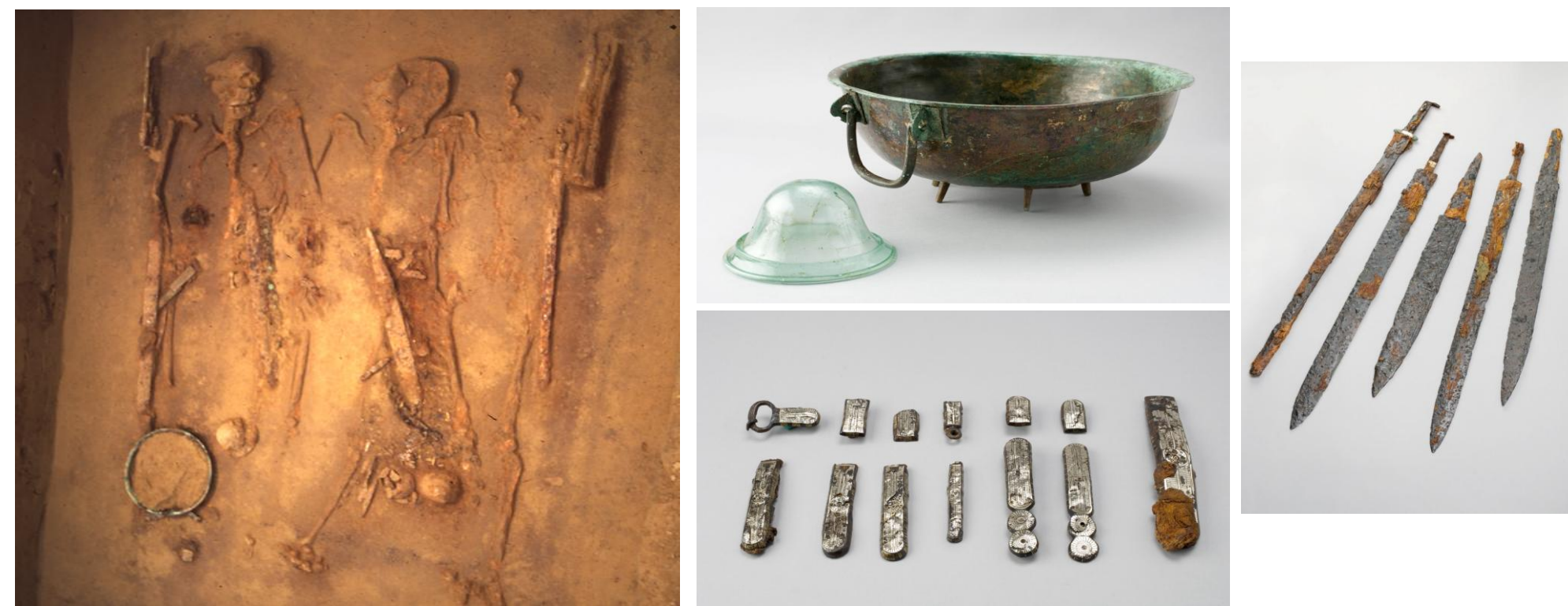
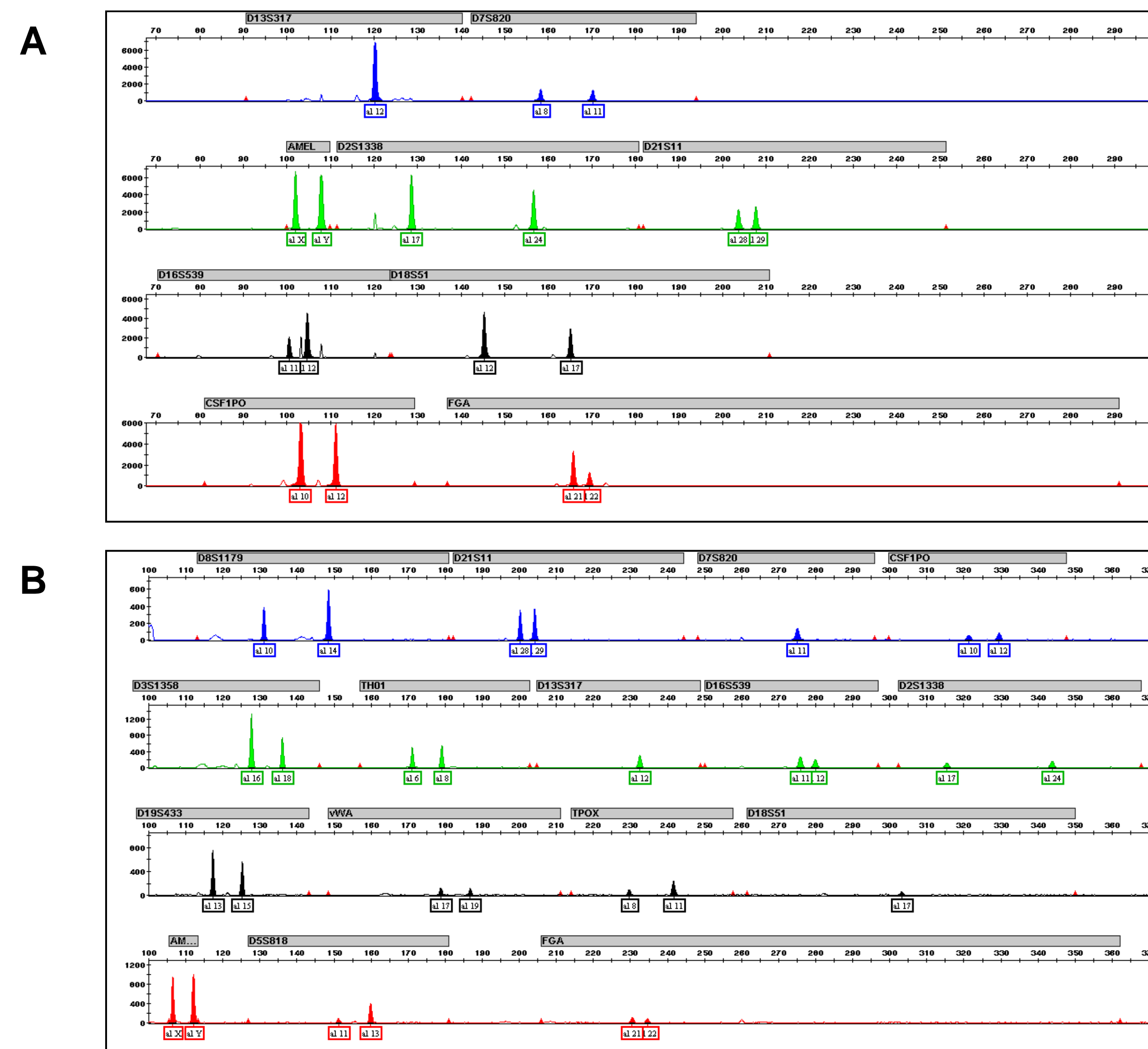


Figure 2. Individuals 244A, 244B, and 244 C and some of the artifacts found in the grave 244.

Results

Figure 5. Electropherograms of DNA typing results of the sample 244B using Minifiler (A) and Identifiler (B) amplification kits. Peak labels represent alleles obtained; intensity of the peaks is expressed in relative fluorescent units.



Conclusion

Application of forensic genetics in archaeology enables retrieving new types of information and helps in data interpretation. The number of successfully typed autosomal STR loci (up to 16) and Y-STR loci (up to 24) from ancient specimens in this study is one of the largest published so far for aged samples.

Methods

DNA from preserved femur samples (Fig.3) was extracted using the modified silica-based extraction technique (Fig.4). Polymerase chain reaction was performed using human identification kits MiniFiler, Identifiler, and Y-filer (Applied Biosystems) and also laboratory-developed and validated Y-chromosome short tandem repeat (STR) pentaplexes with short amplicons.



Figure 3. Bone samples 244A and 244B.

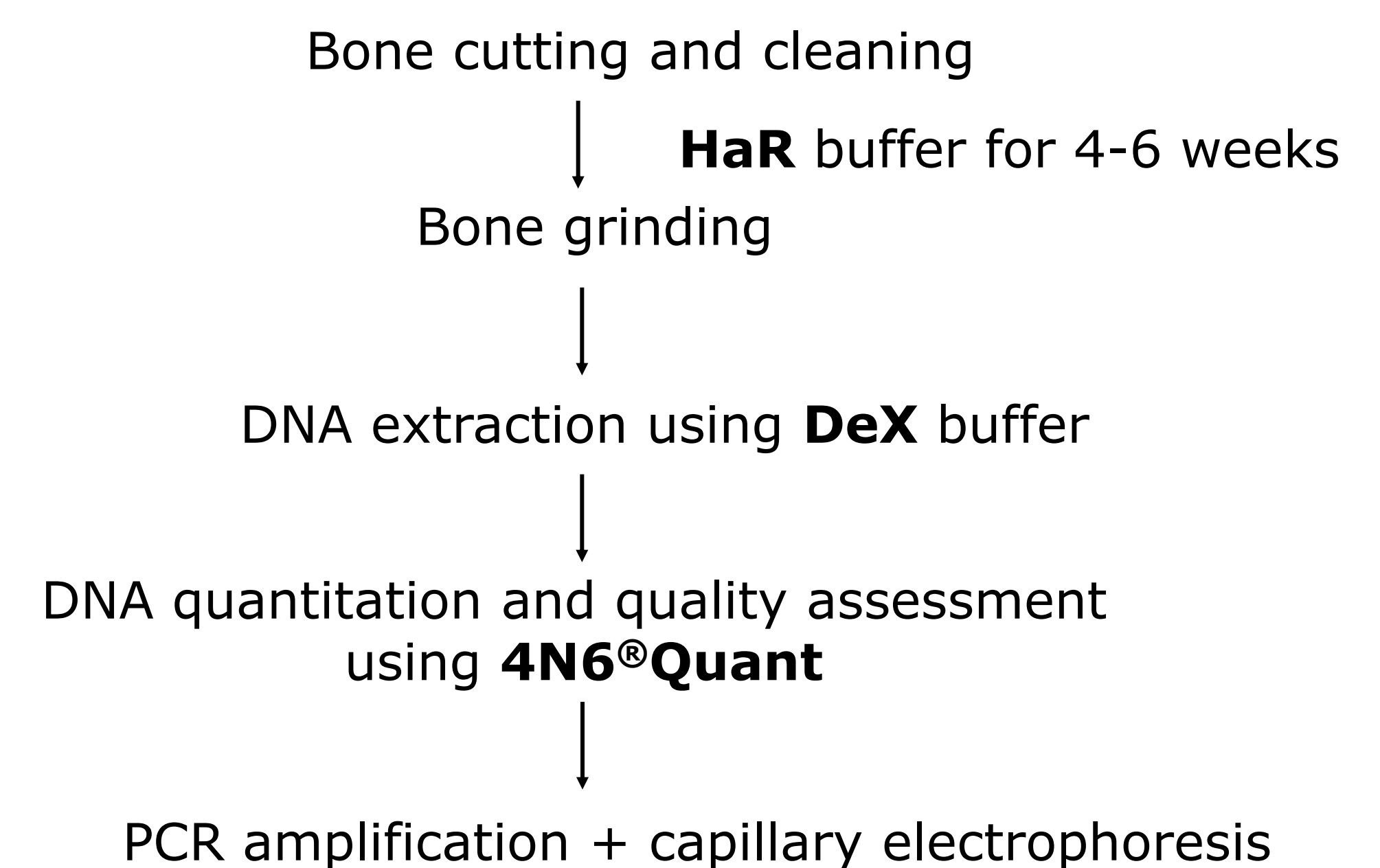
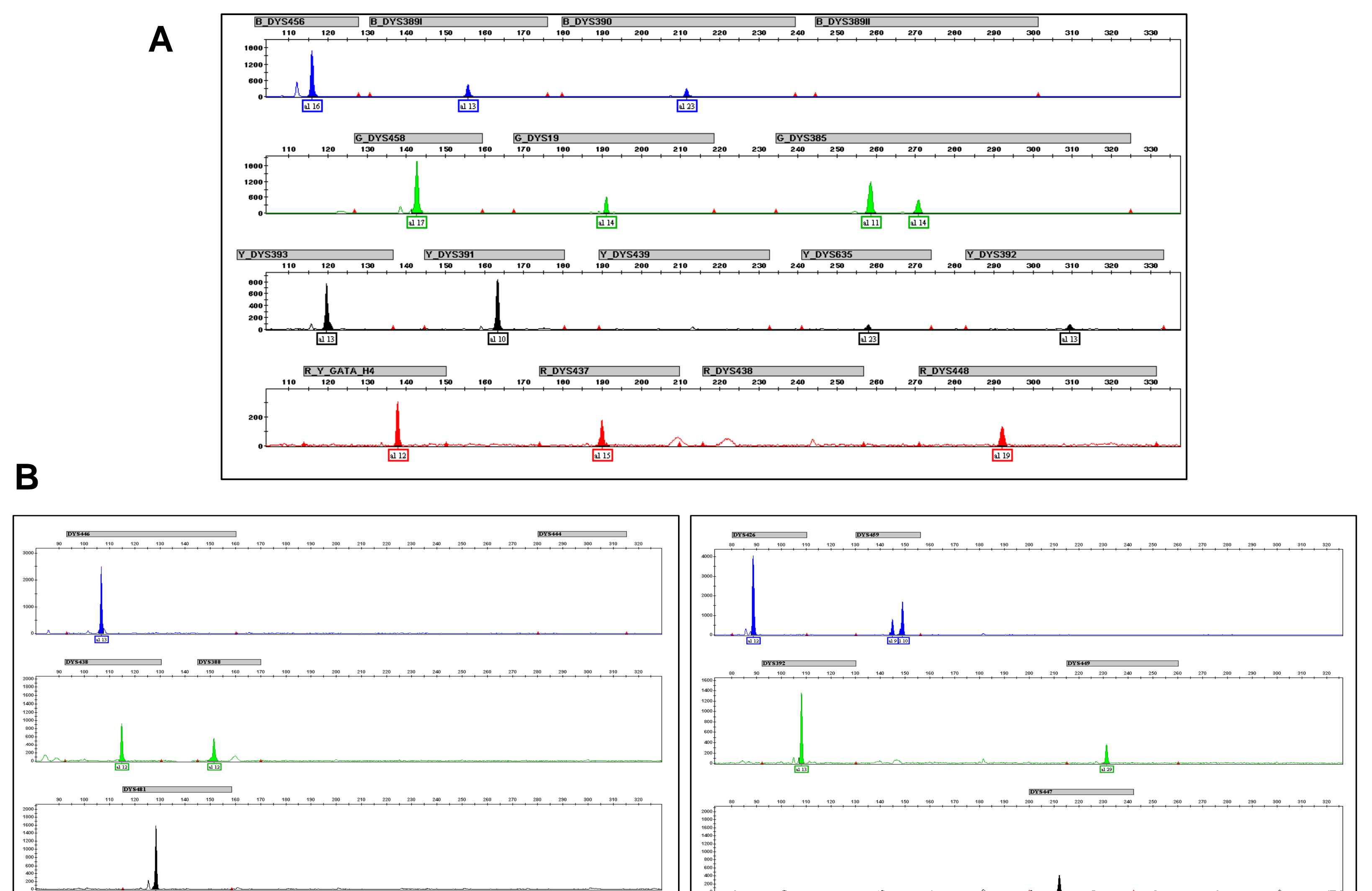


Figure 4. Scheme of DNA analysis.

Figure 6. Electropherograms of DNA typing results of the sample 244B using Y-filer amplification kit (A) and Y-miniplex I and Y-miniplex II (B). Peak labels represent alleles obtained; intensity of the peaks is expressed in relative fluorescent units.



A more detailed description
Vanek *et al.*: Kinship and Y-Chromosome Analysis of 7th Century Human Remains: Novel DNA Extraction and Typing Procedure for Ancient Material. *Croatian Medical Journal*, June 2009 (www.cmj.hr).

Acknowledgments

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